Peer problems of children with primary hemiplegia in mainstream schools

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Abstract

The study forms part of a longitudinal study of the psychopathological consequences of childhood hemiplegia. Impressions gained from an earlier study suggested that school life was problematic for many children with hemiplegia (index children) in mainstream primary schools. Previous measures were derived from the social world of the family; current measures relate to the social world of the school. Differences between index children and classroom controls were explored through sociometry, teacher interviews/questionnaires and parent questionnaires (index children only). Multivariate analyses included previous and current measures for index children and current measures for classroom controls.

Index children were found to be less popular, with fewer reciprocal friendships—they were also more victimised. No differences were obtained in background characteristics of the two groups, although victimisation was related to lower intelligence. Current peer problems for both groups were predicted by teacher measures of psychopathology. Even when background factors were allowed for, index children had fewer friendships and were less popular than controls.

Additional multivariate analyses of the index group found that difficulties in making friendships are likely to be greater if the child has a more severe neurological condition. Current measures, though correlated with previous predictors, added no further predictive power in terms of reciprocal friendships, popularity and victimisation but did predict current teacher and parent reported peer problems.
Table of Contents

ABSTRACT .............................................................................................................................................2

TABLE OF CONTENTS ........................................................................................................................2

LIST OF TABLES ...................................................................................................................................12

LIST OF FIGURES ................................................................................................................................15

LIST OF APPENDICES .......................................................................................................................16

ACKNOWLEDGEMENTS ..................................................................................................................17

DEDICATION........................................................................................................................................18

CHAPTER 1: INTRODUCTION ......................................................................................................19

1.1 WHAT IS CHILDHOOD HEMIPLEGIA? ....................................................................................19

1.2 WHY STUDY CHILDREN WITH HEMIPLEGIA? ..................................................................20

1.3 THE FIRST STUDY: AN OVERVIEW ......................................................................................21

1.3.1 Time 1: the sample ...............................................................................................................22

1.3.2 Time 1: the questionnaire survey .....................................................................................22

1.3.3 Time 1: the interview study ................................................................................................22

1.4 WHAT WAS LEARNED FROM TIME 1: THE THREE MAIN AIMS AND THE RESULTS. ..........23

1.4.1. To acquire a large and representative sample of children with hemiplegia in the Greater London Area .................................................................................................................23

1.4.2. To determine whether childhood hemiplegia carries a substantial risk of educational and psychiatric morbidity ......................................................................................................................24

1.4.3. The links between intelligence and psychiatric disorder ..................................................25

1.5 RATIONALE FOR THE PRESENT STUDY (TIME 2) ...............................................................25

3
1.6 Focus of the thesis .......................................................................................................................... 27
  
  1.6.1 Why examine peer relations? ..................................................................................................... 27
  
1.7 Outline of the thesis ....................................................................................................................... 29

CHAPTER 2: SOCIOMETRY AND PEER RELATIONSHIPS .......................................................................... 31

2.1 The basics of sociometry .................................................................................................................. 31

2.2 Methodology .................................................................................................................................. 33

2.3 Negative nominations ...................................................................................................................... 34

2.4 Ethics of sociometry ........................................................................................................................ 35

2.5 Reliability, stability and validity ..................................................................................................... 36

2.6 Peer rejection - which children are most at risk? .......................................................... 38
  
  2.6.1 Do sociometric techniques alone provide the answers? ............................................................... 42

2.7 Adjustment difficulties - cause or consequence of low peer acceptance? ............................... 43
  
  Figure 2.1 Causal model ..................................................................................................................... 43
  
  Figure 2.2 An incidental model ........................................................................................................... 44

2.8 Social competence and friendship .................................................................................................. 48

2.11 Sociometric status of children with disabilities in mainstream schools ...................................... 55
  
  2.11.1 The background to the literature ............................................................................................... 55
  
  2.11.2 Children with learning disabilities ............................................................................................ 57
  
  Table 2.1 Studies of friendships of children with LD included for comparison ............................. 57
  
  Figure 2.3: Reciprocal model of learning disabled children's peer relationships ......................... 63

2.11.3 Children with physical disabilities in mainstream schools ..................................................... 64

CHAPTER 3: VICTIMISATION ................................................................................................................. 71

3.1 The extent of the problem .............................................................................................................. 71

3.2 What differentiates bullies from their victims? ............................................................................. 73
CHAPTER 4: METHOD

4.1 BACKGROUND TO THE STUDY .................................................................................83
4.2 DESIGN ......................................................................................................................83

Table 4.1: A two stage investigation of the psychopathology of childhood hemiplegia.83
4.2.1 Time 1: A questionnaire survey of parents and teachers of children with hemiplegia. ....84
4.2.2 Subjects: index children .......................................................................................84
4.2.3 Time 1: An in-depth interview study of parents and children. ...............................84
4.2.4 Time 2: The current study. A school based study of children with hemiplegia. ........85
4.2.5 Criteria for inclusion in the study ..........................................................................85

4.3 SUBJECTS ...................................................................................................................86
4.3.1 The study sample .....................................................................................................86
4.3.2 Missing cases ..........................................................................................................87

Table 4.2 : Characteristics of index children .................................................................88
Table 4.3: WISCR characteristics of index children ......................................................88
Table 4.4 : Socio-economic group of index children at Time 1 .......................................88
4.3.3 Representativeness of the sample ............................................................................89
4.3.4 Subjects: Control children ......................................................................................89
Table 4.5 : Characteristics of control children ...............................................................90

4.4 MEASURES ...............................................................................................................90

Table 4.6 : List of measures and respondents at Time 1 and Time 2 .............................90
4.4.1 Questionnaire information from parents and teachers ...........................................91
4.4.2 Teacher Interviews: ..............................................................................................91
4.4.3 Headteacher interviews .........................................................................................93
4.4.4 Sociometry ............................................................94
4.4.5 Peer ratings:...............................................................96
4.4.6 Peer nominations:.........................................................97
4.4.7 Sociometric analyses ......................................................98

4.5 CHILD INTERVIEWS.......................................................99

4.5.1 Behavioural attributes....................................................99
4.5.2 Social skills .................................................................100
4.5.3 The stories.................................................................101
4.5.4 Teasing and Bullying.....................................................104

4.6 THE PILOT STUDY .......................................................104

4.6.1 Pilot Teacher Interviews................................................105
4.6.2 Pilot Child Interviews..................................................106

4.7 PROCEDURE ..............................................................107

4.8 PRELIMINARY ANALYSES...............................................109

4.8.1 Summary Variables ......................................................109
4.8.2 Victimisation ..............................................................109

   Table 4.7: Coding categories for victimisation.........................110

4.8.3 Friendships ..............................................................111

   Table 4.8: Coding categories for friendships.............................111
   Table 4.9: Worked example of friendship score .........................112

4.8.4 Reciprocal friendship score ............................................112

4.8.5 School ethos/effectiveness/adequacy ................................112

   Table 4.10: Coding categories for school ethos based on categories 1, 2 and 3 above ....115
   Table 4.11: Playground supervision .........................................115

4.8.6 Further summary variables ............................................116

4.8.7 Teacher judged global adjustment measure (GAM1 and GAM2) ....................116
4.8.8 Teacher rated peer problems ...........................................116
4.8.9 Parent view of child adjustment .......................................117
4.8.10 Parent view of peer problems .................................................................117
4.8.11 Teacher rated total deviance score (TIVTOT) .......................................117
4.8.12 Teacher estimated IQ ...........................................................................118
4.8.13 Summary of variables used in analyses ..................................................118
Table 4.12: Dependent (outcome) variables ......................................................119
Table 4.13: Independent variables (Time 1) .....................................................120
Table 4.14: Independent variables (Time 2) .....................................................121

4.9 STATISTICAL ANALYSES ........................................................................122
Table 4.15: Analysis plan ................................................................................122

4.9.1 Analyses used in the study ......................................................................122

CHAPTER 5: RESULTS .....................................................................................124

5.1 HYPOTHESES .........................................................................................124

5.2 TESTING HYPOTHESIS 1: DO INDEX CHILDREN HAVE WORSE PEER RELATIONSHIPS? .................................................................125
Table 5.1: Comparisons of sociometric status of index and control children (n=53) ....125
5.2.1 Sociometry .............................................................................................125
5.2.2 Peer ratings: whom children choose to play with in the playground ..............126
Figure 5.1: Peer relationships of index and control children ..................................127
5.2.3 Peer nominations: children’s preferred friends ...........................................127
Figure 5.2: Peer nominations categories of index and control children ...................129
5.2.4 Neglected and rejected children ..............................................................129

5.3 FRIENDSHIP ............................................................................................130
5.3.1 Friendship score ....................................................................................130
Table 5.2: Comparison of main outcome measures between index and control children
Group means (SD), matched pairs analysis (Wilcoxon) .........................................130
Figure 5.3: Friendship scores: index vs. controls ...............................................131
5.3.2 Reciprocated friendships ........................................................................131
Figure 5.4: Reciprocated friendships ................................................................. 132

5.4 Teacher rated peer relationships ................................................................. 132

5.5 Being victimised ......................................................................................... 133

Figure 5.5: Comparison of victimisation ratings of index and control children .... 133

5.6 Post hoc analyses: related to hypothesis 1 .................................................. 134

5.6.1 Sociometric status: peer nominations, neglected vs. rejected children .... 134

Table 5.3: Neglected worried index and control children ............................... 134
Table 5.4: Rejected worried index and control children ................................. 135
Table 5.5: Neglected solitary index and control children ............................... 135
Table 5.6: Rejected solitary index and control children ................................. 135

5.6.2 Unpopular children (neglected and rejected combined) ......................... 135

Table 5.7: Unpopular worried children ............................................................ 135
Table 5.8: Unpopular solitary children ............................................................ 136

5.6.3 Victimising others ................................................................................... 136

Table 5.9: Incidence of bullying amongst unpopular index and control children ... 136

5.7 Summary and support for hypothesis 1 ...................................................... 137

Table 5.10: Do index children fare worse than classroom controls?
Support for hypothesis 1 ................................................................................ 138

5.8 Testing hypothesis 2: Do adjustment and intelligence account for gp differences? 139

Table 5.11: Group differences: in teacher deviance scores, adjustment measures and estimated IQ ................................................................. 139

5.8.1 Combined teacher interview based total deviance score (TIVTOT) ......... 139

5.8.2 Global adjustment unidimensional score (GAM2) .................................. 140

5.9 IQ measures .............................................................................................. 140

5.9.1 Teacher estimated IQ measures ............................................................. 140

Table 5.12: Within group differences in popularity/unpopularity
with teacher estimated IQ .............................................................................. 141

5.9.2 Teacher estimated IQ and teacher judged peer problems ...................... 141

5.9.3 Teacher estimated IQ and victimisation .................................................. 141
Table 5.13: Bivariate correlations of victimisation with teacher estimated IQ.

Figure 5.6: Victimisation vs. teacher estimated IQ.

5.10 Post-hoc analyses: supporting hypothesis 2.

5.10.1 Victimisation - teachers’ explanations.

Table 5.14: Teachers’ explanations for victimisation, percentage of children to which it applies.

5.11.1 Multivariate analyses: contemporaneous measures for index and control children.

Table 5.15: Means and SD of dependent variables at Time 2 (index and control children).

Table 5.16: Means and SD of independent variables (index child, Time 2).

Table 5.17: Means and SD of independent variables (control child, Time 2).

5.11.2 Multiple regression analysis: index and control children.

Table 5.18: Index child: bivariate correlations of outcome variables with concurrently measured predictor variables.

5.11.3 Results of multiple regression analyses: index children.

Table 5.19: Control child: bivariate correlations of outcome variables with concurrently measured predictor variables.

Table 5.20: Significant predictors of outcome at Time 2 (index child).

5.11.4 Results of multiple regression analyses: control children.

Table 5.21: Significant predictors of outcome at Time 2 (control child).

5.11.5 Multivariate analyses: index and controls combined.

Table 5.22: Means and SD of independent variables (index and control children combined, n=110, Time 2).

5.11.6 Multiple regression analyses.

Table 5.23: Index and control children combined: bivariate correlations of concurrently measured predictor variables.

Table 5.24: Significant predictors of outcome at Time 2 (index and control combined).

5.11.7 Results of multiple regression analyses: index and controls combined.

5.12 SUMMARY OF BETWEEN GROUP DIFFERENCES: SUPPORT FOR HYPOTHESIS 2.
Table 5.25: Results of between group differences, support for hypothesis 2

5.12.1 Index vs control children: a comparison

Figure 5.7: Scattergraph of peer play rating score by teacher deviance score
Figure 5.8: Scattergraph of peer preference score by teacher deviance score
Figure 5.9: Scattergraph of peer play rating score by teacher adjustment score
Figure 5.10: Scatter graph of peer preference score by teacher adjustment score
Figure 5.11: Scattergraph of positive nominations by teacher adjustment score
Figure 5.12: Scattergraph of negative nominations by teacher adjustment score
Figure 5.13: Scattergraph of positive nominations by teacher deviance score
Figure 5.14: Scattergraph of negative nominations by teacher deviance score

5.13 Testing hypothesis 3: Do previously and contemporaneously measured factors independently predict the peer level of problems of children with hemiplegia?

5.13.1 Multivariate analyses: index child

Table 5.26: Means and SD of dependent variables (index child)
Table 5.27: Means and SD of independent variables (index children, Time 1)
Table 5.28: Means and SD of independent variables (index children Time 2)

5.13.2 Multiple regression analyses: index child

Table 5.29: Index child: bivariate correlations of outcome variables with previously measured predictor variables
Table 5.30: Significant predictors of outcome at Time 1 and Time 2

5.13.4 Summary of multivariate analyses: support for hypothesis 3

CHAPTER 6: DISCUSSION

6.1 The main aims of the study

6.1.1 Exploring the social world of the school

6.1.2 Sociometry

6.2 Peer ratings — who plays with whom in the playground

6.3 Peer nominations — whom children choose as their friends
List of tables

Table 2.1 Studies of friendships of children with LD included for comparison ..........57
Table 4.1: A two stage investigation of the psychopathology of childhood hemiplegia ...............................................................................................................................83
Table 4.2 : Characteristics of index children .............................................................................................................................................................................................................88
Table 4.3: WISCR characteristics of index children .............................................................................................................................................................................................................88
Table 4.4 : Socio-economic group of index children at Time 1 ..................................................88
Table 4.5 : Characteristics of control children .........................................................................90
Table 4.6 : List of measures and respondents at Time 1 and Time 2 .........................................90
Table 4.7: Coding categories for victimisation ........................................................................110
Table 4.8: Coding categories for friendships ..........................................................................111
Table 4.9: Worked example of friendship score .....................................................................112
Table 4.10: Coding categories for school ethos based on categories 1, 2 and 3 ......................115
Table 4.11: Playground supervision .......................................................................................115
Table 4.12: Dependent (outcome ) variables .........................................................................119
Table 4.13: Independent variables (Time 1) ..........................................................................120
Table 4.14: Independent variables (Time 2) ..........................................................................121
Table 4.15: Analysis plan .......................................................................................................122
Table 5.1: Comparisons of sociometric status of index & control children .......................125
Table 5.2: Comparison of main outcome measures between index and control children Group means (SD), matched pairs analysis (Wilcoxon) .................................................................................................................................130
Table 5.3: Neglected worried index and control children ........................................................134
Table 5.4: Rejected worried index and control children ..........................................................135
Table 5.5: Neglected solitary index and control children .........................................................135
Table 5.6: Rejected solitary index and control children ..........................................................135
Table 5.7: Unpopular worried children ...................................................................................135
Table 5.28: Index child: bivariate correlations of outcome variables with previously measured predictor variables .................................................................161

Table 5.29: Means and SD of independent variables (index children Time 2) ..........162

Table 5.30: Significant predictors of outcome at Time 1 and Time 2 ......................163
List of figures

Figure 2.1: Causal model .......................................................................................................43
Figure 2.2: An incidental model............................................................................................44
Figure 2.3: Reciprocal model of learning disabled children’s peer relationships ..........63
Figure 5.1: Peer relationships of index and control children............................................127
Figure 5.2: Peer nominations categories of index and control children .........................129
Figure 5.3: Friendship scores: index vs. controls...............................................................131
Figure 5.4: Reciprocated friendships ..................................................................................132
Figure 5.5: Comparison of victimisation ratings of index and control children ..........133
Figure 5.6: Victimisation vs. teacher estimated IQ .............................................................142
Figure 5.7: Scattergraph of peer play rating score by teacher deviance score ..............155
Figure 5.8: Scattergraph of peer preference score by teacher deviance score ..............155
Figure 5.9: Scattergraph of peer play rating score by teacher adjustment score ..........156
Figure 5.10: Scattergraph of peer preference score by teacher adjustment score ..........156
Figure 5.11: Scattergraph of positive nominations by teacher adjustment score .........157
Figure 5.12: Scattergraph of negative nominations by teacher adjustment score .........157
Figure 5.13: Scattergraph of positive nominations by teacher deviance score ..........158
Figure 5.14: Scattergraph of negative nominations by teacher deviance score ..........158
Figure 6.1: The peer nominations of index children rated by their peers as unpopular playmates ........................................................................................................175
Figure 6.2: The peer nominations of control children rated by their peers as unpopular playmates ........................................................................................................176
Figure 6.3: Psychopathological outcome: a hypothetical model of two-way causation .........................................................................................................................194
List of appendices

1. Letter to parents................................................................. 226
2. Consent form..................................................................... 227
3. Letter to headteachers.................................................... 228
4. Letter to school confirming data collection visit.............. 229
5. ‘Opt out’ letter to all parents........................................... 230
6. Teacher Questionnaire..................................................... 231
7. Parent Questionnaire....................................................... 236
8. Teacher interview schedule............................................. 243
9. Headteacher interview schedule..................................... 265
10. Peer rating schedule....................................................... 270
11. Peer nomination schedule.............................................. 271
12. Social skills schedule..................................................... 273
13. Teasing and bullying schedule....................................... 275
14. Victimization coding schedule....................................... 276

Published papers:
Goodman, R. and Yude, C. 1996a
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For Alex

who began my interest in hemiplegia and changed my attitudes towards disability
Chapter 1: Introduction

1.1 What is childhood hemiplegia?

Childhood hemiplegia is one of the commonest forms of cerebral palsy, affecting up to 1:1000 children. Hemiplegia is a weakness or stiffness affecting one side of the body and is the result of damage to the contra-lateral hemisphere. Thus children with damage to the left hemisphere will be affected on the right side of their body, i.e. a right hemiplegia, and vice versa. It can occur before or around the time of birth, when it is known as a congenital hemiplegia, or later, as a result of illness or accident, in which case it is called an acquired hemiplegia. Since hemiplegia generally results in less severe physical disability than other forms of cerebral palsy, children with hemiplegia tend to attract little attention from medical, therapeutic and educational support services.

The child may have little use of one hand, may limp or have poor balance. In most cases the arm and hand is more affected than the leg. The physical weakness or stiffness may be very obvious, or so slight that it only shows when the child is attempting specific activities, such as hopping or skilled bimanual tasks. Children with hemiplegia tend to ignore their weaker side, particularly if the motor weakness is compounded by some degree of sensory loss. They need constant encouragement to become as “two-sided” as possible. Many children and young people have additional difficulties, such as visual defects, perceptual problems, specific learning difficulties and emotional or behavioural problems. These problems can be more frustrating and disabling than their physical disability. Despite their difficulties, most children with
hemiplegia in the UK attend mainstream schools (Goodman and Yude 1996b). Children with hemiplegia in mainstream primary schools frequently receive practical help from classroom based non-teaching assistants. However, therapeutic intervention (physiotherapy or speech therapy) is a less frequent occurrence in mainstream settings than in special schools or units.

1.2 Why study children with hemiplegia?

Essentially hemiplegia is considered to be a mild problem, despite the findings of Rutter, Graham and Yule (1970) who reported that psychiatric problems were far greater than expected in this group of children. The population study, of which this thesis forms part, is the largest, most thorough epidemiological study of childhood hemiplegia yet undertaken. The broad remit of the longitudinal study is to shed light on the causes and consequences of childhood hemiplegia.

The first stage of the population study used specially designed questionnaires to gather medical background, current service provision, schooling and academic attainments, emotional and behavioural development and impact on the family. Teacher questionnaires were used to obtain further information on attainments, behaviour and emotional development.

In addition, for a selected sub-sample, information was obtained from one or both parents through semi-structured interviews and children were seen individually for neuropsychological, neurological and psychiatric assessments.
In this second stage the focus has been on school life and peer relationships through information sought directly from schools through questionnaires and semi structured interviews with teachers. According to Hartup (1983), the social worlds of the family, the classroom and the playground are overlapping but distinctive.

The earlier stage of the study had focused mainly on parental perceptions and family life; the second stage focuses on the classroom and playground in order to complement this information and produce a more rounded picture of the child. The focus for this thesis is the social relationships of children with hemiplegia, with a particular emphasis on victimisation. The research team for all stages of the study comprised a paediatric neuropsychiatrist (Dr Robert Goodman) and a research psychologist (the author).

1.3 The first study: an overview

Time 1

- Recruiting the sample
- Obtaining consent from parents
- Questionnaires sent to parents and teachers
- Parents of children aged between 6 years and 10 years 11 months approached for consent and subsequently interviewed
- Children assessed psychometrically and examined to assess neurological state and psychiatric status
1.3.1 Time 1: the sample

Children with hemiplegia were recruited into the study from multiple sources, including hospital and community paediatricians, hospital and community physiotherapists, paediatric neurologists, orthopaedic surgeons, neurosurgeons, special schools and voluntary agencies. Families were approached by their own doctors and information was collected only on those families where a consent form was returned directly to the research team.

1.3.2 Time 1: the questionnaire survey

Parents were asked to complete a modified version of the Rutter parent questionnaire (Goodman 1994) and teachers completed the Rutter B2 questionnaire (Rutter 1967) with the addition of 20 items from the Pro-Social questionnaire (Weir and Duveen 1981).

1.3.3 Time 1: the interview study

Parents of children between the ages of 6 years and 10 years 11 months were approached once consent was obtained and asked if they would agree to be interviewed by the author. Following the parental interview, a psychometric assessment of the child was carried out by the author. The child was also examined by Dr Goodman to assess neurological state and psychiatric status.
1.4 What was learned from Time 1: the three main aims and the results.

1.4.1. To acquire a large and representative sample of children with hemiplegia in the Greater London Area.

A total of 463 children were recruited, slightly fewer than anticipated, partly as a result of geographical variations in ascertainment rates across the London Health Authorities and Boroughs. The representativeness of the sample was checked in two ways. Firstly, two Boroughs, one inner and one outer London, were searched particularly thoroughly (by the author). All health professionals in the two boroughs were asked to recirculate a letter about the study based on their current registers of children with hemiplegia. They were also asked to tell any parent with whom they were in contact, about the study and ask if they would allow the author to visit. Parents who had returned a consent form, but not a completed questionnaire were visited and the questionnaire completed with the help of the author. The characteristics of the "routinely ascertained" and "hard to ascertain" children did not differ significantly. As a second check on representativeness, the characteristics of children from high and low ascertainment areas of London were compared. Once again there were no significant differences. Finally, a comparison of the sample's demographic, neurological and cognitive characteristics with those of previous epidemiological samples of hemiplegic children also suggested the sample was representative (Goodman and Yude 1996a).
1.4.2. To determine whether childhood hemiplegia carries a substantial risk of educational and psychiatric morbidity

The majority of children in the sample (66%) attended mainstream schools, were of normal intelligence and had a minor physical disability. The analyses of the first study have shown that childhood hemiplegia is associated with a high rate of educational and psychiatric problems. The main psychiatric outcome measures were ratings of psychiatric disorder (caseness), dimensional measures of emotional symptoms, conduct problems and hyperactivity. These outcome measures were derived from all the information gathered from the sources set out above. A vignette of each child was produced bringing together this information and each child was discussed in depth by the research team. A rating of the presence or absence of psychiatric disorder (caseness) was based on strict coding criteria developed by the research team (Goodman, Yude, Richards and Taylor, 1996). Sixty one percent of the children (n=149) were found to meet criteria for psychiatric caseness by the research team. The vignettes were subsequently re-rated by an independent child psychiatrist using the same coding protocol. Agreement was high and 57% of the children, rated by the independent rater, were considered to meet criteria. These findings supported the initial hypothesis that hemiplegia is associated with a high rate of clinically relevant emotional and behavioural disorder (Goodman and Graham, 1996).
1.4.3. The links between intelligence and psychiatric disorder

Intelligence was assessed by the Wechsler intelligence scales (WISCR Wechsler 1974). After excluding the 30% of children with mild or severe learning difficulties, the remaining children in the sample had a mean verbal IQ of 101 and a mean performance IQ of 85, demonstrating a marked verbal-performance discrepancy (Goodman and Yude 1996b). This deficit in visuospatial reasoning was apparent not only in timed tasks requiring two-handed physical dexterity but also in tasks that required the child to respond by pointing a finger with their 'good hand'. Verbal function was spared, regardless of side of lesion, and the discrepancy between verbal and visuospatial skills was greater in children with some bi-lateral involvement and among children from socially advantaged backgrounds. Eighty per cent of the children with an IQ between 50-70 had psychiatric disorders compared with 30% of the children with IQs over 100. These rates are higher than those found in neurologically intact children with comparable IQs. Goodman and Graham (1996) suggest that the high rates of disorder found in childhood hemiplegia should not be attributed to a low IQ per se: instead, IQ should be seen primarily as a marker for the extent of cerebral (and particularly cortical) damage.

1.5 Rationale for the present study (Time 2)

The preliminary findings of the first stage of the study informed the rationale for the present study since over half the children included at Time 1 were found to have emotional and behavioural problems (Goodman and Graham, 1996) which was in line
with earlier studies by Rutter, Graham and Yule (1970). However, the first stage of the study provided only a limited and mostly indirect measure of social life and peer relationships as the investigation focused on the social world of the family. Although the children had volunteered information about friendship and victimisation at school in their individual interviews, this was not corroborated by systematic investigation of the social world of the school. Much less information was available on emotional, conduct and attentional problems at school than at home. Despite these undeniable methodological limitations, the impression gained from all sources (parents, teachers and the children themselves) was that school life in mainstream schools was a struggle for many children with hemiplegia. Unpopularity and victimisation appeared to be both common and severe and it seemed plausible that these peer problems were important consequences of the children’s high rate of emotional and behavioural difficulties.

The present study focuses on a sample of 55 children with hemiplegia in mainstream schools. It excluded almost a third of the children — that is those who had an IQ below 60, attended special schools and had higher levels of disability than those in mainstream schools. Clinically this latter group does bear further investigation, although different measures would need to be developed. This study, in common with other studies, was time limited in terms of data collection and of necessity some measures and groups are included or excluded at some cost.
Children in special schools are not included in this study because:

1. They are a more heterogeneous group and therefore produce smaller cell sizes.
2. They have more impairments and associated problems.
3. IQ at or below 60 places children in a variety of positions relative to the ability of their classmates, whereas the picture in mainstream school is more consistent across the group.

There is no doubt that children in special schools may experience problems in peer relationships in a similar way to children in mainstream schools. However, comparisons and trends cannot be measured as straightforwardly as can be done with children in mainstream schools.

1.6 Focus of the thesis

1.6.1 Why examine peer relations?

There has been an increase in studies concerning peer relationships in the last decade with most of the research emanating from the USA. More recently, UK researchers have become interested in peer relationships, particularly in relation to victimisation and bullying. There is a growing literature on the severe and lasting consequences of poor peer relationships (Asher & Coie 1990, Erwin 1993), but very little research directly related to children with a physical disability, in particular those in mainstream schools. The social problems experienced by these children is the focus of this thesis,
since peer relationships at school are one of the key foundations upon which all future social relationships are based (Hartup, 1983).

From Time 1, evidence from parents suggested that difficulties with peers, social isolation and victimisation were on-going problems for many children. Limited supporting evidence was also available from teacher reports and child interviews. Additional evidence from Time 1 suggested that many children had become clinically depressed as a result of victimisation, although it was unclear whether this was related to their physical disability, learning problems or behaviour problems. Although many children disclosed victimisation during interview, few reported that they had told either their parents or teachers. Many children were unwilling to attribute a cause initially, although gentle probing suggested that victimisation and peer problems were commonly related to the child’s physical and learning problems.

For example:-

"They make fun of the way I run"

"No-one wants to sit next to me, they say my arm gets in the way"

"Nobody likes me much because I have funny turns [seizures]"

"They laugh at me because I always give the wrong answer in class"

The experience of victimisation is a real problem for many children, disabled or not. However, the evidence as described here suggested that the psychological consequences of coping with a mild disability in a mainstream setting, in addition to actual or perceived victimisation, was stressful for many of them. The quantitative and qualitative evidence obtained from the previous stages of the study suggests that problems with peers may be important consequences of psychiatric disorder. As such
an in-depth study of children with hemiplegia in mainstream schools provides an important opportunity to learn more about the problems they face. The children in this sample have a relatively mild disability compared to other forms of cerebral palsy, making it easier to compare them directly with able-bodied children. Nonetheless, even with a relatively mild physical disability, such as hemiplegia, life can be a struggle in an able-bodied world. Considerable effort must be expended physically to achieve the same end result as an able-bodied classmate.

Whilst children with hemiplegia are usually included in school activities, the marginalisation can be subtle, as exemplified by the following anecdote, reported by one boy:

"I always play football at playtime, but when they choose the team for the league they never choose me because I cannot run fast enough".

Given that school occupies a substantial part of a child's time, and since peer relationships form the basis of all future social relationships, a window into the social world of the school would seem to be an important area for further investigation and it is the focus of this study.

1.7 Outline of the thesis

Chapter 2: reviews the literature relating to sociometry, the measure used most frequently to explore the peer relationships of children and adolescents, in terms of methodology and ethical considerations. The outcome of low peer acceptance is discussed in relation to peer rejection and later adjustment difficulties. Social competence and its bearing on successful peer relationships are also discussed. The
Chapter concludes with a review of the literature relating to children with learning and physical disabilities in mainstream schools.

Chapter 3: reviews the literature relating to the victimisation of children in mainstream schools and concludes with the specific experiences of children with special needs in mainstream schools.

Chapter 4: sets out the design and methodology of the present study.

Chapter 5: presents the results of the between groups analyses followed by the multivariate analyses.

Chapter 6: discusses the results of the study, followed by the limitations of the present study and implications for future research.
Chapter 2: Sociometry and peer relationships

2.1 The basics of sociometry

Sociometry, a technique originating in the USA, provides one of the most reliable and useful methods of finding out about a child’s popularity or peer acceptance — ‘is the child liked’ — and also about children with problem behaviours who might be at risk for later adjustment difficulties — ‘what is the child like’. These two distinctions following Parker and Asher (1987) are helpful when reviewing the considerable ‘at risk’ research literature. The two ways of looking at these children in terms of their peer popularity and the way that they behave are, according to Ollendick, Greene, Francis and Baum (1991), “neither synonymous nor interchangeable” (p.526), although the two measures are likely to provide some overlap (Parker and Asher 1987).

It can be argued that the way that children behave (what they are like) does influence the way that peers accept them (are they liked?). Given that correlations between acceptance levels and behaviour are fairly low (Dodge, 1983; Hartup, 1983; Putallaz and Gottman, 1981), and dependent on age, setting and the group history including other non-behavioural characteristics, at best, studies measuring behavioural characteristics can only suggest a child’s level of acceptance. Yet despite the criticisms of what is actually being measured, and the need for cautious interpretation, sociometry can provide a window into the social pecking order which operates in schools just as it does in any other social world. Different perspectives can be obtained from teacher and peer based assessments, with the latter generally reported.
to be more useful. Previous research suggests that peer relationships are particularly sensitive cues to a child's social skills. Sociometric status can predict those children who may be at risk for later maladjustment and also has an additional value as a screening instrument in clinical settings (Asher, 1990).

The early 1980's also saw the beginning of an interest in children's friendships which began to pull together theoretical and empirical research (Asher and Gottman, 1981), whereas current research interests are more concerned with the features, antecedents and consequences of friendship (Bukowski, Newcombe and Hartup, 1996). Early friendship patterns are considered to be important factors for later life and according to Hartup (1983), peer relationships are important mediators in the development of later psychosocial adjustment. Similarly, the role of dysfunctional peer relationships has been shown to be an important factor in the aetiology of developmental psychopathology (Sroufe and Rutter 1984; Parker and Asher 1987; Rutter, 1989; Kupersmidt and Coie 1990; Kupersmidt, Coie and Dodge 1990).

This is perhaps of greater relevance in the 1990's than in previous decades. Smaller families mean fewer opportunities for sibling interactions, which are the antecedents of the child's future peer interactions outside the home. More parents in the 1990's work outside the home, consequently children are more likely to be placed in nurseries or day care provision at an early age. Furthermore, children who spend a considerable amount of their waking hours outside the family, may need to develop their social and friendship skills rather earlier than the child who remains at home until the start of formal schooling (Asher, 1990; Williams and Gilmour, 1994).

2.2 Methodology

Sociometric measurement techniques for assessing children's social status have several variants with a major distinction to separate them - i.e. whether they are based on peer ratings - a uni-dimensional model or peer nominations - a two dimensional model (see
The peer rating method, allows every child to rate each of their classmates in terms of how much they like to play or work with them (Singleton and Asher, 1977; Asher and Hymel, 1981; Ladd, 1983). The scores are transformed into mean play rating scores for each child and used to determine the child's social status: popular, unpopular, average and other within the class.

In contrast, the peer nomination method allows children to nominate the three children they like to play with the most and the three children they like to play with the least. The positive and negative nominations are then totalled for each child and can be used to determine peer status directly (Newcombe and Bukowski, 1983) or combined to provide a social preference score (like most minus like least scores) and social impact (like most plus like least scores) which are then used to determine peer status (Coie, Dodge and Coppotelli, 1982). Both peer nomination methods described here classify children into six status groups: popular, rejected, neglected, controversial, average and other. Sociometric scores derived from either the peer nomination or peer rating method can be re-standardised to allow comparisons to be made across year groups or schools, depending on the purpose of the study.

2.3 Negative nominations

Some researchers (Roffe, Sells and Golden, 1972: Asher and Dodge, 1986; Ollendick, Greene, Francis and Baum, 1991)) have expressed reservations about the use of sociometry. These doubts relate to the use of negative nominations and the effects these might have on inter-personal relationships within the classroom. This led to the
development of an alternative method whereby children could be identified without
the use of negative nominations (Asher and Dodge, 1986). The construct validity and
long-term stability of the revised method re-examined by Ollendick, Greene, Francis
and Baum (1991) concluded that the revised method without negative nominations has
validity for identifying rejected status, but it does not reliably or validly differentiate a
group of neglected children that is significantly different from a group of averagely
popular children. Even though both methods identify unpopular children, the peer
rating method is thought to be less useful in the identification of neglected children
(Asher and Dodge, 1986; Ollendick, Weist, Borden and Greene, 1992).

2.4 Ethics of sociometry

The ethics of sociometry, in particular asking children to make negative nominations
about their classmates is a controversial issue (Asher and Hymel, 1981; Hayvren and
Hymel, 1984; Ollendick, Weist, Borden and Greene, 1992). Hayvren and Hymel
(1984), in discussing the ethics of sociometry, note that;

"sociometric measures provide an evaluation of the children’s social relations
from the perspective of the peers themselves rather than relying on the adult
sources of information “(p. 844).

In their view these ethical doubts are related to an adult understanding of the inter-
personal effects of asking children to make negative comments about their peers. An
observational study combined with the peer nomination method (Hayvren and
Hymel, 1984) found that children did not alter the patterns of behaviour observed
prior to the sociometric exercise, nor did it lead to negative behaviour towards their
least preferred peers. In the Hayvren and Hymel (1984) study children were not asked to keep their choices confidential, although the authors report that only positive or neutral comments were made by the children following the sociometric exercise. Perhaps a final comment in mitigation of the use of negative nominations is that rejected children may suffer more in their day to day lives than taking part in sociometry using negative nominations (Hayvren and Hymel, 1984).

Many of the doubts about the repercussions of sociometry can be addressed by attention to the protocol required to achieve a meaningful sample for investigation. Bell-Dolan, and Wessler (1994) recommend individual administration of sociometric questionnaires, although this is costly in research terms. They consider it to be important for parents to be asked for their consent, for children to be given a free choice about taking part, with confidentiality assured and an opportunity to talk to an adult following the procedure if this is required.

2.5 Reliability, stability and validity

Williams and Gilmour (1994), reviewing the reliability and stability of sociometric status, comment that;

"reliability may be very good although stability is low" commenting that "the arrival of a new member in the class may have an impact on pre-existing relationships" (p.1000).

Following this argument, even if sociometry alone is a reliable measure of sociometric status, the stability of classification can be subject to contextual changes; except for
rejected status which is, according to the literature, the most stable over time (Coie et al 1982; Coie and Dodge, 1983). In the main researchers have obtained moderate to low stability over time (Asher and Dodge, 1986; Ollendick et al, 1991) but there is general agreement that although rejected children remain rejected, neglected children are more likely to shift status over time. This trend is reported by the majority of researchers in this field, except for Gresham and Stuart (1992) who reported an opposing trend in their study with neglected children found to be more stable than rejected children over a 12 month period. Nevertheless, the general view is that although there may be shifts in sociometric status over time, children are perceived in more or less the same terms by their peers when the social context — for example the classroom — is relatively stable. Therefore, studies which claim test-retest reliability of sociometric status are in reality testing the stability of sociometric status over time (Williams and Gilmour, 1994). According to Ollendick et al (1991) children rarely make material changes without intervention and therefore it might be expected that the average classroom would be relatively stable, with children classified by their peers in the same sociometric categories from year to year. Thus movement between status groups, if it occurred without intervention, would be observed at the extreme edges of each classification group.

Other researchers have commented that sociometric status could be validated with an additional observational component and several studies have included this measure to confirm or refute sociometric status. (Asher and Hymel, 1981; Putallaz and Gottman, 1981; Hayvren and Hymel, 1984). According to Asher and Hymel (1981), failure to obtain a strong relationship between observed behaviour and social status may have more to do with the characteristics that mediate behaviour. For example, younger children are influenced in their friendship choices by factors that differ from those of
older children. Putallaz and Gottman (1981), criticising earlier observational studies for measuring interaction rates only, included sequential patterns of behaviour in combination with measures of popularity. The combination of the two measures concluded that the manner in which children entered a group — i.e. whether they were agreeable or disagreeable — did influence their peer acceptance. Yet despite the variations in classification criteria, method and some confusion about descriptive terms, e.g. 'reliability' in one study (Coie et al, 1982) becomes 'stability' in another (Asher and Dodge, 1986) — sociometry, even without the validation of additional observational measures, remains a useful technique to examine the current state of peer relationships within the classroom.

2.6 Peer rejection - which children are most at risk?

Children who are rejected by their peers are thought to be most at risk for later adjustment difficulties, particularly in adolescence (Parker and Asher, 1987; Kupersmidt and Coie, 1990; Kupersmidt, Coie and Dodge, 1990). Three main outcomes seem to predominate: delinquency, leaving school early, and adult psychopathology (see Parker and Asher, 1987 for a review of children thought to be at risk). Almost twenty years separate a follow-back study by Cowan et al (1973), and a comparative review of follow-up and follow-back studies by Cillessen, van IJzendorp van Lieshout and Hartup (1992), with both studies reporting that adults with psychopathological problems had histories of poor peer relationships in childhood. According to their peers, rejected children are described as aggressive, impulsive, dishonest, disruptive, non co-operative and sometimes hypersensitive. These are children who often experience poor peer relationships during their middle childhood.
and later adolescence. Low acceptance and aggressive behaviour have also been found to predict delinquent behaviour (Parker and Asher, 1987; Kupersmidt and Coie, 1990). But it should be noted that aggressive behaviour can vary with increasing maturation — what is described as rough play in the nursery class can become severe aggression or physical harm at secondary school (Williams and Gilmour, 1994).

Despite the role of aggression as the most frequent correlate of low acceptance, not all aggressive or disruptive children are rejected by their peers, nor are rejected children a homogeneous group.

Rubin, LeMare and Lollis (1990) identify two types of rejected children, those with externalising problems, e.g. aggression and disruption, and those who have more internalising problems, e.g. socially withdrawn or isolated with low self-esteem. Rubin et al (1990) describe these two sub-types of rejected children as rejected aggressive children, similar to those described thus far, or as rejected submissive children. The second group, who represent approximately 10-20% of all rejected children, are children who do not ‘act out’ but are socially unassertive and withdrawn. They interact infrequently with their peers, and when they do are highly deferential in their overtures. The authors argue that these children are ‘easy targets’ who may not be rejected when very young, but may become rejected by their peers as they get older. They note that very young children are not necessarily aggressive and peer rejection at this age might be associated with any number of behaviours, rather than the more externalising behaviours observed in older children.

According to Olweus (1978) it is rejected submissive children (following Rubin et al’s definition) who become victims of bullying and are at greater risk for later depression or poor self-esteem. [Although Olweus did not use negative nominations in his
studies he did note that children who are victimised frequently receive fewer positive nominations]. Perry, Kusel and Perry (1988) also found that children who were victimised frequently were rejected and further hypothesised that rejected submissive children were more likely to be victimised than rejected aggressive children. However, Boivin, Thomassin and Alain (1989) found that both groups of rejected children were unable to take teasing, with rejected submissive children described by their peers as oversensitive - which supports the notion of these children being 'easy targets'. Parkhurst and Asher (1992) following Rubin et al (1990) also identified two rejected subtypes — aggressive or submissive children — but found that it was poor pro-social skills combined with either aggression or submission that was associated with peer rejection. They concur with Rubin et al's (1990) view that rejected submissive children are the most lonely and worried about relationships but found that rejected aggressive children differed little from average children in their perceptions of their peer relationships.

The literature concentrates on the outcome for rejected children with rather less attention directed to the outcome for neglected children (French and Waas, 1985; Parker and Asher, 1987; Rubin et al, 1990; Kupersmidt and Coie, 1990; Ollendick et al, 1991,1992). Evidence from the literature suggests that neglected unpopular children differ little from average or popular children in behavioural characteristics (Coie and Dodge, 1988) and, according to the general view among researchers interested in peer relationships, are the group most likely to shift in sociometric classification terms over time. Because rejection often leads to pain and loneliness, more recent research has considered the utility of separating out the subjective experience of rejected and neglected children. This has led to studies that explore children's self perceptions about their relationships with their parents and their friends (Patterson, Kupersmidt
and Greisler, 1990), and interpersonal concerns (Gottman, 1977a). Rejected-submissive children were found to be more worried about loneliness, or being humiliating and rejected than rejected-aggressive children (Parkhurst and Asher, 1992), but neglected children were not found to be particularly lonely (Asher and Wheeler, 1985) and did become accepted in new peer groups (Coie and Kupersmidt, 1990).

Some neglected children may be at greater risk, for example, the highly withdrawn child who does not offend others but lacks the ability to form close relationships (Coie and Dodge, 1983). However, Gottman (1977a) asserts that social isolation is not a unitary construct and that social isolation is not the same as social withdrawal. He describes a group of children who are shy and anxious, who are neither rejected nor neglected by their peers, calling them 'hoverers' because they are 'tuned out' as to what is going on in their peer groups. These children hover on the sidelines making tentative attempts to join in, sometimes successfully, more often not. Despite this, Gottman argues that many neglected children do have effective interpersonal skills, although they may be content to pursue more solitary interests.

Asher, Hymel and Renshaw (1984) have examined social cognitive processes as mediators between social status and loneliness, suggesting that children have different perceptions about their level of acceptance. Their study found that some unpopular children were simply unaware that they were unpopular, or if they were aware, had no clear idea why they were disliked; these children did not report themselves to be socially dissatisfied. The authors conclude that "children who attribute social rejection or failure to external causes rather than more internal personal causes may be less dissatisfied with their personal relationships" (p.1463). Social reputation too can be conceptualised as part of the social cognitive process, since reputation is itself a
construct of attitudes and expectations held by the other members of the group. These are mediated by social cognitive processes and are the means by which children understand and accept one another (Rogosch and Newcombe, 1989).

2.6.1 Do sociometric techniques alone provide the answers?

One of the major criticisms of sociometry is that the procedure is frequently carried out within the confines of the classroom, thus excluding any friendships that rejected or neglected children might have outside the context being measured. Indeed viewing a child only within his or her peer group is questionable and can lead to unfounded inferences about the direction of causality (Asher, 1983). A child may not be 'at risk' forever, even though they are isolated or neglected in a particular school year. Although the literature in the main considers that neglected children appear to be at less risk than rejected children, there are potential benefits in identifying all children who are excluded by their peers, for whatever reason, simply because of the impact this might have on their future psychosocial adjustment (Dodge, 1983; Coie and Kupersmidt, 1983).

Further critiques of the methodology have been addressed in successive literature reviews by the major researchers in the field, many of them having researched in this area for several decades. What began as an attempt to measure children's social status quantitatively has moved through various combinations of peer ratings and peer nominations towards more qualitative analyses as described by Parker and Asher (1993). Current research seems to suggest that it is the quality rather than the quantity
of friendship which is important to a child and may well have a greater influence on future social adjustment.

2.7 Adjustment difficulties - cause or consequence of low peer acceptance?

There is considerable evidence in the literature linking aggressiveness and disruption with maladjustment of any type (Parker and Asher, 1987; Kupersmidt and Coie, 1985) but very little clear evidence that a causal relationship exists between low peer acceptance and later maladjustment (Kupersmidt and Coie, 1990; Kupersmidt, Coie and Dodge, 1990). In this section, the explanatory models of a number of authors will be reviewed. Parker and Asher (1987) reviewing the risk literature of poor peer relationships and later social adjustment, comment that researchers have proceeded from one of two implicit models (p. 378) — a causal model (Figure 2.1) or an incidental model (Figure 2.2)

**Figure 2.1 Causal model**

![Diagram of Causal Model]

The causal model assumes that children who are not accepted by their peers as a result of their behavioural styles, are denied the normal socialisation experiences and peer support that average or popular children come to expect. The outcome for these
children is likely to lead to more extreme behaviour and an increased vulnerability to later stress and breakdown.

Figure 2.2 An incidental model

The incidental model assumes no causal relationship between poor peer acceptance and later maladjustment. Rather it is the early underlying disorders leading to adult disorders that have a negative impact on childhood peer relationships with early disorders responsible for poor peer group adjustment and later maladjusted outcomes. There is no assumption, or prediction in this model that "children who are rejected by their peers are at risk for later maladjustment" (p.378). As Parker and Asher (1987) argue, research using an incidental model considers the predictive power of poor peer relationships with the predictive power of other diagnostic measures — e.g. neurological functioning, parent and teacher reports of adjustment and academic ability. The causal model looks at outcome and attempts to relate this to earlier peer functioning. Both models are considered to be deficient in some respects since they ignore the very real effects of prolonged peer rejection on the child which in turn can lead to children viewing themselves and the world in negative terms (Dodge and Feldman 1990).
Kupersmidt, Coie and Dodge (1990), also describe different causal pathways, suggesting that (i) peer rejection may be viewed simply as a marker variable. This may cause very young children to react adversely and almost subconsciously to reject a child who appears ‘odd’ in a way that is predictive of later psychopathology. The [rejected] child’s behaviour may not be clearly recognised as a lack of social skills but defines the child as ‘different’ from their peers, (ii) poor social skills may lead to peer rejection and later maladjustment, (iii) the experience of peer rejection is directly causally related to psychopathological outcomes. Psychopathological outcomes for these particularly vulnerable children may be averted by improving social skills and increasing self-esteem. Following Parker and Asher’s models (Figures 2.1, 2.2), pathways (i) and (ii) above fit into the incidental model and (iii) into the causal model. Kupersmidt et al (1990), comment that as yet there is no empirical evidence that being accepted by the peer group will moderate the developmental process for children who are vulnerable to psychopathology on non-social grounds. It is clear that early socialisation experiences are important in preparing a child for the demands of adult life and consequently peer relationships assume greater importance for future adjustment. Failure to establish good interpersonal skills in adulthood is both a reflection and a pre-cursor of later maladjustment originating from the early experience of peer rejection (Coie, 1990).

Peer rejection has also been found to be a consistent predictor of various types of disorder (from parent and teacher reports) and is also a predictive link (from childhood to adolescence) of an internalising disorder (Hymel, Rubin, Rowden and LeMare, 1990). Goodyer Wright and Altham (1990) have also reported a link between a breakdown of relationships at school and an internalising disorder. Thus children who exhibit their vulnerability either as a result of their biological or behavioural
attributes are already pre-disposed to an internalising disorder later in life. This
coupled with peer rejection and the ensuing low self-esteem renders them at greater
risk for adjustment difficulties in adulthood.

The 'at risk' literature reviewed by Parker and Asher (1987) concluded that future
research would need to include the child’s perspective of their peer relations in order
to understand (or attempt to predict) the links between low peer acceptance and later
adjustment problems. They also comment that the 'at risk' literature consistently links
poor peer acceptance with school dropout, delinquency and other anti-social
behaviours but rarely does it consider the mechanisms by which these come about.
Rubin et al (1990) have proposed a model that considers the mechanisms that might be
responsible for later adjustment difficulties. Theirs is a feedback system linking
temperament, environment, family characteristics and social relationships with a
maladjusted outcome. To take just one example, being unpopular or rejected by their
peers, places a child outside all the peer support systems which average or popular
children take for granted. Denied the opportunity to work with a partner or study in
a group, unpopular children may do less well academically and eventually leave
school early or become school refusers. If school becomes a stressful experience, with
few rewards in the classroom or the playground, this might well result in avoidant or
anti-social behaviour at school — and as a consequence, peer rejection.

As Coie (1990) asserts, it is the consequences of peer rejection that contribute
significantly to the incidence of future disorder. Ladd (1990) concurred with this
notion of early classroom peer relationships becoming a precursor of later school
adjustment. The experience of rejection can alter a child’s cognitive processes,
affective reactions and behaviour, with sustained rejection possibly leading to
inadequate skills for coping with stressful events in later life. Similarly, the adolescent who has been rejected as a child is less likely to have an adequate social network to support them or act as a buffer in order to successfully negotiate the shift towards adult relationships. Coie (1990) proposed a cohesive model of peer rejection based on current research, suggesting that low acceptance contributes more to the incidence of disorder than do other vulnerability factors - a model which fits with Cowen et al's (1983) link between unsatisfactory early peer relationships and later psychopathology.

DeRosier, Kupersmidt and Patterson (1994) explore the academic and behavioural adjustment of children as a function of the two dimensions by which peer rejection would vary over time: persistent rejection (chronicity) and recent rejection (temporal proximity). Their findings support the sociometric methodology which identifies at-risk children. They concur with the view that the impact of rejection and ostracism on the school lives of children should not be underestimated: early identification and intervention are vital. The study begins to provide empirical support for the hypothesis that the psychological impact of peer rejection increases with the persistence and recency of this social experience. One unexpected finding of this study was that there was a negative correlation between early and later internalising behaviour for persistently and recently rejected children. Contrary to expectation, this group of children exhibited less internalising behaviour, becoming less withdrawn and shy or anxious over time. The authors suggest that their study questions a purely uni-directional hypothesis of peer rejection predicting later adjustment, towards a more interactional model where adjustment and rejection may reciprocally influence each other over time. As DeRosier et al (1994) conclude,

"interpersonal relationships are crucial to our understanding of the development of maladjustment “(p.1812).
2.8 Social competence and friendship

The degree to which a child's social competence determines sociometric status is an important one that warrants further investigation (Asher and Hymel, 1981). One of the early underlying concepts linking a child's ability to understand social cues to their social status, is based on a Piagetian theory of role taking. In this model, in order to attain social competency, a child must understand how another child thinks and views the world. Children who are deficient or deviant in the way that they process social information may have difficulty in their interactions and relationships with peers. This might in turn lead to them being viewed negatively and becoming neglected or rejected in sociometric terms (Dodge and Feldman, 1990). Similarly, children who are on the edge of a social group may behave in ways that do not reflect their true competence which in itself may result in maladaptive behaviour (Asher, 1983). Nevertheless, children's self perceptions may be at odds with their actual sociometric status as reported by Patterson, Kupersmidt and Greisler (1990), who found that rejected children overestimated their social competence whereas neglected children reported the lowest self-perceived social competence.

Various models have been proposed to measure social competence. In general these are based on a child's ability to interpret the intentions of others in specific situations through the medium of photographs or video recordings. Dodge, Murphy and Buchsbaum (1984) reported that correct discrimination of another child's intention was correlated with sociometric status and not associated with verbal or cognitive ability. Selman (1980) also tested his theory of social cognition by presenting social dilemmas (on film). The hypothesis here is that the children can be expected to
understand the key issues and the social cues presented in the filmed situations, dependent on their level of reasoning and maturity. The resulting strategies are scored according to a stages based model of increasing social cognition and maturity.

Renshaw and Asher (1983) presented children with hypothetical social situations and asked them about their goals and strategies for resolving them. A fairly typical 'entry' situation could be described as follows:-

*A child comes out into the playground at break and finds their best friend playing with a child whom they dislike.*

Significant differences were found between the goals and strategies of popular and unpopular children. Popular children were more pro-social in their goal orientation (willing to join in) and generally used more sophisticated strategies, whereas unpopular children tended to be less positive and pro-social in their goals and more avoidant of conflict. As Renshaw and Asher (1983) argue, the differences between the two status types is a subtle one. The avoidant strategies observed in unpopular children can have a direct consequence for the child since avoiding conflict or choosing not to join in might well lead to a breakdown in the friendship or identification as being different in some way from other children (Feldman and Dodge, 1987). The authors here suggest that these children may well have been teased in the past, or identified as being different to their peers in some respects which would explain their interpretation of the hypothetical situation as hostile intent on the part of their peers, resulting in response strategies that are more aggressive than those of popular or average children.
Almost a decade later, Brochin and Wasik (1992), reporting on the differences between popular and unpopular children, found them not to differ in their solutions to a peer entry situation, as described above, and the maintenance of social interactions. The results of the Brochin and Wasik study, rather than being construed as a refutation of the 'low social status = low social competence hypothesis', possibly has more to do with differences in methodology, and the ages of the children in the sample. Both Renshaw and Asher (1983) and Brochin and Wasik (1992) used a peer rating scale, whereas Feldman and Dodge (1987), used a peer nomination scale; the age range included kindergarten (Brochin and Wasik, 1992) to sixth grade (Renshaw and Asher, 1983; Feldman and Dodge, 1987). As Brochin and Wasik (1992) comment, the use of different sociometric measures makes it difficult to compare results from one study to another. Therefore, it follows that future research will need to consider which problems, or problem solving strategies, discriminate between children from different sociometric groups and eventually move towards an understanding of the deficits which lead to a child becoming rejected or neglected.

Friendship plays an important part in children's lives providing a source of stable companionship, particularly given that greater support than in the past is needed outside the nuclear family, (Asher, 1990). Furthermore, greater importance has been directed in recent research towards the diverse functions of peer relationships in children's lives and the risks associated with having few friends (Asher, 1990). Smith and Cowie (1991), reviewing friendships at school, comment that although friendship is related to social participation, it is not the same thing: "while a solitary child obviously does not have friends, a child who interacts with others may or may not have friends" (p.97). Being solitary is not always a matter of concern, especially if a
child prefers to play alone. But if a child is forced to play alone because he or she cannot form friendships, then it may well be a problem (Erwin, 1993).

Sociometry is a useful measure but it can only indicate a child's popularity rather than the quality of relationships (Erwin, 1993). It can provide an overall indication of a child's standing and stability within the peer group but individual friendship choices may be less stable and subject to change between test-retest conditions. The notion of whether children continue to dislike the same children over time is uncertain, particularly if children find themselves limited to just three negative nominations when re-tested. For example, are children nominating children previously or currently disliked? Future trends in peer relations are now considering the need to assess the qualitative aspects of friendship as well as the quantitative measures obtained through sociometry (Bukowski and Newcombe, 1984; Erwin, 1993; Parker and Asher 1993). Observation or teacher reports of who plays with whom are valid measures of association but not necessarily of friendship, therefore asking peers directly (as in sociometry) can be a better measure (Smith and Cowie, 1991). The differences between sociometric status — i.e. being liked and accepted by a group, and dyadic friendship, defined as a close mutual relationship — relate to different constructs, different reference groups and different methods of measurement (Asher, 1990).

According to Ladd (1990) early friendship patterns and the ability to make friends before the start of formal schooling are important factors in later adjustment. Following this theme, Ladd (1990) argues that children who have difficulty adjusting to school may be less mature and therefore less skilled at maintaining friendships. These are the children who are more likely to go on to become unpopular in sociometric terms. Putallaz and Gottman (1981), exploring children's entry into peer
groups, conclude that unpopular children have more disagreements and friction when playing a game. They are less likely to provide a reason for disagreement or to be constructive when criticising a peer, and less likely to be accepted and more likely to be ignored when joining a dyad. These are children who do not accept a situation at face value, or without protest, and all their intrusive strategies lead to them being ignored or rejected. Unpopular children were described in this study (Putallaz and Gottman, 1981), as more irritable, aggressive, complaining and bossy — seldom adhering to the rules of the game and making them difficult to befriend.

Popular children do not generally enter a situation 'head on' but tend to work their way slowly into a group. These socially competent children seem to view life as a process where relationships develop over time and relationship problems can also be solved over time (Dodge, 1983). But even though popular children are more friendly and competent, this is not to say that their friendliness is a cause of their popularity: it is just as likely that if a child is popular, then friendly pro-social behaviour will ensue (Asher, 1983). Popular and average children have been observed to have more reciprocal friendships with more 'cliquish' or mutual friendship groups at play, whereas rejected children generally play in smaller groups comprised of younger children or other rejected children (Ladd, 1983).

According to Erwin (1993) popular children were more aware of social cues and causes and were more likely than average, neglected or rejected children to see themselves as personally responsible for their social success. As children mature, the skills required to establish and maintain social status become more complex and subtle (Erwin, 1993). And as Buhrmeister (1990) asserts, the ability to establish close intimate
friendships assumes greater importance during early adolescence, whereas being a
good playmate is more important in pre-adolescence.

In contrast, neglected and rejected children were observed to engage in more socially
inappropriate behaviour, although this by no means restricted their attempts to initiate
social contacts, despite the frequent rebuffs from their peers (Dodge, 1983).
Unpopular children reported the least satisfaction from best friends and thought that
they were less socially competent (Parker and Asher, 1987; Patterson et al, 1990).
Nonetheless, even though children of lower sociometric status have been found to have
fewer friends, most children have at least one best friend (Parker and Asher, 1987) and
neglected children, despite their fewer best friend nominations, are as well liked as
average or popular children on a play rating scale (Asher and Wheeler, 1985; French
and Waas, 1985; Rubin et al, 1990). Nor do neglected children appear to experience
much distress concerning their peer relationships at school (Asher, 1990) and some
children might be frequently neglected in one context but not necessarily in another
(Coie and Dodge, 1983). Perhaps, as Smith and Cowie (1991) point out, popularity
has more to do with the composition of the peer group in question because children
tend to prefer children like themselves. As a result children are possibly neglected or
rejected simply because they are different in some way.

Following on from this notion of 'difference' as a factor in peer rejection, Rubin,
Lynch and Coplan (1994) examined the extent to which personal attraction was
associated with behavioural similarity — i.e. "why do birds of a feather flock
together". Do children choose playmates just because they have similar play and
behavioural styles? The authors report that the literature on the causes and correlates
of peer acceptance indicates that socially popular and socially competent children are
more likely than rejected children to play at higher cognitive levels with more complex forms of social play. In contrast to other studies, this study was more interested in the nominators (the children who did the choosing), rather than the recipients of their nominations. The authors report that when children made discriminations, in choosing a friend, it was on the basis of behavioural similarities and the cognitive maturity of their play. This lent support to the view that children and adolescent friends are more similar to one another than non-friends. Rubin et al (1994) suggest that personal attraction may lead to co-ordinated and co-operative play and result in friendship initiation. Interestingly, behavioural concordance, in this study, was found even when the children were not actively playing together, leading the authors to conclude that behavioural concordance is an important factor in personal attraction and friendship formation, particularly in mid-childhood.
2.11 Sociometric status of children with disabilities in mainstream schools

2.11.1 The background to the literature

The greater proportion of the literature relating to the integration of children with disabilities into mainstream schools concerns children with learning disabilities rather than children with mild physical or sensory disabilities. Studies of physically disabled children vis à vis their non-disabled peers invariably focus on wheelchair bound or severely disabled children who may spend only part of their time in mainstream schools. A number of studies are comparative studies exploring the variability in social acceptance of disabled children by their non-disabled peers, depending on whether the former are fully or partially integrated. Further confusion is caused by the varying terminology in US and UK studies, especially that relating to learning disabilities.

US studies using the term ‘learning disabled’ (LD) generally identify this group as children with an IQ in the normal range but with specific learning or reading difficulties. Indeed several US studies of LD children (see Table 2.1) report a mean full IQ in the range 95-98. The current terminology in the US for children with a low IQ is ‘developmental disorder’. In the UK, learning disabilities as reported in academic papers, is generally, for the purposes of group description, subdivided into mild, moderate or severe IQ bands based on psychometric assessment (though few studies concern the peer relationships of the severely learning disabled). There is a trend in educational psychology in the UK away from formal IQ testing and the categories which are derived from the scores obtained. Therefore, quoting categories
of learning disability relating to IQ bands may be misleading. However, if American criteria are used, mild LD would equal an IQ of between 55-69 and moderate LD an IQ of between 40-54. A final consideration would be the combination of learning and physical disabilities under the heading of developmental disorders in some studies which further complicates the issue and can lead to misunderstanding by poor synthesis of clinical and social perspectives.

The literature reviewed thus far (see sections 2.1 - 2.10) has explored the themes that help to understand the processes leading to peer acceptance or rejection, current and future adjustment problems and the maintenance of friendships of children without disabilities. Reviewing the literature for children with disabilities is less clear cut. Other factors such as physical attractiveness, the disabled child’s self concept, attitudes towards disability, and the educational status of disabled children will undoubtedly influence peer relationships and have a bearing on the disabled child’s sociometric status.

In reviewing the literature that follows, some general considerations have been imposed. Firstly, some attempt will be made to separate learning disabilities (LD) from physical disabilities (PD). However, it would be impossible to avoid some overlap since learning disabilities, to a greater or lesser extent, are often associated with mild physical disabilities and other developmental disorders. Secondly, given that the index children in the study reported in this thesis have a mean verbal IQ of 95, US studies of LD children with IQ's in the normal range will be included for comparison (Table 2.1 lists the studies used for comparison, the country of origin and the reported IQ and age range). Finally, studies of psychopathological outcome reviewed here, will frequently include children who fit into either LD or LD plus PD
domains. To further reduce confusion the literature reviewed below (section 2.11.2) uses the terminology LD to include all the levels of intellectual ability reported in the comparative literature as set out in Table 2.1.

2.11.2 Children with learning disabilities

Table 2.1  Studies of friendships of children with LD included for comparison

<table>
<thead>
<tr>
<th>Authors</th>
<th>Year</th>
<th>Country</th>
<th>IQ range</th>
<th>Age range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Johnson</td>
<td>1950</td>
<td>US</td>
<td>&lt;70</td>
<td>not reported</td>
</tr>
<tr>
<td>2 Gottlieb &amp; Leyser</td>
<td>1981</td>
<td>US</td>
<td>&lt;70</td>
<td>unknown</td>
</tr>
<tr>
<td>3 Coleman</td>
<td>1983</td>
<td>US</td>
<td>not reported</td>
<td>not reported</td>
</tr>
<tr>
<td>4 Taylor, Asher &amp; Williams</td>
<td>1987</td>
<td>US</td>
<td>63.2</td>
<td>7-11</td>
</tr>
<tr>
<td>5 Renick &amp; Harter</td>
<td>1989</td>
<td>US</td>
<td>80</td>
<td>7-13</td>
</tr>
<tr>
<td>6 King et al</td>
<td>1989</td>
<td>Canada</td>
<td>not reported</td>
<td>9-13</td>
</tr>
<tr>
<td>7 Bear, Clever &amp; Proctor</td>
<td>1991</td>
<td>US</td>
<td>94.8</td>
<td>7-8</td>
</tr>
<tr>
<td>8 Clever, Bear &amp; Juvonen</td>
<td>1992</td>
<td>US</td>
<td>97.2</td>
<td>9-10</td>
</tr>
<tr>
<td>9 Juvonen &amp; Bear</td>
<td>1992</td>
<td>US</td>
<td>98</td>
<td>7-8</td>
</tr>
<tr>
<td>10 Martlew &amp; Hodson</td>
<td>1991</td>
<td>UK</td>
<td>mild LD</td>
<td>7-11</td>
</tr>
<tr>
<td>11 Nabuzoka &amp; Smith</td>
<td>1993</td>
<td>UK</td>
<td>85</td>
<td>8-12</td>
</tr>
<tr>
<td>12 Leffert &amp; Silperstein</td>
<td>1996</td>
<td>US</td>
<td>66.8</td>
<td>10-13</td>
</tr>
<tr>
<td>13 Madden &amp; Slavin</td>
<td>1983</td>
<td>US</td>
<td>Review paper</td>
<td>not reported</td>
</tr>
<tr>
<td>14 Weiner</td>
<td>1987</td>
<td>Canada</td>
<td>Review paper</td>
<td>not reported</td>
</tr>
</tbody>
</table>
Gottlieb and Leyser (1981) in their review reported an early study by Johnson (1950) one of the first studies to investigate, in detail, children with LD in mainstream classrooms. All the children in the class were assessed by Johnson (1950) and those with IQ's below 70 were allocated to the LD group, but not identified as such to their classmates prior to the sociometric exercise. Despite the fact that their peers were blind to the LD group, the LD children were rejected four times as frequently as non-LD children and non-LD children were accepted twice as often as the LD children. The move towards integration in the 1970's was based on the assumption that increased contact and the greater visibility of LD children in mainstreamed classrooms would improve social acceptance. But various studies carried out by Gottlieb and his associates failed to support this hypothesis (see Gottlieb and Leyser, 1981 for a review).

Others have suggested that social contact would need to be more structured with greater opportunities for social co-operation to improve matters (King, Rosenbaum, Armstrong and Milner, 1989). Martlew and Hodson (1991), in a UK study comparing the social contact between mild LD children and non-LD children partially integrated from special units within mainstream schools, observed that non-LD children played significantly less often with mild LD children, especially older children. Self reports from these mild LD children had indicated that they had fewer friends in school, but most reported that they had friends outside school. Martlew and Hodson (1991) hypothesised that the lack of friends reported by the mild LD children at school was because they were brought into the special unit from some distance. Therefore, they were unable to maintain friendships in and out of school in the same way as their peers. Although the children were integrated in an educational sense, they were not socially integrated at the same level as the non-LD children.
Despite integration being the norm, at least for the majority of children defined as having LD, the status and self perceptions of integrated children have not improved greatly. Bear, Clever and Proctor (1991), found no positive effect on the self perceptions of integrated children (normal IQ but with reading problems) and a later study found that although these children had lower self perceptions of behavioural conduct, they did not differ from non-LD children in feelings of self worth (Clever, Bear and Juvonen, 1992). The social group which partially integrated LD children used for social comparisons was explored by Renick and Harter (1989). They had hypothesised, based on clinical observations, that LD children were more likely to compare themselves to their non-LD peers than their LD peers because they would want to be labelled as 'normal'. As a consequence, LD children would be reluctant to see other LD children as their reference group.

The accepted view throughout the literature and reported in several major reviews (Gottlieb and Leyser, 1981; Gresham, 1981; Madden and Slavin, 1983; Weiner, 1987) is that children with LD in mainstream schools have lower sociometric status than their non-LD peers. Yet Juvonen and Bear (1992) found that children with LD who were integrated full-time had at least one best friend and at least 50% of these friendships were with non-LD children. This study also reported a sex difference in that LD girls received more negative nominations and were less preferred as friends than LD boys. Moreover, even teachers thought that competent LD children were less competent than non-LD children. Taylor, Asher and Williams (1987), comparing LD and non-LD children, found the former to be more rejected by peers and LD children significantly more socially dissatisfied and anxious about their peer relations. Nabuzoka and Smith (1993) in common with other studies also found integrated LD children to be more rejected than non-LD peers but contrary to the trend, non-LD
children were more neglected than LD children. They conclude that the sociometric differences between non-LD and LD children relates to social behaviour. Rejected LD children are described by their peers as 'shy', 'seeking help' and 'victims of bullying', whereas non-LD children were most often seen as 'co-operative' or 'leaders'. Aggression or disruptiveness were not factors in either group, suggesting that rejection in LD children might have more to do with impaired social cognition than behavioural attributes. Social cognitive process investigated by Leffert and Süperstein (1996) found LD children able to interpret hostile intent from videotaped vignettes of social conflict situations but not benign intentions - again suggesting a degree of social cognitive impairment.

Madden and Slavin (1983), reviewing the efficacy of special school placement versus partial or full time mainstreaming (with and without classroom support) of LD children, concluded that a mainstream school with appropriate support provides the best socio-emotional outcome. No clear association between school placement and social acceptance was obtained. For example, mainstream placement with additional support did lead to improvements in self-confidence, classroom behaviour and attitudes towards school with a subsequent reduction in self-deprecation. As the authors point out, the general consensus from studies in the 1950's was that integrated LD children would suffer from lower self-esteem as a result of negative attitudes towards them in addition to the constant reminders of the differences between themselves and their non-LD peers. The authors argue that for many children with LD just belonging to the mainstream classroom might be more important than any other goal. But just placing a child with learning disabilities in a mainstream class, with support, may not be the answer to all their problems, even though the outcome is more positive (p. 554). They comment that LD children may well continue to be
rejected by their peers and that mainstreaming cannot automatically reduce this, leading them to suggest that in order to be effective, mainstreaming needs to acknowledge that all children, LD or not, are special in some way. The study concludes that positive outcome has more to do with how children are mainstreamed rather than mainstream placement per se. Coleman (1983), examining the outcome of full integration versus partial or full segregation, also found that partially and fully segregated LD children had lower self concept or self worth. Reduced self concept in pre-adolescents may have more to do with the feelings that children, disabled or not, hold about themselves rather than any labels that may be attached to them by others (Coleman, 1983).

Weiner (1987) has reviewed 25 studies comparing LD (using US criteria) and non-LD children, including the correlates of peer status in LD children. This study reiterates the difficulties of reviewing a literature where so many measures may not be directly comparable. Of the 19 studies reviewed, only three provided information about IQ, and only one controlled for the effects of IQ, indicating that any comparisons between studies should be treated cautiously. Establishing that LD children are less accepted by their peers and more rejected may simply mean that they are at risk due to several factors, of which IQ may be just one. Although as Weiner points out, because IQ is the strongest predictor of sociometric status, it is important to control for IQ in studies of peer status. Moreover, most studies did not differentiate between rejected or neglected status, even though the two groups have been described by others (Asher and Dodge, 1983) as being behaviourally different.

Bryan (1974) assumed a uni-directional link between peer status and social skills whereas Asher (1983) proposed a link-back hypothesis. For example, children who
behave inappropriately may alienate their peers, and as a result may not get enough practice at developing effective social skills. Weiner’s (1987) model suggests that it is the psychological processing deficits of LD children that affect the strategies used in social interactions. These inappropriate strategies may set up negative interaction patterns with the family, teachers or peers, causing LD children to be treated differently from non-LD children by ‘significant others’ in their lives. Because this differential treatment may include isolation or rejection, LD children may have fewer opportunities to practice, or develop social skills, which might then lead to negative peer status. Weiner (1987, p. 66-73) reviews four hypotheses put forward by several researchers to explain the low peer status of LD children.

1. **Discrepancy hypothesis**: LD children must have the qualities valued by their peer group, whether that is intelligence, academic achievement, physical attractiveness, or athletic ability in order to be more accepted.

2. **Psychological processing deficit hypothesis**: LD children are not accepted because of deficits in social perception, cognition or pragmatic competence.

3. **Strategic deficit hypothesis**: (e.g. poor learning strategies) poorly accepted LD children would have different patterns of attribution for success or failure in the social world.

4. **Differential treatment hypothesis**: low peer status is related to differential treatment by significant others.

These four hypotheses have formed the basis of research on the correlates of peer status, albeit based on a uni-directional relationship. The reciprocity model described below (Figure 2.3) integrates the predictors that can be derived from the four hypotheses and:

"according to this model, peer status should be viewed as an outcome measure that reflects the quality and the quantity of the reciprocal interactions between peers", (Weiner, 1987, p. 77).
Figure 2.3: Reciprocal model of learning disabled children's peer relationships

- Discrepancy from non-LD with regard to:
  - Achievement
  - IQ
  - Appearance

- Psychological processing skills:
  - Social perception
  - Social cognition
  - Pragmatic competence

- Differential treatment by:
  - Family
  - Teachers
  - Peers

- Strategies for social interaction:
  - Approach
  - Maintenance
  - Conflict resolution
  - Shares
  - Play organisation
  - Questions
  - Accept praise/criticism
  - Gives praise/criticism
  - Resisting peer pressure
  - Cooperates
  - Leader
  - Shares
  - Negotiation
  - Attributions

- Peer status

From Weiner 1987
2.11.3 Children with physical disabilities in mainstream schools

The notion of a reciprocity model to explore and explain the outcome for children with learning disabilities can also be useful in exploring the outcome for children with physical disabilities. The discrepancy hypothesis presented in Figure 2.3 characterises much of the literature relating to physical disability, in particular physical attractiveness/appearance, and athletic ability. A physical disability, however mild, places an individual outside the group norms and, as with learning disabilities, the individual’s self concept will be influenced by social comparisons with their non-disabled peers. Several themes run through the literature based on notions of what is important to the acceptance of disabled individuals by their non-disabled peers. There is a paucity of literature directly related to the peer relationships of physically disabled children and even less specifically related to the peer relationships of mildly disabled children. The literature reviewed in this section will explore those factors which relate to the stigma associated with disability, what determines general likeability and influences attitudes towards the physically disabled.

It might be difficult for children to separate the consequences resulting from abnormalities of physical appearance from effects due to the functional limitations of a disability—though visibility is a crucial factor in stigmatisation. It has been suggested that the more visible the handicap, the more it disrupts the social interaction. One suggested hierarchy of stigmatisation suggests obesity, followed by facial disfigurement and lastly limb abnormalities – with liking being greater for individuals whose disability is further from their face (Erwin, 1993). Even though, physical appearance or disability can put other children off at the outset, once initial
prejudices are overcome, friendships may begin to develop (Richardson, Goodman, Hastorf and Dornsbuch, 1961). Physical attractiveness was reported to be a strong determinant of peer preferences and highly attractive children have been hypothesised to have a social advantage since they were liked more, were thought to be cleverer and were rated higher on sharing than their less attractive peers (Langelois and Stephan, 1977). A later study (Langelois and Downs, 1979) found that unattractive children are perceived and expected to behave anti-socially and for some children this may indeed become a self-fulfilling prophecy. This led Langelois and Downs (1979) to hypothesise that high regard by peers could evoke greater pro-social behaviour and result in greater likeability.

Whether children and adults differed in their liking for physically disabled and non-disabled children was the focus of a study by Kleck and DeJong (1981). Adult and child ratings for liking were highly correlated in that both groups appeared to be using the same judgements. Here, physical attractiveness was a strong mediator since both adults' and children's liking preference for individuals was related to their ratings of attractiveness. Although Hogan and Mankin (1970) argue that what determines general likeability is different from 'clique' measures of attraction (i.e. those shared attributes that draw a group of children together), they suggest that general likeability is equated with tolerance, empathy and effective interpersonal skills. Perhaps negative behaviour towards disabled peers results from some adherence to group norms; for example making hurtful remarks is what children do to be a part of the group. When these children are reprimanded for their behaviour they often fail to understand why their remarks are wrong and hurtful to their victim (Byrnes, 1987).
Kennedy (1990), following earlier studies (Langelois and Downs, 1979; Langelois and Stephan, 1977) relating to physical attractiveness, attempted to determine the behavioural correlates, that is the initiation and maintenance of social interactions, and the importance of physical appearance in the assignment of sociometric status by peers. Kennedy (1990) found that children did behave differently according to their social status and, as might be expected, popular children were better at initiating and maintaining social interaction than either rejected or neglected children. A second purpose of Kennedy's (1990) study attempted to measure social competence by asking children to rate this from photographs and videotapes. The children were able to distinguish between social status categories from both photographs and videotapes of specific behaviours. The question then arose as to what criteria they were using to make these judgements of social competence. Kennedy concluded that appearance alone, from photographs, was just as effective as viewing videotapes of the same child, for judgements of social competence. However, neglected children were unable to distinguish between the three status groups, leading Kennedy to hypothesise that neglected children:

i) were lacking the social experience enjoyed by popular and rejected children

ii) frequently were anxious in social situations

iii) had less opportunity of equating physical attractiveness with positive social exchanges.

In summary, neglected children were not using the same social cues from photographs and videotapes as popular and rejected children. Perhaps one of the most interesting findings of Kennedy's study was that children rated photographs more reliably than videotapes of actual behaviour, even though the former were posed and fixed in time, and the latter reflected real-life situations, with the opportunity to observe changing facial expressions. Kennedy (1990) concluded that in order for friendship to develop,
children need to be viewed by others as a potential friend and this first step may
depend solely on their first exposure to a visual cue — i.e. the physical attractiveness
and similarity of the child in the photograph.

Following the trend of the literature reviewed thus far, children with developmental
disorders of movement may be most at risk of impaired social development and poor
peer relationships, given that their attractiveness to their peers is compromised by their
physical condition. Yet as Wallander and Hubert (1987) note, peer problems can occur
for different reasons in different children with different disorders. Even though the
disorders differ, all have a degree of functional disability which might impede
development. Bryan (1978), following Johnson (1950), also found that LD children
were rated as less attractive to peers, even when the raters were blind to their learning
difficulties. It would appear that some hierarchical order operates in comparative
ratings, as reported by Wisley and Morgan (1981), since younger children rate more
favourably, and perhaps with fewer criteria for liking another child, than do older
children. Children with physical disabilities were liked better than children with
learning disabilities and both physically and learning disabled children were liked
better than non-disabled children with behaviour problems. Despite the popular view
that the overt nature of a physical disability, in terms of its observability, would be the
discriminating factor resulting in negative attitude, this was not borne out by Furnham
syndrome, deafness and learning disability — they found no difference in children’s
attitudes but noted that children were able to cope better with more observable
disabilities than the less obvious ones. Perhaps as Devenney and Stratford (1983)
point out, attitudes towards disabled children by their peers may have more to do with
their knowledge of disability, the context of their interactions and the nature of the
contacts between the two groups. Nevertheless, there is evidence that children with physical disabilities were twice as likely to have psychosocial problems (Rutter, Tizard and Whitemore, 1970) although there has been very little specific research within this group and what there is has more often been concerned with family rather than school factors. To look at the question from a family focus, the parent's feelings about their child's impairment and the quality of the interaction between them is critical to the child's developing self-esteem. Any disruption to the normal process of mother/child interaction may potentially interfere with the development of a child's normal social and emotional competence (Goodyer, 1990a).

In exploring the peer relationships of children with hemiplegia few other groups of disabled children provide a direct comparison, except for the group of children described as 'clumsy' (Henderson and Hall, 1982; Henderson, May and Umney, 1989; Losse, Henderson, Elliman, Hall, Knight and Jongmans, 1991). As Henderson, et al (1989) report, even though 'clumsy children' have no neurological signs and no link to an identifiable organic disease, their problems are closely aligned to those of children with specific learning difficulties e.g. reading, spelling, language or maths problems. Even though the problems of 'clumsy children' are not overtly physical (as in cerebral palsy), these children experience many of the problems associated with physical and intellectual disability in terms of social and emotional problems. Their problems appear similar to those of children with hemiplegia and both groups are pre-disposed to fail in many practical situations at home and at school. Similarly, the concomitant of their practical failures may also lead to other academic and social adjustment problems at school. As Henderson et al (1989) conclude, low self-esteem is a frequent accompaniment to any childhood condition which sets a child apart from his or her peers. Therefore, it was not surprising to find that 'clumsy children' had a lower
opinion of themselves. 'Clumsy children' made more negative comments, reporting themselves to be less popular and more picked on than did the controls, but surprisingly there was no difference in positive comments about themselves between the two groups. The study also reported that the 'clumsy children' were less likely to have an internal locus of control and were more likely to blame others for their failures. In comparing their two groups of children, Henderson et al (1989), concluded that the 'clumsy children' were less realistic and had a tendency to set higher goals than they actually achieved. Whether these problems recede with age was addressed in a follow-up study by Losse, Henderson, Elliman, Hall, Knight and Jongmans (1991). They found that their group still experienced low self-esteem and peer problems ten years later. An interesting finding in this study was that personal and social adjustment problems previously identified by infant school teachers, e.g. behaviour problems, peer problems and social immaturity had persisted into later childhood and young adult life.

Wallander and Hubert (1987), attempted to provide a conceptual model for peer social dysfunction, based on empirical evidence, to include both individual and environmental factors. They note that social isolation is very common for children with disabilities — even those integrated into mainstream classrooms. This arises for various reasons. For example, mainstreamed children with physical disabilities may be stigmatised and teased by their peers because of their atypical appearance, behaviour, additional medical problems and any visible equipment or physical aids they may use. Parents who are overprotective of their physically disabled child can also inhibit the child's social development. Within the framework of their model Wallander and Hubert (1987) describe a typical ten year old child with a weakness down one side and a limp (although this was not described as a hemiparesis).
"This child has peer problems despite good cognitive abilities and health, with no apparent social skills deficit. But the child’s physical appearance (he limps and wears a splint) causes him to be teased by his peers. The parents report that their child is depressed and withdrawn because he is different and unable to take part in physical activities. He is unable to respond adequately to the teasing and reply appropriately to enquiries about his physical problems". (p. 211).

The authors note that not enough is known to lead to a greater understanding of peer dysfunction, particularly when it is inferred from just one or two factors as described above. This, in their view, may be over-simplistic and they suggest that future studies would require multi-variate analyses and a comparison group of children without disabilities in order to examine why some children are isolated, and others are not. King et al (1989) argue that it is the competence of the child with a learning disability which affects the attitudes of their non-disabled peers: competency would, in their view, lead to positive attitudes and a willingness to interact. Both Wallander and Hubert (1987) and King et al (1987) comment that rather less is known about physically disabled children and their peer relationships: a deficit that the present study attempts to redress.
Chapter 3: Victimisation

3.1 The extent of the problem

There has been increasing interest in the incidence of victimisation in schools and several reviews of the literature (Olweus, 1984; Mortimore, Sammons, Stoll, Lewis and Ecob, 1988; Besag, 1989; Roland and Munthe, 1989; Tatum and Lane, 1989; Dowdney, 1993) and models to improve matters (Elliott, 1991; Smith and Thompson, 1991; Thompson and Sharp, 1994). In the UK the nature and the extent of the problem has been surveyed (Whitney and Smith, 1991), leading to the DES Sheffield Bullying Project (Sharp and Smith, 1991).

Although statistics abound in the literature regarding the rates of bullying obtained in various studies, the school systems in the USA differ from those in Northern Europe and make comparisons difficult. Therefore, only the results of the North European studies will be reported here despite the paucity of empirical data. Even within all North European studies, direct comparisons are further compounded by the nature of the samples i.e. some studies include primary or secondary schools, others junior or middle schools and some a mixture of all three. As a consequence, associations between age and incidence across studies cannot easily be made. Despite this, the rates of bullying appear to be within the same range in several studies. For example, Olweus (1987), and Lowenstein (1978a) report that approximately 5-10% of children were bullies at any one time. O’Moore and Hillery (1989), reviewing recent empirical Irish data found that the incidence in Irish schools was consistent with the Scandinavian research. In 24 primary schools the incidence of bullying was 6%
Mitchel and O'Moore (1987) and in an urban secondary school 5% (Byrne, 1987). O'Moore and Hillery (1989), sampling 783 children aged between 7-13 years in National Dublin schools, reported that 55% of children had bullyied at some time but only 2.5% were serious bullyies. Their reported rate for victimisation was almost identical to that reported in the Scandinavian research - that is 54.9% were minor victims and 8% were frequent victims. Whitney, Nabuzoka and Smith (1992), with a sample of 2,623 junior and middle school children, reported that 27% of children in junior or middle schools were bullyied sometimes or more often, and 10% of the 27% were bullyied once or several times each week.

According to Olweus, severe victimisation is the consequence of a breakdown in peer relationships, a view shared by many researchers. Nevertheless, this breakdown does not occur in isolation and school factors in terms of classroom and whole school ethos are also relevant (Mortimore et al, 1988; Thompson and Sharp, 1994). Just as in any other social world, a school operates within a framework which is defined by the attitudes of the staff towards each other and also to the children. Whole school policies set out the rules of acceptable and unacceptable behaviour, plus the rewards and sanctions that operate therein. They seek to promote a sharing and caring ethos in the school community and also a safe environment throughout the school (Thompson and Sharp, 1994). The level of playground supervision is crucial too, as is the fabric of the building and the layout of the playground. Too many nooks and crannies and too little playground supervision provide an environment conducive to victimisation (Mortimore et al, 1988). The role of peers in tackling bullying in schools has been addressed by Sharp (1996), who suggests that interventions based upon peer influence are more likely to be effective. Since incidents of bullying are rarely reported to adults and frequently occur when adults are not present, the deliberate obscuring of
bullying behaviour keeps the matter within the peer culture. As Sharp (1996) explains, intervention by peers aims to mobilise the social context of the peer group as a means of preventing bullying and intervening when it does occur.

3.2 What differentiates bullies from their victims?

What differentiates bullies from their victims is a common theme throughout the literature. The notion of bullies or victims conforming to a single sub-type was addressed by Stephenson and Smith (1989), who suggested that this might prove to be an over-simplification. Based on teacher reports, five sub-types of children who were bullies or victims have been defined:

- **Bullies** are strong and assertive, easily provoked, enjoy aggression, are secure and averagely popular with peers.
- **Anxious bullies** have poor school attainment, are less secure and less popular with peers.
- **Victims** are weaker, lack self confidence and are less popular with peers.
- **Provocative victims** are active, stronger, easily provoked and often complain that they are picked on.
- **Bully/victims** are stronger, assertive and are the most unpopular with peers, they bully others and complain of being victimised.

(taken from Smith 1991, p245)

As Lowenstein (1978a) comments, identifying the bully is no easy task. Teachers are not always agreed on who is the bully and in addition may themselves view bullying differently based on their own orientation and experiences with particular children (p.147). Others have distinguished between the various characteristics that define victims. Olweus (1978) described **passive victims** — who are anxious, insecure and
fail to defend themselves and provocative victims — who are hot tempered, create
tension and fight back. Perry, Kusel and Perry (1988) differentiate between low
aggressive and high aggressive victims - noting that not all victims are sociometrically
rejected by their peers. Some similarity to the submissive children described by
Parker and Asher (1987) and the withdrawn children described by Rubin, LeMare and
Lollis (1990) was observed in the victimised children studied by Perry et al (1988).
Although the authors report that aggression is independent of victimisation, they
suggest that submissiveness (children who do nothing if provoked) and withdrawal
(timid children who hang back) may not be entirely unrelated to aggression. For
example, provocative aggressive victims may invite the bully by their own actions
whereas passive non-aggressive children may behave in ways that elicit victimisation.

Lowenstein (1978b), comparing the traits of bullied and non-bullied children, suggests
that bullying may be partly associated with certain characteristics of the victim. For
example, a combination of physical characteristics and personality traits appears to be
associated with victimisation. In addition, children may also be susceptible to
victimisation because of their family and social background. Children who are socially
skilled, communicate well, are physically robust and are popular are less likely to be
bullied. Therefore, it follows that children who lack these traits are more likely to
become victims. If, as Lowenstein (1978b) argues, the characteristics that predispose a
child to become a victim are derived in part from genetic and in part from
environmental sources, then little can be done about genetic influences. However,
following this argument, changes in the environment might bring about change.

Whether bullies actively seek out children who are different in some ‘stigmatising’ way
—for example, those with red hair, a stammer, wearing glasses, being exceptionally
thin or fat, is unclear. According to Besag's (1989) review of the literature, it is possible that less venom is directed at children who can do little to change things, i.e. a physically disabled child, than to the child who would appear to the bully to be able to change things, e.g. lose weight. Besag (1989) suggests that victims are frequently chosen for reasons other than their more obvious features. But once the child is identified as a victim, the red hair or the glasses in themselves may become an easy target for the bully, providing an immediate 'pay-off' in the form of the victim's discomfort.

Lagerspetz, Bjorkqvist, Berts and King (1982) studied the personality variables of children through questionnaires. They found that victims lacked self-esteem, were subjectively maladjusted, and viewed their relationships with their peers negatively. Whereas Olweus (1978) did not find his 'victims' to be deviant in any way, other than being physically weaker, Lagerspetz et al (1982) found that the most frequent victims were obese or had other impairments, i.e. physical disability and sight, speech and hearing problems. Although the bullies were physically stronger, they were reported to have more problems or impairments than well-adjusted children. The bullies also had more positive attitudes towards aggression and viewed their relationships with peers and teachers negatively. Although the bullies were unpopular with their peers they were not as unpopular as the victims. According to Lagerspetz et al (1982), methodological differences may account for the differences in deviance measures. Olweus's (1978) criteria for 'deviance' was wider than that reported by Lagerspetz et al (1982) and moreover, failed to differentiate between mild and extreme cases. Lagerspetz et al (1982), identified fewer deviant children using narrower criteria of deviance, concluding that other forms of deviance, besides physical weakness, might be responsible for victimisation. According to Olweus (1978) children are not
victimised because they are overtly deviant whereas Lowenstein (1978b) attributes physical unattractiveness to be a contributory factor in victimisation, a view also espoused by Stephenson and Smith (1989), who found evidence (from teacher reports) that physical characteristics were responsible for victimisation.

3.3 The self-perceptions of bullies and victims

Although several studies have debated the characteristics which differentiate those who are bullies from those who are victims, few studies have attempted to ask either the bullies or the victims how they feel about themselves and how they feel that others evaluate them. Bjorqvist, Ekman and Lagerspetz (1982) addressed this issue. In their study, the bullies considered themselves to be dominant and valued dominance as the social norm - describing themselves as impulsive and lacking self control. The victims described themselves as deposed, lacking in intelligence, less attractive and inferior. No gender differences were found in the characteristics of bullies or victims. Arora and Thompson (1987), surveying the problem in secondary schools, commented that bullying might in some way be linked to social dominance - in that bullies do not see their behaviour as being deviant and believed dominance through aggression to be appropriate. The children were asked how they perceived bullying. Their definition was that bullying was aggression occurring for no good reason and aggression was generally directed towards a weaker child. According to Arora (1987), this implies that:

"any material gains the bully might achieve are of less significance than the psychological gains of maintaining a relatively dominant position in the particular sub-group to which the bully belongs" (p.117).
Both the teachers and the children surveyed in Arora and Thompson's (1987) study appeared to accept that bullying was part of their social world and that little could be done to change things.

Randall (1995) comments that any attempt within schools to alter the incidence of bullying must take account of the attitudes of the institution towards victims. Randall's study was an attempt to measure the attitudes of English children in the last year of primary school to victims of bullying. Using factor analyses, Randall's first factor replicated that of other studies - i.e. bullying was undesirable and should be stopped. The second factor was more interesting - a negative attitude to victims and a distaste for perceived weakness. Because the rate of bullying was so high in the area where this study was carried out, Randall (1995) hypothesised that children distanced themselves from victims and in some way believed that weak children got what they deserved. More controversially Randall (1995) begs the question of whether children in schools where a high rate of bullying is the norm may perceive behaviour, labelled by adults as bullying,

"as a punishment meted out by the more powerful on the undesirable" (Randall 1995, p.25).

A recent study (Hawker and Boulton 1996) explored the effects of bullying on victims as measured by perceptions of how children would feel if bullied and the association of feelings with experience. The initial findings suggested that children viewed physical bullying to be more upsetting than psychological bullying and social exclusion to be the least upsetting. All three types of victimisation were related to internalising problems such as depression, self-worth, loneliness and anxiety. Yet when other types of victimisation were controlled for, social exclusion was the main correlate with physical intimidation having no independent association. Therefore,
the children’s view that “sticks and stones” are worse than being called names or being left out, was not reflected in the correlational analysis, which led the authors to suggest that the reverse was true. Regardless of the type of bullying experienced, physical intimidation, psychological subordination or social exclusion, all victims demonstrated internalised problems, with social exclusion as the active predictor of these problems. As Whitney, Nabuzoka and Smith (1992) point out, bullying in all its forms is a most distressing experience for any child, especially when it occurs frequently and over a prolonged period. But Hawker and Boulton (1996) conclude from their study that archetypal bullying may not be the worst thing to happen to a child and suggest that adult and child perceptions may need to change as to what constitutes ‘harmful behaviour’. Social exclusion can make children very sad and the authors suggest that adults should listen to how children feel when planning anti-bullying interventions.

3.4 Children who are different from their peers

The majority of research, whilst acknowledging that children who are deviant in some way are frequently victimised, has rarely addressed their specific problems. More recent research has considered the experience of children who are different - that is children who are physically disabled, learning disabled or with other conditions that set them apart from their peers. These studies have included both children in special schools and those who are partially or totally integrated into mainstream schools. As reported here and elsewhere, children with Special Educational Needs (SEN) may be at greater risk of being bullied because of their learning difficulties or other characteristics such as dyslexia, clumsiness or other disability which may be used as a pretext for bullying. However, what may be more salient is the notion that a child may
well be integrated in an educational sense but may be less well integrated socially. Without peer support and friendship children are not protected from bullying (Whitney et al 1992).

O'Moore and Hillery (1989) reported that 17.5 % of children in remedial classes (i.e. partially integrated) were bullied once a week or more, compared to 6.1% of non-remedial class children. In contrast to children in non-remedial classes who bully others, no children from the remedial classes bullied others. Nabuzoka and Smith (1993), exploring the social relationships of children in two integrated schools, also looked at levels of victimisation. The children with SEN in this sample were classified as having moderate learning difficulties (MLD). Children were nominated by their classmates as best fitting several behavioural descriptions including being either a bully or a victim. Children with SEN, 12 out of 36 (33%), were more likely to be victimised than children without special needs, 11 out of 143 children (8%). Bully/victims, those children who are provocative and aggressive — who both bully and are bullied — were also included in this study, and of the 6 children who fitted this description, 4 were in the MLD group (Nabuzoka and Smith, 1993). Martlew and Hodson (1991), comparing behaviour, teasing and teacher attitudes in an integrated school setting, found that children with mild LD reported more teasing and bullying than mainstream children, particularly the older children. The incidence of bullying in this study, i.e. mild LD children were bullied twice as much as mainstream children, was similar to that reported by O'Moore and Hillery (1989).

Whitney et al (1992) report the comments of a headteacher of a school for moderate LD children, surveyed as part of the DES Sheffield Bullying Project:
"children who come to this school who had been bullied in mainstream schools tended to retaliate first by bullying other children" and "the children were usually victims of bullying because of their learning difficulties, or as a result of their social and emotional problems" (p.4).

A later study by Thompson, Whitney and Smith (1994) looked specifically at the bullying experienced by statemented SEN children in comparison to their non SEN mainstreamed peers. Approximately 66% of the statemented SEN children reported that they had been bullied compared to 25% of the non SEN children. The study concludes that the increased rate of victimisation experienced by the SEN children was related firstly to the specificity of their SEN being used as an excuse for bullying. Secondly, because the statemented children reported fewer friendships, they were less likely to be well integrated socially into the group.

Another group of children who have been reported to be at high risk of becoming victims are those with motor co-ordination difficulties, often labelled as ‘clumsy children’. Their social difficulties probably start as soon as nursery school because they are unable to keep up with their peers as they rush around from toy to toy. At school they are left on the sidelines and often mimicked for their unco-ordinated movements, lack of speed and general clumsiness. Many children will be forced into solitary pursuits simply to avoid the taunts and nicknames their behaviour elicits from the class bullies (Henderson, 1987). Olweus (1978) reported that 75% of boys he identified as victims had co-ordination problems. Henderson and Hall (1982) reported that clumsy children at primary school level were teased and bullied more than other children in their class.
3.5 Issues raised for the present study

The literature reviewed in Chapter 2 and Chapter 3 has revealed several themes. 'Is the child liked' and 'what is the child like', to borrow from Parker and Asher (1987), underpinning the thrust of the research. In general the research literature attempts to link peer acceptance, or its converse peer rejection, with factors that are intrinsic to the child, either directly in terms of externalising behaviours, or indirectly by internalising behaviours. Thus, whether the child is disliked because of the way they behave towards their peers or whether they behave badly because they are disliked is by no means conclusive. Similarly, whether a child is disliked because they are more vulnerable or less socially competent or whether they become so as a result of poor acceptance is again debatable. External influences may also play a role. For example social background, family influences and relationships, and a predisposing factor originating from some organic basis. These issues have been addressed through the development of several models exploring causal and incidental models (Parker and Asher, 1987), developmental pathways (Rubin et al, 1990) and Weiner's (1987) synthesis of a reciprocity model.

The literature is not conclusive about the role of visibility with regard to physical impairment. As yet there is very little research investigating these issues but what there is would suggest that children with physical disabilities, integrated wholly or partially into mainstream schools, appear to have more problems than their able bodied peers.
The results from the earlier stages of the study into the causes and consequences of childhood hemiplegia (as described in Chapter 1) have suggested various research questions relating to the school experiences of children with hemiplegia. For example do they fare worse than their able bodied peers? Do they have fewer friends? Are they less popular? And if this is the case, is it mediated by the severity or visibility of their hemiplegia or perhaps other associated problems such as neurological severity, psychiatric caseness, intelligence and behavioural adjustment? Finally, are children with hemiplegia likely to be victims or perpetrators of bullying? The present study attempts to address some of the concerns expressed in the literature relating to the experiences of children with mild physical or learning disabilities and other associated problems who are in mainstream primary schools, in particular the risk of later psychopathology associated with poor peer acceptance, a lack of friends and increased victimisation. Few studies have explored the school experiences of these children and even fewer have included a control group for comparison. The three hypotheses to be tested in this study are:

**Hypothesis 1:** Children with hemiplegia fare worse than classroom controls on the following measures of peer relationships: popularity/unpopularity, reciprocal friendships and victimisation.

**Hypothesis 2:** These group differences in peer relationships are accounted for by differences in contemporaneously measured background characteristics, particularly poor adjustment and lower intelligence.

**Hypothesis 3:** The individual variability in peer problems of children with hemiplegia at Time 2 are partly predictable from characteristics measured at Time 1, with Time 2 measures adding further predictive power.
Chapter 4: Method

4.1 Background to the study

The study presented in this thesis forms part of the second stage of a longitudinal research project concerned with the psychopathology of childhood hemiplegia (see below). The objective of this second stage was to examine the peer relationships of children with hemiplegia at school and to document any other relevant factors which might have a bearing on these. In order to explore peer relationships, at school, between children with hemiplegia and their able-bodied peers, it was necessary to include a control child for each index child. Therefore, this second stage is a case control study, whereas the first phase was a within subjects investigation.

4.2 Design

Table 4.1: A two stage investigation of the psychopathology of childhood hemiplegia.

<table>
<thead>
<tr>
<th>Time 1</th>
<th>A questionnaire survey of parents and teachers of children with hemiplegia plus an in-depth interview study of parents and children.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 2</td>
<td>The present study: a school based study of children with hemiplegia</td>
</tr>
</tbody>
</table>
4.2.1 Time 1: A questionnaire survey of parents and teachers of children with hemiplegia.

4.2.2 Subjects: index children

Four hundred and sixty three children with hemiplegia, living in the Greater London Area, were recruited through Child Development Centres, community paediatricians, physiotherapists, occupational therapists, speech therapists, the voluntary sector and self referral by parents (Goodman and Yude 1996a). Information concerning various aspects of home and school life was obtained from the parents of children by means of questionnaires. In addition, the children's teachers were asked to complete a slightly shorter questionnaire about adjustment and attainment at school. The parent questionnaire included the Rutter A2 behaviour screening questionnaire (Rutter, Tizard and Whitmore, 1970; Schachar, Rutter and Smith 1981), plus additional items on psychopathology and Pro-social behaviour (Goodman 1994). The teacher questionnaire included the Rutter B2 behavioural screening questionnaire (Rutter 1967), the Pro-social Behaviour Questionnaire (Weir and Duveen 1981) and some items from the Conners Rating Scale (Conners 1969).

4.2.3 Time 1: An in-depth interview study of parents and children.

A representative sub-sample of one hundred and fifty one children, drawn from the register of 463 children included in Time 1, aged between 6.0 years and 11.0 years and their parents participated.
The study attempted to obtain a fuller picture of the child's behaviour at home and the parents' perspective of school life. Detailed interviews were carried out by the author with the child's parents (Parental Account of Child Symptoms [PACS]: Taylor, Schachar, Thorley and Weiselberg, 1986). The author also completed a full psychometric assessment (including WISCR, Wechsler, 1974) of each child. The project director (Dr Robert Goodman) assessed the child's neurological state and also interviewed the children to assess their mental state (IOW interview, Rutter, Graham and Yule 1970). On neurological examination, two children did not appear to have hemiplegia and were subsequently excluded from the substantive analyses. A number of variables from both the questionnaire and interview (Time 1) study are included in the detailed analyses of the present study (see Table 4.13).

4.2.4 Time 2: The current study. A school based study of children with hemiplegia.

The purpose of the study was to examine the peer relationships of children with and without disabilities in mainstream schools.

4.2.5 Criteria for inclusion in the study

1) Index children, with hemiplegia, aged between 9.0 and 12.0 years.
2) Full time attendance at a mainstream primary school and IQ > 60.

It was decided to examine the peer relationships of children in Years 5 and 6 of mainstream junior schools. In part this was informed by the subject pool and the
purpose of the study: to examine peer relationships. In choosing to include only children who were in Years 5 and 6 of mainstream primary schools, it was considered that children at this stage in their school careers were likely to be secure and comfortable within the school. Similarly, even those children who had transferred from an infant school on another site would have had at least a year or two to settle down. For the most part, the majority of the children would have been with the same children from the reception class onwards and their friendships could be expected to be relatively stable. The increased incidence of bullying reported by other researchers (Tattum and Lane, 1989; Besag 1989; Smith and Thompson, 1991; Elliot, 1991) at junior school level was a further consideration. Finally, the depth of knowledge which could be expected from the teachers was taken into account. Since in-depth information about school life becomes more difficult to obtain at secondary school level, when children are relatively less well known to one teacher, this study was limited to children in mainstream primary schools.

4.3 Subjects

4.3.1 The study sample

Fifty five children (38 boys and 17 girls) aged between 9.0 years and 11 years 11 months participated in this study. Children with a current Statement of Special Educational Needs who attended mainstream schools were included. Children who attended special schools, including those who spent the majority of their time in a special unit within a mainstream primary school, were excluded from the study.
Although the present study is a further stage of a longitudinal study, the sample size was uncertain when data collection began. Parental consent was obtained at the beginning of the year in which their child reached Year 5 or 6; therefore, when data collection began, the number of parents or schools who would take part could not be predicted. This constraint, i.e. recruiting subjects throughout the duration of the study, was imposed to allow for the fact that a number of the children might be expected to transfer to a special school placement during the three years of data collection. These children would not meet our criteria as set out above. One hundred and forty nine intensively studied children with hemiplegia from Time 1 were potentially available to be included in the school based study. At the time the present study began, 62 of the children seen at Time 1 had already transferred to secondary school and therefore fell outside the upper age limit for inclusion (of these 62, 10 children were in special education and were therefore not included in the following analyses of representativeness). Eighty-seven children fell within the age range for this study. Twenty-eight children were excluded because they were in full time special education leaving 59 children who were eligible to be approached.

4.3.2 Missing cases

One family could not be contacted; three schools declined to take part. Of the remaining 55 children who took part, two schools allowed only partial data collection i.e. interviews with the teachers but not the sociometric interviews with the children. Teacher questionnaires were not completed for four classroom controls.
Table 4.2: Characteristics of index children

<table>
<thead>
<tr>
<th>Gender</th>
<th>38 boys</th>
<th>17 girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age (SD)</td>
<td>10.8 (0.8)</td>
<td>10.6 (0.7)</td>
</tr>
</tbody>
</table>

Table 4.3: WISCR characteristics of index children

<table>
<thead>
<tr>
<th></th>
<th>n = 55 mean (SD)</th>
<th>n = 38 boys mean (SD)</th>
<th>n = 17 girls mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full IQ</td>
<td>86 (16.7)</td>
<td>88 (15.6)</td>
<td>83 (18.8)</td>
</tr>
<tr>
<td>Verbal IQ</td>
<td>92 (18.7)</td>
<td>95 (18.8)</td>
<td>88 (18.1)</td>
</tr>
<tr>
<td>Performance IQ</td>
<td>82 (15.9)</td>
<td>83 (14.5)</td>
<td>79 (18.9)</td>
</tr>
</tbody>
</table>

Table 4.4: Socio-economic group* of index children at Time 1

<table>
<thead>
<tr>
<th></th>
<th>Non - manual</th>
<th>Manual **</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>28</td>
<td>27</td>
</tr>
</tbody>
</table>

* Socio-Economic group based on fathers' occupation.

** "Manual" also includes those cases where father was absent or unknown.
4.3.3 Representativeness of the sample

After excluding the children with low IQ’s or at special school, the only significant difference ($p < 0.0001$) between the 55 children included in this study and the 52 who were not included, having transferred to secondary school, was that on average the Time 2 children were two years younger. Otherwise, the included 55 and the excluded 52 were matched for demographic and neurological factors. There were no differences in social class, neighbourhood deprivation, sex, family adversity, neuro-severity or side of hemiplegia. Therefore, having excluded all the children who did not meet criteria (IQ below 60 or full time attendance at a special school), the children included at Time 2 are a representative sample of children with hemiplegia in mainstream schools.

4.3.4 Subjects: Control children

Fifty five children matched for sex and age (i.e. the next same sex child on the class register) were used as controls. The only exclusion criterion was that the control child should not have a current Statement of Special Educational Needs. These control children have been included to provide direct detailed comparisons of peer relationships of children with and without a disability in a mainstream school. Every child in each class ($n=1502$), completed sociometry and an individual interview regarding the behavioural attributes of all their classmates in order to provide comparable data for both index and control children.
Table 4.5: Characteristics of control children

<table>
<thead>
<tr>
<th>Gender</th>
<th>38 boys</th>
<th>17 girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age (SD)</td>
<td>10.8 (0.7)</td>
<td>10.6 (0.8)</td>
</tr>
</tbody>
</table>

4.4 Measures

The measures used in the study were chosen in order to provide as much information as possible about the index child, the control child, school factors and a whole class analysis of the friendship patterns in the class at the time of the interview (based on the current academic year).

Table 4.6: List of measures and respondents at Time 1 and Time 2

<table>
<thead>
<tr>
<th>Measure</th>
<th>Respondent</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>Questionnaire</td>
<td>Teacher at Time 1</td>
<td>Index child</td>
</tr>
<tr>
<td>Questionnaire</td>
<td>Teacher at Time 2</td>
<td>Index and Control child</td>
</tr>
<tr>
<td>Questionnaire</td>
<td>Parents at Time 1 and 2.</td>
<td>Index child</td>
</tr>
<tr>
<td>Interview</td>
<td>Teacher at Time 2</td>
<td>Index and Control child</td>
</tr>
<tr>
<td>Interview</td>
<td>Headteacher at Time 2</td>
<td>Demography, special needs provision, integration, behaviour policy, incidence of bullying, other school factors</td>
</tr>
<tr>
<td>Sociometry</td>
<td>Time 2</td>
<td>All the children in the index child’s class with parental permission.</td>
</tr>
<tr>
<td>Interview about behavioural attributes of classmates</td>
<td>Time 2</td>
<td>All the children in the index child’s class with parental permission.</td>
</tr>
<tr>
<td>Short interview about any experience of teasing and bullying</td>
<td>Time 2</td>
<td>Index and Control child</td>
</tr>
<tr>
<td>Social skills, short interview</td>
<td>Time 2</td>
<td>Index and Control child</td>
</tr>
</tbody>
</table>
4.4.1 Questionnaire information from parents and teachers

Information was obtained at Time 1 when parents and teachers completed a questionnaire about the index child. At Time 2 parents (index children only) and teachers (index and control children) completed a second questionnaire incorporating the behavioural screening questionnaires previously used at Time 1, 3-5 years earlier. This second parent questionnaire also included items concerning friendships and any incidents of teasing and bullying experienced by their child in the past year. These additional items were in response to specific concerns which became apparent during the analyses of Time 1 measures. Both parent and teacher questionnaires also included new sections about the special educational needs of the index child. The new sections were piloted at Time 2. Teachers also completed a questionnaire about the control child in their class but without the section on special educational needs (see Appendices 6 and 7).

4.4.2 Teacher Interviews:

The interviews with the class teacher were designed and conducted as semi-structured interviews, with the respondents encouraged to give as full an account as possible of the index and control child’s behaviour in various situations.

Class teachers were interviewed about the index and control child’s classroom behaviour in terms of their ability to mix well with their peers and the quality and duration of their friendships. This section of the interview schedule was based, in part, on that used by Taylor, Sandberg, Thorley and Giles (1991) and the Parental Account
of Child Symptoms [PACS] (Taylor, Schachar, Thorley and Weiselberg, 1986). (See Appendix 8 for the interview schedule and the categories for coding).

A section regarding the impact of the child's physical disability (hemiplegia) on activities and relationships in and out of the classroom was written specifically by the author for the current study. Teachers were asked if the index and control subjects were, in their opinion, perpetrators and/or victims of teasing or bullying. This section of the interview was based on one used by Whitney and Smith (1991, 1993).

Although most of the teachers taking part in the pilot interview had been audio taped, the teachers interviewed for the main study were not. The quality of the tapes and the information obtained in the pilot study indicated that recording teacher interviews in a busy staffroom or a classroom with constant interruptions, was counter productive to establishing a good response or rapport. Several teachers reported that they felt inhibited by the tape recorder, and many asked if recording could be suspended whenever they wished to divulge sensitive information. As a consequence, audio taping was discontinued and all the information was recorded verbatim to be included in individual vignettes of both index and control children to be used in additional qualitative analyses.

A number of items in the "teacher interview schedule" were also included in the parental interview [PACS] schedule used at Time 1. Training of the author on the administration and coding of this particular schedule was given by Dr Ellen Heptinstall of The Institute of Psychiatry, London, who had been involved in the design and administration of the interview from the outset. Eleven audiottapes of PACS interviews were rated independently by the author and Dr Heptinstall. Inter-
rater intraclass correlates on the three main dimensional measures of psychopathology (emotional symptoms, conduct problems and hyperactivity) derived from the interviews ranged from 0.78 to 0.98 (p< 0.0001 for all correlations, Heptinstall and Yude, unpublished data).

4.4.3 Headteacher interviews

Headteachers were interviewed (using an interview schedule developed specifically by the author for this study) about whole school issues. This interview with the headteacher was developed following informal discussions with the headteachers of all the pilot schools.

In order that comparisons could be made across all the schools taking part in the study, a schedule was designed to collect factual information on demography, e.g. school location, pupil numbers, ethnicity, social class and matters relating to special needs provision and policy. Information was also obtained about the incidence of bullying in the school, school management of bullying, current whole school policies of acceptable and unacceptable behaviour and the headteacher's individual responses to incidents of bullying [see Appendix 9 for the interview schedule and categories for coding].

Although the main thrust of the study is quantitative in that information is sought specifically about the index and control children, it also provides a framework for qualitative research through in-depth interviews with the headteacher about more general school matters. This qualitative element of the research includes headteacher's
and teacher's comments combined with the author's observations about the schools to be used in a comparative analysis of school ethos across all the schools taking part.

4.4.4 Sociometry

Sociometry is a well established technique for eliciting the pattern of friendships in the classroom. Two methods, *peer ratings* and *peer nominations* (see Chapter 2 for a full description) are available, each tapping into a different level of social relationships. Briefly, *peer ratings* allow children to choose the children they play with by rating them on a three point Likert scale:  

1. *like to play with;*  
2. *like to play with sometimes;*  
3. *do not like to play with much.*  

*Peer nominations* ask children to nominate their best friends, that is—the *three children they play with the most* and the *three children they play with the least,* without rating them.  

*Peer ratings* offer a broader definition of friendship than *peer nominations* which essentially tap children's close friendship groups or one or two best friends. For example, children might include children other than their "best friends" in their "*like to play with"* group simply because they are good at football or some other playground activity, although they might not nominate the same child as a friend in the peer nomination procedure.

Both methods of measuring sociometric status have been used in this study in order to attempt some understanding of the different levels of friendship experienced by both index and control children at school. Although an observational component would have added information on the validity of sociometric choices, it can be costly in terms of research time and could not easily be undertaken in the limited time available for the current study.
The sociometric techniques used in this study have been modified slightly in that most studies, particularly those emanating from the USA, ask children who they like to work and play with. In this study, the children were asked who they like to play with, rather than the children they preferred to work with. In primary schools in the UK, children are more likely to be placed in work groups or pairs by the class teacher with less frequent opportunities for children to choose their own working partners. A further consideration was the variation in both teaching styles and school systems across the 55 schools included in the study. It was decided to restrict the sociometry to "play" friendships rather than work partnerships, since all the children across all the schools would be making these choices for themselves. Despite the reservations of other researchers and the constraints set out above, it was decided to include the sociometric techniques devised by Coie et al, (1982) with modifications: children would be asked about their play companions rather than their work companions and the negative play rating would be altered from "don't play with" to "don't play with much".

The children were assured individually by the author that their friendship choices and any other information they volunteered would remain confidential and would not be discussed with their teachers, parents or classmates. It was also suggested to the children that it might be better not to discuss their friendship choices or any other information arising from the interview with their classmates, although they could, if they wished, discuss the content of the interview with their teachers or their parents. They were also told that the focus of the study was children's friendships.
All the children were given the following information:

"I am going to ask you about your friends - that is the children you generally play with rather than the children you work with. Usually you choose who you play with, but you don't always choose who you work with. Sometimes your teacher chooses, and sometimes you just work with the person next to you on your table. Is this how it is for you?"

4.4.5 Peer ratings:

Class lists were produced for every child in the class taking part in the study (Appendix 10). Each child was asked to rate, by placing a tick in the appropriate column alongside each child's name, whether they:

a) "like to play with them a lot"

b) "like to play with them sometimes"

c) "don't like to play with them very much at all".

Children rated their classmates on a three point scale following the procedure set out by Ladd (1983). The ratings received by each child from all of their classmates were calculated in each of the three categories using a Likert scale:

1 = "don't like to play with much at all"

3 = "like to play with a lot"

2 = "like to play with sometimes"

The total number of points for each child were totalled and converted into a standardised mean play rating score ($Z_{\text{PEER}}$) to allow comparisons to be made across all
the schools taking part. The children were allocated to the following three sociometric categories.

a) popular children have a $Z_{\text{PEER}} > +1.0$

b) unpopular children have a $Z_{\text{PEER}} < -1.0$

c) average children.

4.4.6 Peer nominations:

Class lists were produced for every child in the class taking part in the study (Appendix 11). Every child was asked to tick the square alongside each child's name as follows:

a) the three children whom they played with the most

b) the three children they played with the least

Classification of social status was obtained using the method defined by Coie et al (1982). Here, the absolute frequencies of positive and negative nominations were calculated for each child and converted into standardised like most ($Z_{\text{LIKE}}$) and like least ($Z_{\text{DISLIKE}}$) scores. A social preference score (SP) was calculated by $Z_{\text{LIKE}} - Z_{\text{DISLIKE}}$ and a social impact score (SI) by $Z_{\text{LIKE}} + Z_{\text{DISLIKE}}$. The two resulting SP and SI scores, were re-standardised within the class to provide $Z_{\text{PREFER}}$ and $Z_{\text{IMPACT}}$ scores. These two re-standardised Z scores allow comparisons to be made across all the schools taking part in the study. The classification system provides a two dimensional classification system which results in six status groups as follows:
popular children $Z_{prefer} > +1.0$ $Z_{Like} > 0$ $Z_{Dislike} < 0$
rejected children $Z_{prefer} < -1.0$ $Z_{Like} < 0$ $Z_{Dislike} > 0$
neglected children $Z_{impact} < -1.0$ $Z_{Like} < 0$ $Z_{Dislike} < 0$
controversial children $Z_{impact} > +1.0$ $Z_{Like} > 0$ $Z_{Dislike} > 0$
average children $Z_{Prefer}$ and $Z_{impact}$ between -0.5 and +0.5
all remaining children who did not fit into any of the above categories

**Note:** Coie et al (1982) used an absolute 'liked most' ($Z_{LIKE}$) score of 0 and a social impact score of -1.0 in calculating neglected status. This suggests that a child would be friendless. Coie and Dodge in a later paper (1983) commented that the adoption of such a strict criterion was only useful when an intervention programme was planned as a result of sociometry. In their view, children at elementary school in the USA, which corresponds to primary schools in the UK, are unlikely to fail to be nominated at least once on the "like most" category. In calculating "neglected" social status, this study has opted for Coie and Dodge's (1983) criterion.

### 4.4.7 Sociometric analyses

The techniques for eliciting both peer nominations and peer ratings are similar in that each requires a class list to be produced containing the names of all the children in the registration group, regardless of how many children actually took part. Children who are either absent or who do not have parental permission to take part, do not affect the technique nor the calculation of sociometric status. In the calculation of sociometric status, one nomination more or less is not as crucial as it might appear (see Section 4.4.2) since the child's individual status does not necessarily depend on a reciprocal relationship. For example, a child with just one best friend may fall into the neglected status category and the child will remain in the same neglected status category whether a reciprocal nomination has been received or not; e.g. if the child's best friend is absent on the day of the sociometric interview. It should also be noted that both
systems, i.e. peer ratings and peer nominations, define children as *popular* or *unpopular* with the latter further defining *unpopular children*, as either *rejected* or *neglected*.

### 4.5 Child Interviews

#### 4.5.1 Behavioural attributes

Every child in the class was asked to nominate a child (or children) who best fitted four behavioural categories:

1) "the shy or quiet member of the class"
2) "the most disruptive child"
3) "the most aggressive child"
4) "the child who was teased or picked on the most"

These four items were selected from the pool of 24 behavioural descriptions used originally by Coie, Dodge and Copetelli (1982) and Coie and Dodge (1983). This interview was conducted in a very informal manner. There was no pressure on the child to answer if he or she preferred not to divulge sensitive or negative information about a classmate. As a result there were a number of classes where less than half the children responded and a number of schools who had specifically requested that this measure not be employed. The measure was included solely to support the numerical data on sociometric status of the index child along with the additional information obtained at Time 1 and Time 2 (see Table 4.6). Teachers were also asked
to nominate the three children whom they perceived to be the most aggressive children in their class.

4.5.2 Social skills

The index and control child were both interviewed to elicit their responses to four different hypothetical situations. This technique is designed to obtain the child’s perspective in various situations. It also provides complementary information to teacher or peer reports on propensities to respond in particular ways (with aggression, withdrawal, conciliation etc.). For example, whether a child felt victimised or not might inform his or her response to a hypothetical situation. Similarly, a child described as ‘aggressive’ by his or her peers might be more likely to suggest a physical or verbal aggressive response before making a proper assessment of the situation. The interview schedule (see Appendix 12) detailed below is based on the hypothetical situations used by Renshaw and Asher (1983) and Olurin (1991) in similar studies.

Four hypothetical stories describing ambiguous social situations were read out to the index and control child. These were designed to measure the child’s response to:

1) an ambiguous aggressive situation  
2) an entry situation  
3) an ambiguous anti-social event  
4) a friendship situation
4.5.3 The stories

1) You are in the playground, when someone in your class throws a ball really hard onto your back.

2) It is a wet playtime, and you are in your classroom with nothing to do. You see two children in your class get out a game of Monopoly to play. You go over to join them and they say “we didn’t ask you to play with us”.

3) It is going home time. You go to get your coat off the peg and it is not there. As you turn around, you see someone from your class walk past wearing a coat exactly like yours.

4) At playtime you usually play with your friend most of the time. One day you come out to play and your friend is playing with somebody who you don’t like.

Children were asked to respond to each story as follows:

1) Do you think this happened on purpose? Or by accident? Or don’t know?

2) What do you think you could do if this happened to you?

(Children are encouraged to generate as many strategies as possible)

3) What do you think you are most likely to do in this situation?

(Children are asked to select just one of their generated strategies)

The rating criteria followed protocols suggested by Renshaw and Asher (1983), and Olurin (1992, unpublished data). The child’s response was coded if a clear answer was obtained. However an ambiguous response which did not clearly fall into the
“don’t know” category was subjected to further probes to establish if the child’s perception of the incident could be established.

1) Intent:
Did the child perceive the action e.g. a football hitting them in the back or a child taking their coat as an act of aggression or hostility, an accident or an unpremeditated event for which they can attribute no cause or intention.

2) Competence rating:
What would the child choose to do in each of the hypothetical situations presented.
(The total number of strategies generated was recorded verbatim and the child asked to select just one).

The chosen strategy was coded according to the criteria set out below.

Passive: examples might include:-
- makes no comment if children refuse to let them play a game
- shrugs off the fact that their friend is playing with someone they do not like
- just goes off in a bad mood
- helpless “there is nothing I can do”
- finds someone else to play with
- attaches very little importance to the event
- makes no comment
- plays with other children if refused entry to the game or friend goes off with another child, or plays alone
- child not overly concerned and implies that events are beyond his/her control
Competent: examples might include:-

- evidence that the child thinks before acting
- child considers both sides of the situation
- rarely reports incidents to someone in authority unless the situation is serious enough to warrant it or they cannot manage the situation themselves
- child might ask if they can join in a game or would check the label in the coat before jumping to conclusions
- child would consider a logical explanation for the incident and perceived intent. For example, being late coming out to play and therefore their best friend had begun to play with another child. Or the coat was identical to their own and thus a genuine mistake.

Authority/Rule bound: examples might include:-

- child’s first response in any situation is to tell someone in authority
- child sees most situations in terms of rules - i.e. what is ‘right and proper’ in that situation
- looks to others (children and adults) to confirm and uphold their view of the world

Aggressive: examples might include:-

- child usually on the offensive (perceiving hostile intent) verbally, sometimes with the addition of physical action.
- child acts before asking questions or establishing why the incident occurred
- child rarely perceives an incident from an alternative perspective
- child assumes his/her rights are paramount.
- child is argumentative, impulsive, accusatory
3) Outcome:
The child’s perception of what would happen as a result of their chosen strategy, for example, negative, positive, or mixed.

4) Emotional response:
The child’s perception of how they would feel about the outcome, for example, angry, sad or upset, happy, neutral.

4.5.4 Teasing and Bullying

At both Time 1 and Time 2, parents and teachers had been asked about the index child’s popularity, and if, in their opinion, he or she bullied other children. Also at Time 1, index children had been asked about their current friendships and the severity and frequency of any incidents of teasing and bullying they might have experienced in the previous year. It was decided to repeat this section of the interview at Time 2 to see if anything had changed. The control child was also interviewed at Time 2 about the severity and frequency of any teasing and bullying they may have experienced in the current school year to provide a basis for comparison. The interview schedule was identical to that used at Time 1 of the study described above (Appendix 13).

4.6 The Pilot Study

Both interview schedules, (headteacher and teacher) as set out above, were piloted on 10 mainstream primary schools with a hemiplegic pupil. These schools were volunteers who had been approached by the parents of children on the main research
register or from within the parent support group (Hemi-Help). None of the schools taking part in the pilot study had pupils who had been included in the intensive interview stage of the study (Time 1) described above.

4.6.1 Pilot Teacher Interviews

The teachers interviewed for the pilot study were told that the interview schedule was in the process of refinement and that any comments they made about the ease or difficulty of responding to questions would be noted and incorporated in the final interview schedule (see Appendix 8). This approach was central to the final content of the interview schedule and its acceptability to teachers generally. The first three teachers to be interviewed were given the complete Sandberg schedule with the author's additional sections regarding SEN, the impact of hemiplegia and Whitney's schedule concerning teasing and bullying. This combined schedule proved to be too long for the average time most teachers could spare. The Sandberg schedule was revised by removing some of the minute detail in the classroom behaviour section and the elimination of questions more applicable to younger children e.g. "sharing toys and sticking to the rules of games". Whitney's schedule survived in essence but the final coding categories were a result of an elicited pool of responses from the teachers and the author's experience of index children's responses obtained at Time 1.

The section specifically concerned with the impact of the child's hemiplegia was incorporated in the middle of the "relationships and behaviour" section of the schedule where it fitted easily into the flow of the interview. In general, the interview schedule retained most of its original form — albeit somewhat shorter. The major revisions
were in the refinement and elimination of the presumed less useful coding categories.

All the teachers interviewed in the pilot study had made useful comments and suggestions which contributed to the final interview schedule.

NB. All the teachers who were interviewed for the pilot study had indicated the children who were, in their opinion, aggressive or victims and/or perpetrators of teasing and bullying. They had also indicated the children who in their opinion were the most confident and popular children, and the least popular children. However, in the main study the response rate from teachers was much lower. A number of teachers were also unwilling to allocate the children to popular, unpopular or aggressive categories. Similarly, several schools preferred us not to ask the children to nominate the negative behavioural attributes of their classmates (see Section 4.5.1). Therefore, the correlation between teacher and peer reported propensities for 'behavioural attributes' with 'social skills' for the index and control child, could not be carried out satisfactorily, and this particular level of analysis was discarded.

4.6.2 Pilot Child Interviews

The pilot sociometric and social skills interviews were carried out with Years 5 and 6 of a London Primary School (n = 40). Sociometry is a well established technique and only requires practice to administer. The child interview based on Coie et al's list of behavioural attributes (Coie and Dodge 1983) was reduced from 6 categories to 4 because two categories proved to be of little value with this age group. Firstly, children found it difficult to attribute leadership qualities to a classmate and secondly, 'telling tales' was not considered such a heinous crime for 10-11 year olds as it had been for the 5-6 year olds in another study (Olorun 1992, personal communication).

The social skills interviews were audio taped and rated by the author and Dr Helen McConachie, a clinical psychologist, on the four categories listed above (intentionality,
competence, outcome, emotional response). Inter-rater reliability was high for intent (Kappa 0.96) and competence rating (Kappa 0.78). However, the remaining two categories, 'outcome' and 'emotional response', were harder to rate due to the inability of most of the children to extrapolate the consequences of their actions and their resulting emotional state in a hypothetical situation. These two categories were subsequently dropped from the protocol. Similarly, the children were not audio-taped in the main study because, 1) it was found to be intrusive and 2) whether taped or not, the children produced on average only 2-3 strategies per story. It was decided to record the children's responses verbatim and code according to the criteria set out above for intent, competence and number of strategies generated.

4.7 Procedure

The index children were included in the current study only when permission was given by their parents to allow the research team to contact each school by letter [see Appendices 1, 2 and 3]. The letter was followed up by a visit to the school to explain the rationale and design of the study. Once the Headteacher had agreed to allow the school to take part in the study, the school was sent a detailed protocol (Appendix 4). Schools were also asked to send a standard 'opt out' letter, (Appendix 5) on behalf of the research team, to all the parents of the children in the index child's class, asking permission for their child to take part in the research. Thus if a parent did not return the tear off slip, consent was assumed. However, if parents required further information prior to giving their consent, they were contacted through the school, by the author, who provided more detailed information.
In each year of data collection, parents and schools were contacted in the first half of
the autumn term i.e. between September and the end of October. In year 1, data
collection began after the Easter half term break. In year 2 when data collection began
after the autumn half term break, it soon became apparent that after just six weeks of
teaching the class, the teachers did not possess the depth of knowledge about their
pupils required by the study (9 interviews completed). In year 3, data collection was
held over until the beginning of the Easter term.

Each school was allocated two whole school days to minimise disruption, thus
allowing the adult and child interviews and sociometry to be fitted around the school
time-table. Sociometric measures and child interviews were carried out where
possible on the first day. This was for both practical and research purposes. Firstly,
the teacher could be interviewed, on the second day, about the control child in the
knowledge that the child had taken part in the sociometric interview. Secondly, the
author would avoid bias in the interview with the index and control children,
specifically in relation to any questions about behavioural attributes, since the teacher
would not have given any information about any behavioural problems before either
index or control child was interviewed.

Every child in the class, with parental permission, was seen individually by the author.
In some schools a quiet room where the interview could be carried out without
interruption or distraction was provided. In other schools, the interviews were
conducted in less than ideal conditions with frequent interruptions and very little
privacy.
Headteachers were usually interviewed in their rooms in privacy. However, interviewing teachers during the school day was difficult. Some schools arranged cover for a teacher and the interview could be carried out in an empty classroom or staffroom. Other teachers had limited time or no cover. Interviews were sometimes carried out piecemeal in short sections throughout a school day. A number of interviews were conducted at lunchtime in a corner of a busy staff room. Several interviews were carried out just outside the classroom with a teacher keeping an eye on the class at the same time. One or two interviews were completed by telephone. However, despite the difficulties, all the information required for the study was obtained to a level at which all the codings could be completed.

4.8 Preliminary Analyses

4.8.1 Summary Variables

Three summary variables were calculated: victimisation, friendships and school effectiveness/adequacy. The criteria for these summary variables are set out below.

4.8.2 Victimisation

Information about victimisation, over the past year, was collected from several sources. During the in-depth interviews, teachers were asked if the children (index and control) were victims of teasing or bullying, what form it took, the frequency, the severity and the child's typical response. They were also asked what, in their opinion, was the motivating factor for the perpetrators in choosing to victimise this child. The children (index and control) were asked during their individual interviews if they were
victimised, including the severity, the frequency and the focus of incidents. The remaining children were asked during their individual sociometric interviews to identify those children who, in their opinion, were victimised the most often in their class.

**Preliminary analysis:** Thirty five anonymised vignettes (25 index and 10 controls), including the information obtained from all sources detailed above, were produced. In situations where a discrepancy occurred between teacher’s report, peer report and child’s self report, the child’s report was given greater weighting. Children were allocated to the following 4 categories (see Table 4.7 and Appendix 14 for a detailed description)

**Table 4.7: Coding categories for victimisation**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No victimisation</td>
</tr>
<tr>
<td>1</td>
<td>Dubious - no different from other children</td>
</tr>
<tr>
<td>2</td>
<td>Mild - up to 1-2 days per week, pushed or shoved but not hurt, brief ostracism, limited ridicule, minor damage to property</td>
</tr>
<tr>
<td>3</td>
<td>Severe - on 3-5 days per week, assaulted, serious damage to property, marked humiliation or ostracism</td>
</tr>
</tbody>
</table>

A reliability study was carried out following a detailed protocol (Appendix 14) with Dr. Robert Goodman (R.G.), a paediatric neuropsychiatrist (Kappa 0.68) and Dr. Helen McConachie (H.McC.), a clinical psychologist, (Kappa 0.72) and judged acceptable to proceed using the author’s ratings in analysis.
4.8.3 Friendships

The information collected during sociometry was used to calculate the friendships of index and control children. Both index and control children nominated the three children they liked to play with most or the least (peer nominations) and the children they liked to play with a lot, just sometimes, or not much at all (peer ratings). The reciprocated nominations of their three peer nominees were rated according to the coding protocol set out below (Table 4.8). The ‘friendship score’ obtained by each child was the sum of their scores, the highest score being +6 and the lowest -6, the resulting score representing both peer rating and peer nomination scores (see Table 4.9 for a worked example).

Table 4.8: Coding categories for friendships

<table>
<thead>
<tr>
<th>Each positive reciprocated peer nomination received by index or control</th>
<th>= +2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Each negative reciprocated peer nomination received by index or control</td>
<td>= - 2</td>
</tr>
</tbody>
</table>

In the event that neither a positive nor negative nomination was obtained:

<table>
<thead>
<tr>
<th>Reciprocated “likes to play with a lot”</th>
<th>= +1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reciprocated “likes to play with sometimes”</td>
<td>= 0</td>
</tr>
<tr>
<td>Reciprocated “don’t like to play with much”</td>
<td>= - 1</td>
</tr>
</tbody>
</table>
Table 4.9: Worked example of friendship score

<table>
<thead>
<tr>
<th>SAM nominated as his best friends</th>
<th></th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLIN</td>
<td>COLIN chose SAM as his best friend</td>
<td>+2</td>
</tr>
<tr>
<td>WILLIAM</td>
<td>WILLIAM said SAM was one of the three children he liked to play with the least</td>
<td>-2</td>
</tr>
<tr>
<td>DAVID</td>
<td>DAVID did not choose SAM as a best friend but rated him as a child he did like to play with a lot</td>
<td>+1</td>
</tr>
<tr>
<td></td>
<td>SAM'S TOTAL SCORE</td>
<td>+1</td>
</tr>
</tbody>
</table>

4.8.4 Reciprocal friendship score

A reciprocal friendship score was calculated by totalling the number of reciprocated friendships obtained by each child (i.e. the number of +2 scores received).

N.B. Reciprocated friendships are defined as an acknowledged mutual friendship.

4.8.5 School ethos/effectiveness/adequacy

A great deal of information was collected upon which to calculate this measure of school ethos. However, it proved to be the most difficult to evaluate.
Preliminary analysis: Fifteen vignettes were produced based on information obtained from interviews with Headteachers and teachers. Additional information was also obtained incidentally from other members of staff. Information about school ethos, management styles, integration (social and differentiation of work), whole school behaviour policies, Special Educational Needs policies and playground supervision was included. A coding protocol was devised and a reliability study (author and R.G. and H.McC.) was carried out. Following discussion between all the raters, it was decided that rating school effectiveness or adequacy solely from vignettes was not a viable option on two counts. Firstly, the information obtained from each of the schools varied considerably. For example some schools provided minimal information due to time constraints, whereas others were able to allocate more time for detailed discussion. Secondly, it proved almost impossible for the independent raters (R.G and H.McC) to review, contrast and compare the schools across the sample without the additional observational material acquired by the author during the two days spent in each school. Consequently, these summary variables are based entirely on the author's perspective. They are comparative measures, across all schools in the study, based on four main issues.

1) Special Educational Needs: How does the school address the needs of children with disabilities in the school? Does the school have a Special Educational Needs policy in place? How are children integrated - socially and in the classroom? Can the school meet non-statutory special needs?

2) Victimisation, teasing and bullying: How does the school address the issues of teasing and bullying? Does the school have a written whole school behaviour policy? How was this policy developed?
3) **School management/ethos:** (As judged by the author’s impressions) Does the school appear to be happy, friendly, well organised with a democratic consultative management? Are the staff accessible to parents? Do staff co-operate with each other? Is it a happy school?

4) **Playground supervision:** How much are supervisory staff involved in the development of school policy? Are supervisory staff allowed to apply school policy without reference to teaching staff? Who and how many staff are on duty at break and lunchtime?

Given that the schools included in the study are a cross section of 50 schools in Greater London and 5 schools outside London, comparisons were further confounded by the resources offered by each local education authority, the population characteristics of the catchment area, the number of special needs children in the school (including Section 11 pupils who do not have English as a first language), and the fabric of the building and playground. The first level of analysis was to compare each school to the categorical criteria consistent with “average status”. The second level of analysis considered each school’s individual response to behaviour policy, special needs policy, school management, staff reciprocity, parent/school liaison and whole school ethos. The author’s judgement of the efficacy of each school on each of the categories set out above located the school into the above average, average or below average category as set out in Table 4.10 below.
Table 4.10: Coding categories for school ethos based on categories 1, 2 and 3 above

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td><strong>Above average:</strong> school has a written behaviour policy. Behaviour policy developed with staff, children, governors. A Special Needs policy. Meets non-statutory special needs from own budget, provides appropriate INSET, seeks multi-professional advice. Good parent/school liaison. School management shared, democratic and consultative. Good co-operation/reciprocity between staff. Caring sharing ethos promoted throughout the school at assemblies and day to day activities. A safe environment and support offered to all children.</td>
</tr>
<tr>
<td>1</td>
<td><strong>Average:</strong> school has a written behaviour policy (or in draft form to be reviewed). Some consultation on behaviour policy. A Special Needs policy (or in draft form to be reviewed). Meets some special needs from own budget, provides some INSET, some multi-professional advice sought. Good parent/school liaison. School management shared and democratic. Some consultation. Some co-operation/reciprocity between staff. Shared responsibility for school ethos between pupils and staff. Problems discussed in class or at assemblies.</td>
</tr>
<tr>
<td>2</td>
<td><strong>Below average:</strong> school has no behaviour policy and manages all incidents on their own merits. No Special Needs policy. Special needs managed reactively and often through statutory funding. School management hierarchical, divisions between staff. Poor co-operation/reciprocity between staff. Inconsistency of approach to problems/incidents.</td>
</tr>
</tbody>
</table>

Table 4.11: Playground supervision

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Playground supervisors involved in developing policy. Consistent approach from all staff.</td>
</tr>
<tr>
<td>1</td>
<td>Playground supervisors involved at playground level only: Incidents managed on site, “nip in the bud” policy. Consistency of approach attempted. More serious incidents referred to teaching staff.</td>
</tr>
<tr>
<td>2</td>
<td>Playground supervisors not involved in policy development or decisions. No clear consistent method for dealing with incidents. Most incidents dealt with by class teacher or Headteacher if serious.</td>
</tr>
</tbody>
</table>
4.8.6 Further summary variables

Further summary variables were calculated to facilitate analyses.

4.8.7 Teacher judged global adjustment measure (GAM1 and GAM2)

Total Rutter scores and Pro-social scores obtained from teacher questionnaires at Time 1 and Time 2 were calculated. The Rutter and Pro-social scores were highly correlated with the same patterns of association, consequently a unidimensional, global adjustment measure was calculated for Time 1 (GAM1) and Time 2 (GAM2): the higher the score, the more troublesome the child's behaviour.

4.8.8 Teacher rated peer problems

Information about peer problems obtained from teacher interviews and questionnaires at Time 2 were entered into a factor analysis. There proved to be a single main factor on which all items loaded, justifying the construction of a single scale by adding all the relevant items; interview items about the quality of friendships and the ability to get on well with other children plus two individual Rutter items related to popularity and solitariness.
4.8.9 Parent view of child adjustment

Total Rutter scores and Pro-social scores obtained from parent questionnaires at Time 1 and Time 2 were calculated. The Rutter and Pro-social scores were found to be two separate dimensions and were not highly correlated. Therefore these scores were retained as separate measures - a total parental Rutter score and a total parental Prosocial score (Time 1 and Time 2).

4.8.10 Parent view of peer problems

Additional information obtained from parent questionnaires at Time 2 was factor analysed to obtain a single variable of parental judgements of peer problems at school. These included items about the quality of friendships and experiences of victimisation and four questionnaire items concerning popularity, unpopularity, solitariness and whether the child gets on better with adults than children.

4.8.11 Teacher rated total deviance score (TIVTOT)

A combined total deviance score, a total of three subscores, obtained from teacher interviews was calculated. [The three items were identical to those used in parent interviews (PACS) at Time 1]. Each subscore measures the average symptom score in each of the three domains - emotional symptoms, conduct problems, hyperactivity - and is a composite score which gives equal weight to each symptom.
4.8.12 Teacher estimated IQ

Although psychometrically derived IQ scores were available for index children, comparable measures were not available for classroom controls. Therefore, a teacher estimated ratio IQ was derived from approximate mental age divided by chronological age, for index and controls to allow between groups analyses (Goodman and Yude 1996b).

4.8.13 Summary of variables used in analyses

Tables 4.12-4.14 set out the content and composition of the dependent and independent variables used in the analyses.
Table 4.12: Dependent (outcome) variables

<table>
<thead>
<tr>
<th>Variable name</th>
<th>Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>frsum</td>
<td>Total friendship score</td>
<td>elicited via sociometry</td>
</tr>
<tr>
<td>vicsum</td>
<td>Total victimisation score</td>
<td>derived from teacher, child’s self report and classmates reports of frequency and severity of victimisation</td>
</tr>
<tr>
<td>p2peer</td>
<td>Parents’ judgement of peer problems</td>
<td>derived from follow up parent questionnaire at Time 2</td>
</tr>
<tr>
<td>tfriend</td>
<td>Teachers’ judgement of peer problems</td>
<td>derived from teacher interview and follow up questionnaire at Time 2</td>
</tr>
<tr>
<td>ZPEER</td>
<td>Standardised score</td>
<td>derived from sociometric play rating score (peer ratings)</td>
</tr>
<tr>
<td>ZPREFER</td>
<td>Standardised score</td>
<td>derived from sociometric like most preference score (peer nominations)</td>
</tr>
<tr>
<td>ZIMPACT</td>
<td>Standardised score</td>
<td>derived from sociometric like least preference score (peer nominations)</td>
</tr>
<tr>
<td>ZLIKE</td>
<td>Standardised score</td>
<td>Total number of positive nominations</td>
</tr>
<tr>
<td>ZDISLIKE</td>
<td>Standardised score</td>
<td>Total number of negative nominations</td>
</tr>
<tr>
<td>negrej</td>
<td>Combined, recoded, standardised sociometric categories</td>
<td>derived from neglected and rejected sociometric status scores (peer nominations)</td>
</tr>
<tr>
<td>unpopular</td>
<td>Recoded</td>
<td>combined popular/unpopular sociometric status</td>
</tr>
</tbody>
</table>
Table 4.13:  **Independent variables (Time 1).**

<table>
<thead>
<tr>
<th>Variables from Time 1</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>fscore</td>
<td>family adversity score</td>
</tr>
<tr>
<td></td>
<td>high parental criticism, low parental warmth, poor coping skills, high maternal malaise score</td>
</tr>
<tr>
<td>hemiside</td>
<td>side of hemiplegia</td>
</tr>
<tr>
<td>IQ</td>
<td>full scale WISCR</td>
</tr>
<tr>
<td>nonman</td>
<td>social class based on father's occupation</td>
</tr>
<tr>
<td>nscore</td>
<td>neurological score</td>
</tr>
<tr>
<td></td>
<td>severity of hemiplegia, bilateral involvement, seizure, microcephaly, onset</td>
</tr>
<tr>
<td>sex</td>
<td></td>
</tr>
<tr>
<td>GAM1</td>
<td>unidimensional global adjustment measure from total teacher Rutter and Pro-social scores</td>
</tr>
<tr>
<td></td>
<td>behavioural measure from good to bad behaviour</td>
</tr>
<tr>
<td>ppro</td>
<td>parent questionnaire total Pro-social score</td>
</tr>
<tr>
<td>prutot</td>
<td>parent questionnaire total Rutter score</td>
</tr>
<tr>
<td>pacstot</td>
<td>total parental (PACS) diversity scores</td>
</tr>
<tr>
<td></td>
<td>emotional symptoms, hyperactivity and conduct problem subscores</td>
</tr>
<tr>
<td>severe</td>
<td>visibility/severity of hemiplegia</td>
</tr>
<tr>
<td></td>
<td>rated from clinical data</td>
</tr>
<tr>
<td>vebd</td>
<td>dimension of psychiatric caseness</td>
</tr>
<tr>
<td></td>
<td>rated from vignettes</td>
</tr>
<tr>
<td>Variables from Time 2</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>p2pro</td>
<td>parent questionnaire total Pro-social score</td>
</tr>
<tr>
<td>p2rutot</td>
<td>parent questionnaire total Rutter score</td>
</tr>
<tr>
<td>GAM2</td>
<td>unidimensional global adjustment measure from total teacher Rutter and Prosocial scores</td>
</tr>
<tr>
<td></td>
<td>behavioural measure from good to bad</td>
</tr>
<tr>
<td>TIQ</td>
<td>Teacher derived ratio IQ</td>
</tr>
<tr>
<td>tivem</td>
<td>teacher interview emotional symptoms subscore</td>
</tr>
<tr>
<td>tivco</td>
<td>teacher interview conduct problems subscore</td>
</tr>
<tr>
<td>tivha</td>
<td>teacher interview hyperactivity score</td>
</tr>
<tr>
<td>tivtot</td>
<td>total of teacher interview deviance measures (above)</td>
</tr>
<tr>
<td></td>
<td>emotional symptoms, hyperactivity and conduct problem subscores</td>
</tr>
<tr>
<td>socskill</td>
<td>total score from social skills stories</td>
</tr>
<tr>
<td>school ethos</td>
<td>measure of school efficacy</td>
</tr>
</tbody>
</table>
4.9 Statistical Analyses

Table 4.15: Analysis plan

<table>
<thead>
<tr>
<th>Between groups analyses:</th>
<th>Chi-square; independent categorical data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fisher’s Exact; independent categorical data</td>
</tr>
<tr>
<td></td>
<td>McNemar test; categorical paired data</td>
</tr>
<tr>
<td></td>
<td>Spearman rank: non-parametric correlations</td>
</tr>
<tr>
<td></td>
<td>Wilcoxon; paired ordinal data</td>
</tr>
<tr>
<td></td>
<td>Independent t-test</td>
</tr>
<tr>
<td></td>
<td>Paired t-test</td>
</tr>
<tr>
<td>Multivariate analyses:</td>
<td>Factor analysis (data reduction)</td>
</tr>
<tr>
<td></td>
<td>Linear multiple regression</td>
</tr>
</tbody>
</table>

4.9.1 Analyses used in the study

Table 4.15 sets out the analyses used in the study. Given that scores were normally distributed on some variables but not on others, Spearman rank correlations were used throughout. Chi square and/or Fisher’s Exact probability test and McNemar tests were used for testing group differences in categorical data e.g. peer nomination status groups. Wilcoxon tests and paired t-tests were used to analyse matched pair, ordinal
data e.g. levels of victimisation, reciprocal friendships and teacher rated peer problems. Paired t-tests were used to measure differences in sociometric data and other group differences. Independent and paired t-tests were used in post-hoc analyses where appropriate.

Multivariate analyses included factor analysis for data reduction and linear regression to examine the independent predictive power of correlated predictors in determining outcomes. The accepted significance levels for planned analyses was $p < 0.05$.

Post-hoc analyses were carried to look for associations rather than hypothesis testing and consequently protected significance levels were not used.

SPSS Windows, version 6.0. was used to manage the data and to carry out the statistical analyses.
Chapter 5: Results

5.1 Hypotheses

**Hypothesis 1:** Children with hemiplegia (*index children*) fare worse than classroom controls (*controls*) on the following measures of peer relationships: popularity/unpopularity, reciprocal friendships and victimisation.

**Hypothesis 2:** These group differences in peer relationships are accounted for by differences in contemporaneously measured background characteristics, particularly poor adjustment and lower intelligence.

**Hypothesis 3:** The individual variability in peer problems of children with hemiplegia at Time 2 are partly predictable from characteristics measured at Time 1, with Time 2 measures adding further predictive power:

i) Independent Time 1 predictors are likely to include visibility, underlying brain damage, intelligence and level of psychopathology.

ii) Independent Time 2 predictors are likely to include level of psychopathology, social skills and school ethos.
5.2 Testing hypothesis 1: Do index children have worse peer relationships?

Table 5.1: Comparisons of sociometric status of index and control children (n=53): Group means(SD), matched pairs analysis (paired t-test)

<table>
<thead>
<tr>
<th></th>
<th>index mean (SD)</th>
<th>control mean (SD)</th>
<th>t</th>
<th>p (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZPEER (Peer ratings)</td>
<td>-0.29 (1.05)</td>
<td>-0.05 (0.85)</td>
<td>-1.43</td>
<td>0.16</td>
</tr>
<tr>
<td>ZPREFER (Peer nominations)</td>
<td>-0.47 (0.95)</td>
<td>-0.03 (0.98)</td>
<td>-2.36</td>
<td>0.02</td>
</tr>
<tr>
<td>ZIMPACT (Peer nominations)</td>
<td>-0.19 (1.07)</td>
<td>0.0 (0.89)</td>
<td>-0.97</td>
<td>0.34</td>
</tr>
<tr>
<td>ZLIKE (Total positive nominations)</td>
<td>-0.48 (0.84)</td>
<td>-0.03 (0.96)</td>
<td>-2.36</td>
<td>0.01</td>
</tr>
<tr>
<td>ZDISLIKE (Total negative nominations)</td>
<td>0.25 (1.11)</td>
<td>0.03 (0.92)</td>
<td>1.12</td>
<td>0.27</td>
</tr>
</tbody>
</table>

5.2.1 Sociometry

Two measures of social status as described in section 4.4.4 were used in the present study. Each measure categorises children as either popular, unpopular or of average status, according to the algorithm of each method (see Tables 5.2 and 5.3) [n=53 because two schools did not allow sociometry].
5.2.2 Peer ratings: whom children choose to play with in the playground

Standardised scores ($Z^{\text{PEER}}$) were calculated to define social status in terms of who children choose to play with based on the rating scale described in Section 4.4.5. Children with standardised play rating scores ($Z^{\text{PEER}}$) greater than +1.00 were categorised as \textit{popular} and those with standardised play rating scores ($Z^{\text{PEER}}$) less than -1.00 were categorised as \textit{unpopular}. All remaining children were categorised as being of average status.

No significant differences were found between the index and control children, although index children were on average less popular in the playground (see Table 5.1). It would appear that the majority of index children are not strongly discriminated against and are included in playground activities (see Figure 5.1).
5.2.3 Peer nominations: children's preferred friends.

Standardised scores were calculated as described in Section 4.4.6. following the six categories devised by Coie et al (1982) to define social status. However, in the present study there were very few controversial children (i.e. children who received an equal number of positive and negative nominations), consequently these children have been included in the popular category. Similarly, children in the average and other categories were combined into a single average category. Children with standardised social preference scores ($Z_{PREFER}$) greater than 1.00 and more positive than negative
nominations were categorised as **popular**. Children with social preference scores ($Z^{\text{PREFER}}$) more negative than -1.00 and more negative than positive nominations were categorised as **rejected unpopular** children. The children with standardised social impact scores ($Z^{\text{IMPACT}}$) of less than -1.00 and with few or no positive or negative nominations were categorised as **neglected unpopular** children.

Figure 5.2 presents the four categories used in the further analyses. Significant differences were obtained between the two groups on **social preference**, a measure of popularity based on how often the child is chosen as a preferred friend, thus supporting hypothesis 1. But no significant differences were found between index and controls on **social impact**, a measure of unpopularity, and hypothesis 1 was not supported on this measure. Further comparisons (see Table 5.1) of the two groups suggest that index children are less likely than controls to have positive nominations ($Z^{\text{LIKE}}$), once again supporting hypothesis 1, with a non-significant trend towards more negative nominations ($Z^{\text{DISLIKE}}$).

Figures 5.1 and 5.2 both describe children's sociometric status categories as popular or unpopular, which can be confusing. However, they differ in that the definition of popularity in peer relationships is based on whom children choose to play with in the playground - a more casual relationship than peer nominations which measure children's preferred friendships, that is, their best friends.
5.2.4 Neglected and rejected children.

Within both index and control groups there were no significant differences between neglected and rejected children on behavioural deviance scores or teacher based IQ.
For some analyses therefore, neglected and rejected children were combined into a single categorical measure of unpopularity. Though the number of unpopular children was higher in the index group than in the control group (24 versus 17), the difference was not significant (McNemar test, $p < 0.18$, two tailed).

5.3 Friendship

5.3.1 Friendship score

A friendship score was calculated for each child (index and controls) as described in Section 4.8.3. Index children were found to have lower friendship scores than controls and hypothesis 1 was supported (see Table 5.2 and Figure 5.3).

Table 5.2: Comparison of main outcome measures between index and control children: Group means (SD), matched pairs analysis (Wilcoxon)

<table>
<thead>
<tr>
<th></th>
<th>index</th>
<th>control</th>
<th>z</th>
<th>p (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friendship score</td>
<td>2.40 (2.51)</td>
<td>3.62 (2.17)</td>
<td>-2.09</td>
<td>0.04</td>
</tr>
<tr>
<td>Reciprocated friendships</td>
<td>1.1 (1.0)</td>
<td>1.6 (1.0)</td>
<td>-2.24</td>
<td>0.02</td>
</tr>
<tr>
<td>Teacher rated peer problems</td>
<td>5.09 (0.55)</td>
<td>3.93 (2.98)</td>
<td>-1.98</td>
<td>0.05</td>
</tr>
<tr>
<td>Victimisation</td>
<td>1.35 (1.09)</td>
<td>0.49 (0.81)</td>
<td>-3.81</td>
<td>0.0001</td>
</tr>
</tbody>
</table>
5.3.2 Reciprocated friendships

The actual number of reciprocated friendships as described in section 4.8.4 was calculated for each child. Index children were found to have fewer reciprocated friendships than controls and hypothesis 1 was supported (see Figure 5.4).
Figure 5.4: Reciprocated friendships

Teacher judgements of peer relationships were obtained from teacher interviews and questionnaires. A significant difference was obtained between index and classroom controls (see Table 5.2) with index children judged by their teachers to experience more peer problems, thus supporting hypothesis 1.
A total victimisation score as described in section 4.8.2 was calculated for each child (index and control). Index children were found to be more victimised than controls which supports hypothesis 1 (see Table 5.2, Figure 5.5).

Figure 5.5: Comparison of victimisation ratings of index and control children
5.6 Post hoc analyses: related to hypothesis 1

5.6.1 Sociometric status: peer nominations, neglected vs. rejected children

Even though no significant statistical differences were obtained between neglected and rejected children, either in the index or control group, a qualitative comparison of their attributes was attempted. From teacher reports (questionnaire and interview), the descriptively distinguishing elements of unpopular index and unpopular control children, disability apart, were solitariness, anxiety and bullying. These descriptions were drawn post hoc from many variables, and the following analyses are exploratory, suggesting rather than testing hypotheses. Since significance levels were not protected to allow for multiple post hoc comparisons, apparently significant findings should be seen as suggestive at best.

Neglected index children were more likely to worry than controls and rejected index children were more solitary than controls. However, rejected index children were not significantly more likely to worry than rejected controls and neglected index children were not significantly more solitary than neglected controls (see Tables 5.3, 5.4, 5.5 and 5.6).

Table 5.3: Neglected worried index and control children

<table>
<thead>
<tr>
<th></th>
<th>not worried</th>
<th>worried</th>
<th>Fisher's Exact</th>
</tr>
</thead>
<tbody>
<tr>
<td>index</td>
<td>2</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>control</td>
<td>4</td>
<td>2</td>
<td>p &lt; 0.04</td>
</tr>
</tbody>
</table>
Table 5.4: Rejected worried index and control children

<table>
<thead>
<tr>
<th></th>
<th>not worried</th>
<th>worried</th>
<th>Fisher's Exact</th>
</tr>
</thead>
<tbody>
<tr>
<td>index</td>
<td>2</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>control</td>
<td>5</td>
<td>6</td>
<td>p &lt; 0.18</td>
</tr>
</tbody>
</table>

Table 5.5: Neglected solitary index and control children

<table>
<thead>
<tr>
<th></th>
<th>not solitary</th>
<th>solitary</th>
<th>Fisher's Exact</th>
</tr>
</thead>
<tbody>
<tr>
<td>index</td>
<td>7</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>control</td>
<td>5</td>
<td>1</td>
<td>p &lt; 0.6</td>
</tr>
</tbody>
</table>

Table 5.6: Rejected solitary index and control children

<table>
<thead>
<tr>
<th></th>
<th>not solitary</th>
<th>solitary</th>
<th>Fisher's Exact</th>
</tr>
</thead>
<tbody>
<tr>
<td>index</td>
<td>4</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>control</td>
<td>9</td>
<td>2</td>
<td>p &lt; 0.04</td>
</tr>
</tbody>
</table>

5.6.2 Unpopular children (neglected and rejected combined).

The same analyses, described above in Section 5.6.1 were carried out using the combined categorical definition of *unpopularity*. Unpopular index children were found to be more likely to worry and were also more likely to be solitary than controls (see Tables 5.7 and 5.8).

Table 5.7: Unpopular worried children

<table>
<thead>
<tr>
<th></th>
<th>not worried</th>
<th>worried</th>
<th>Fisher's Exact</th>
</tr>
</thead>
<tbody>
<tr>
<td>index</td>
<td>3</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>control</td>
<td>8</td>
<td>9</td>
<td>p &lt; 0.03</td>
</tr>
</tbody>
</table>
Table 5.8: Unpopular solitary children

<table>
<thead>
<tr>
<th></th>
<th>not solitary</th>
<th>solitary</th>
<th>Fisher's Exact</th>
</tr>
</thead>
<tbody>
<tr>
<td>index</td>
<td>11</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>control</td>
<td>14</td>
<td>3</td>
<td>p&lt;0.04</td>
</tr>
</tbody>
</table>

These findings suggest that being solitary, or a loner, is a common association of rejection and being a worrier is a common association of neglect among index children.

5.6.3 Victimising others

According to teachers, index children who were unpopular were less likely to be bullies than were control children who were unpopular (see Table 5.9). [Even though index children have normal use of only one arm and hand, they can be as effective a bully as a two-handed classroom control child and hemiplegia does not automatically debar a child from being a bully. For example, there is no evidence that they cannot hit just as hard with one arm].

Table 5.9: Incidence of bullying amongst unpopular index and control children

<table>
<thead>
<tr>
<th>Unpopular</th>
<th>not a bully</th>
<th>a bully</th>
<th>Fisher's Exact</th>
</tr>
</thead>
<tbody>
<tr>
<td>index</td>
<td>22</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>control</td>
<td>10</td>
<td>7</td>
<td>p&lt;0.02</td>
</tr>
</tbody>
</table>

As judged by teacher Rutter questionnaires, of the 24 children in the unpopular index group, none of the neglected children bullied at any level and only 2 rejected children...
sometimes bullied others. Of the 17 children in the unpopular control group, 2 neglected children sometimes bullied others and 5 of the rejected controls were certainly bullies.

According to teacher interviews, the 2 rejected index children (identified from the teacher questionnaire) "bullied more than average". However, although 5 of the rejected controls were described as bullies by their teachers, (as identified from the teacher questionnaire) only 2 of these rejected controls "bullied more than average". Therefore it would seem that rejected control children are more likely than rejected index children to victimise other children, but not at a level likely to cause concern to their teachers.

In conclusion, the exploratory analyses suggest that there is an excess of rejected loners and neglected worriers among the index children and an excess of unpopular bullies among the control children.

5.7 Summary and support for hypothesis 1

Table 5.10 sets out support for hypothesis 1 from the preceding analyses. In terms of playground relationships (peer ratings), it would seem that index children are not strongly discriminated against and no significant difference was obtained between the two groups. It is at the more intimate level of friendship, i.e. being a preferred friend (peer nominations), that a greater difference is observed, with index children being less likely to be chosen as a best friend, having fewer reciprocal friendships, being more victimised, and according to their teachers, experiencing more peer problems. More index children than controls were either neglected or rejected, although not
significantly so. Exploratory analyses suggest that unpopularity among index children is particularly associated with anxiety and solitariness and rarely associated with being a bully.

Table 5.10: Do index children fare worse than classroom controls?

Support for hypothesis 1.

| Z\text{PEER} peer ratings | ○ |
| Z\text{PREFER} peer nominations | ■ |
| Z\text{IMPACT} peer nominations | ○ |
| Z\text{LIKE} total positive nominations | ■ |
| Z\text{DISLIKE} total negative nominations | ○ |
| all unpopular children | ○ |
| victimisers | ○ |
| friendships | ■ |
| reciprocated friendships | ■ |
| teacher judgement peer problems | ■ |
| victimised | ■ |

**KEY**  ■ = hypothesis supported  ○ = hypothesis not supported

138
5.8 Testing hypothesis 2: Do adjustment and intelligence account for group differences?

Table 5.11: Group differences: in teacher deviance scores, adjustment measures and estimated IQ

<table>
<thead>
<tr>
<th>index</th>
<th>control</th>
<th>n</th>
<th>mean (SD)</th>
<th>n</th>
<th>mean (SD)</th>
<th>t</th>
<th>p (2 tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>total interview based deviance score</td>
<td>total interview based deviance score</td>
<td>55</td>
<td>13.0 (8.0)</td>
<td>55</td>
<td>14.9 (14.2)</td>
<td>-0.92</td>
<td>0.36</td>
</tr>
<tr>
<td>conduct problems interview sub-score</td>
<td>conduct problems interview sub-score</td>
<td>55</td>
<td>2.5 (3.1)</td>
<td>55</td>
<td>4.2 (4.8)</td>
<td>-2.08</td>
<td>0.04</td>
</tr>
<tr>
<td>hyperactivity interview score</td>
<td>hyperactivity interview score</td>
<td>55</td>
<td>5.8 (5.6)</td>
<td>55</td>
<td>6.4 (8.2)</td>
<td>-0.41</td>
<td>0.67</td>
</tr>
<tr>
<td>emotional symptoms interview sub-score</td>
<td>emotional symptoms interview sub-score</td>
<td>55</td>
<td>4.7 (3.6)</td>
<td>55</td>
<td>4.4 (4.5)</td>
<td>0.37</td>
<td>0.72</td>
</tr>
<tr>
<td>total global adjustment measure (GAM2)</td>
<td>total global adjustment measure (GAM2)</td>
<td>55</td>
<td>25.4 (12.6)</td>
<td>51</td>
<td>25.9 (3.9)</td>
<td>-0.62</td>
<td>0.54</td>
</tr>
<tr>
<td>teacher rated IQ</td>
<td>teacher rated IQ</td>
<td>47</td>
<td>89.0 (16.0)</td>
<td>45</td>
<td>102.0 (12.6)</td>
<td>-4.42</td>
<td>0.001</td>
</tr>
</tbody>
</table>

5.8.1 Combined teacher interview based total deviance score (TIVTOT)

A combined total deviance score (as described in Section 4.8.10) representing school based behaviour was derived from teachers’ responses during interview. The results are presented in Table 5.11. No significant differences were obtained between the two groups, thus lending no support to hypothesis 2. Paired t-tests on the individual sub-scores (from which the total deviance score was derived) found that contrary to
expectations, control children have significantly more conduct problems than index children, but no differences were obtained between the two groups for emotional symptoms and hyperactivity.

5.8.2 Global adjustment unidimensional score (GAM2)

The global adjustment measure was obtained by combining teacher Rutter scores with Pro-social scores such that the higher the score the greater the child's adjustment problems. The results are presented in Table 5.11. No significant difference was obtained between index and control children and hypothesis 2 was not supported.

5.9 IQ measures

5.9.1 Teacher estimated IQ measures

Ratio IQ measures calculated from teacher questionnaires at Time 2 were used in between groups analyses. Index children were estimated to have a mean IQ of 89 and differed significantly from controls who obtained a mean IQ of 102 (see Table 5.11). However, a further analysis was carried out using the categorical measure of unpopularity (neglected plus rejected) as described above in section 5.2.4. No significant within group differences were found in IQ between popular or unpopular index children and popular or unpopular control children and thus hypothesis 2 was not supported (see Table 5.12).
Table 5.12: Within group differences in popularity/unpopularity with teacher estimated IQ

<table>
<thead>
<tr>
<th></th>
<th>Popular</th>
<th>Unpopular</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>mean (SD)</td>
<td>n</td>
<td>mean (SD)</td>
</tr>
<tr>
<td>Index</td>
<td>28</td>
<td>88.9 (18.2)</td>
<td>19</td>
<td>90.1 (13.1)</td>
</tr>
<tr>
<td>Control</td>
<td>31</td>
<td>104.0 (11.1)</td>
<td>14</td>
<td>97.9 (14.9)</td>
</tr>
</tbody>
</table>

5.9.2 Teacher estimated IQ and teacher judged peer problems

Although the index children have a lower IQ than controls, teacher rated peer problems are not predicted by a teacher estimated measure of IQ within either group, suggesting that other factors may be more important.

5.9.3 Teacher estimated IQ and victimisation

A significant Spearman Rank correlation (Table 5.13) was obtained between a teacher estimated IQ and levels of victimisation for control children, but not for index children. From Figure 5.6 it can be seen that the lower the teacher estimated IQ, the more likely a child is to be victimised, which lends support to hypothesis 2.
Table 5.13: Bivariate correlations of victimisation with teacher estimated IQ

<table>
<thead>
<tr>
<th></th>
<th>Index</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher estimated IQ</td>
<td>-0.21</td>
<td>-0.3*</td>
</tr>
</tbody>
</table>

* = p < 0.05

Figure 5.6: Victimisation vs. teacher estimated IQ

Teacher estimated IQ

Victimsation rating
5.10 Post hoc analyses: supporting hypothesis 2

5.10.1 Victimisation - teachers' explanations

Further analysis was carried out to attempt to explain why index children were more victimised than controls. Teachers were asked during interview for possible explanations as to why an individual child might be victimised. Table 5.14 sets out those features that teachers thought to be contributory factors towards the child being victimised, expressed as percentages. Of the seven attributes, physical disability was the only significant characteristic distinguishing between index and control children (Chi Square, continuity adjusted = 17.0, p < 0.001, two tailed).

Table 5.14: Teachers’ explanations for victimisation: percentage of children to which it applies

<table>
<thead>
<tr>
<th></th>
<th>Index (n=31)</th>
<th>Control (n=15)</th>
<th>P (2 tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behaviour</td>
<td>13%</td>
<td>20%</td>
<td>NS</td>
</tr>
<tr>
<td>Immaturity</td>
<td>26%</td>
<td>20%</td>
<td>NS</td>
</tr>
<tr>
<td>Learning disability</td>
<td>19%</td>
<td>27%</td>
<td>NS</td>
</tr>
<tr>
<td>Self confidence</td>
<td>19%</td>
<td>33%</td>
<td>NS</td>
</tr>
<tr>
<td>Personality</td>
<td>26%</td>
<td>47%</td>
<td>NS</td>
</tr>
<tr>
<td>Physical disability</td>
<td>70%</td>
<td>0%</td>
<td>0.001</td>
</tr>
<tr>
<td>Vulnerability</td>
<td>19%</td>
<td>33%</td>
<td>NS</td>
</tr>
</tbody>
</table>
5.11.1 Multivariate analyses: contemporaneous measures for index and control children

Tables 5.15, 5.16, and 5.17 present the variables used in the analyses. The multivariate analyses attempt to predict the social status of index and control children from information obtained concurrently (Time 2).

Table 5.15: Means and SD of dependent variables at Time 2
(index and control children)

<table>
<thead>
<tr>
<th>Variable name</th>
<th>index</th>
<th>control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>mean (SD)</td>
</tr>
<tr>
<td>Total friendship score</td>
<td>f sum</td>
<td>52</td>
</tr>
<tr>
<td>Total victimisation score</td>
<td>v icsum</td>
<td>55</td>
</tr>
<tr>
<td>Teacher judgement of peer problems</td>
<td>t friend</td>
<td>55</td>
</tr>
<tr>
<td>Standardised peer rating score</td>
<td>Z PEER</td>
<td>53</td>
</tr>
<tr>
<td>Standardised social preference score</td>
<td>Z PREFER</td>
<td>53</td>
</tr>
<tr>
<td>Standardised social impact score</td>
<td>Z IMPACT</td>
<td>53</td>
</tr>
<tr>
<td>Total positive nominations</td>
<td>Z LIKE</td>
<td>53</td>
</tr>
<tr>
<td>Total negative nominations</td>
<td>Z DISLIKE</td>
<td>53</td>
</tr>
<tr>
<td>Recoded combined variable of neglected/rejected status</td>
<td>unpop</td>
<td>53</td>
</tr>
</tbody>
</table>
### Table 5.16: Means and SD of independent variables (index child Time 2)

<table>
<thead>
<tr>
<th>variable name</th>
<th>n</th>
<th>mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>total global adjustment score</td>
<td>55</td>
<td>25.4 (12.6)</td>
</tr>
<tr>
<td>total teacher interview deviance score</td>
<td>55</td>
<td>13.0 (8.0)</td>
</tr>
<tr>
<td>teacher estimated ratio IQ</td>
<td>47</td>
<td>89.4 (16.1)</td>
</tr>
<tr>
<td>total social information processing score</td>
<td>52</td>
<td>5.42 (2.0)</td>
</tr>
</tbody>
</table>

### Table 5.17: Means and SD of independent variables (control child Time 2)

<table>
<thead>
<tr>
<th>variable name</th>
<th>n</th>
<th>mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>total global adjustment measure</td>
<td>51</td>
<td>25.9 (13.9)</td>
</tr>
<tr>
<td>total teacher interview deviance score</td>
<td>55</td>
<td>14.9 (14.2)</td>
</tr>
<tr>
<td>teacher estimated ratio IQ</td>
<td>45</td>
<td>102.5 (12.6)</td>
</tr>
<tr>
<td>total social information processing score</td>
<td>52</td>
<td>4.5 (1.9)</td>
</tr>
</tbody>
</table>

### 5.11.2 Multiple regression analysis: index and control children

A limited analysis was carried out to explore the processes which might explain the social status of index and control children. Three teacher measures, social information processing scores, gender and school ethos of index (Tables 5.16) and control (5.17) children were correlated with the relevant outcome variables (see Table 5.15).
Table 5.18: Index child: bi-variate correlations of outcome variables with concurrently measured predictor variables

<table>
<thead>
<tr>
<th>Independent predictor variables</th>
<th>Reciprocal friendships</th>
<th>Victimised children</th>
<th>Parent rating of peer relations</th>
<th>Teacher rating of peer relations</th>
<th>Peer ratings (Zpeer)</th>
<th>Peer nominations social preference (Zprefer)</th>
<th>Peer nominations social impact (Zimpact)</th>
<th>Total positive nominations (Zlike)</th>
<th>Total negative nominations (Zdislike)</th>
<th>Unpopular</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher rated Global adjustment score (GAM2)</td>
<td>-0.4**</td>
<td></td>
<td></td>
<td>0.43***</td>
<td>-0.38**</td>
<td>-0.42**</td>
<td></td>
<td>-0.29*</td>
<td>0.34**</td>
<td></td>
</tr>
<tr>
<td>Total social information processing score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher interview total deviance score</td>
<td>-0.41**</td>
<td></td>
<td></td>
<td>0.31*</td>
<td>-0.29*</td>
<td>-0.45***</td>
<td></td>
<td></td>
<td>-0.41**</td>
<td></td>
</tr>
<tr>
<td>Teacher estimated IQ</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.21</td>
</tr>
<tr>
<td>有望 = * p&lt;.05, ** p&lt;.01, *** p&lt;.001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 5.19: Control child: bi-variate correlations of outcome variables with concurrently measured predictor variables

<table>
<thead>
<tr>
<th>Independent predictor variables</th>
<th>Reciprocal friendships</th>
<th>Victimised</th>
<th>Teacher rating of peer problems</th>
<th>Peer ratings (Zpeer)</th>
<th>Peer nominations (Zprefer)</th>
<th>Peer nominations (Zimpact)</th>
<th>Total Positive nominations (Zlike)</th>
<th>Total Negative nominations (Zdislike)</th>
<th>Unpopular</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global adjustment unidimensional score (GAM2)</td>
<td>-0.39**</td>
<td>0.36*</td>
<td>0.62***</td>
<td>-0.28**</td>
<td>-0.42**</td>
<td>-0.39**</td>
<td>0.28*</td>
<td>0.49***</td>
<td></td>
</tr>
<tr>
<td>Total social information processing score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.34*</td>
</tr>
<tr>
<td>Teacher interview total deviance score</td>
<td>-0.32*</td>
<td>0.3*</td>
<td>0.4**</td>
<td>-0.33*</td>
<td>-0.32*</td>
<td></td>
<td>0.29*</td>
<td>0.28*</td>
<td></td>
</tr>
<tr>
<td>Teacher rated IQ</td>
<td>-0.3*</td>
<td>-0.31*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.37*</td>
<td></td>
</tr>
</tbody>
</table>

Probability = * p<.05, ** p<.01, *** p<.001
However, gender and school ethos did not correlate significantly with any of the outcome variables and were dropped from further analyses. The significant correlations (Tables 5.18, 5.19) were entered into stepwise linear multiple regression analyses and the results are presented in Tables 5.19 and 5.21.

5.11.3 Results of multiple regression analyses: index children

The only predictor was behavioural adjustment for six variables. Three variables had no predictors.

Table 5.20: Significant predictors of outcome at Time 2 (index child).

<table>
<thead>
<tr>
<th>Dependent (outcome) variables</th>
<th>Time 1 predictors</th>
<th>Partial R²</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friendships</td>
<td>GAM2</td>
<td>17.1</td>
<td>**</td>
</tr>
<tr>
<td>Victimised</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Teacher judged peer problems</td>
<td>GAM2</td>
<td>13.0</td>
<td>*</td>
</tr>
<tr>
<td>ZPEER</td>
<td>GAM2</td>
<td>16.9</td>
<td>**</td>
</tr>
<tr>
<td>ZPREFER</td>
<td>GAM2</td>
<td>16.1</td>
<td>**</td>
</tr>
<tr>
<td>ZIMPACT</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ZLIKE</td>
<td>TIVTOT</td>
<td>13.3</td>
<td>*</td>
</tr>
<tr>
<td>ZDISLIKE</td>
<td>GAM2</td>
<td>8.7</td>
<td>*</td>
</tr>
<tr>
<td>Unpopular</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

*=p<0.05 **=p<0.01 ***=p<0.001
5.11.4 Results of multiple regression analyses: control children

All nine variables are predicted by behavioural adjustment with two variables additionally predicted by teacher estimated IQ.

Table 5.21: Significant predictors of outcome at Time 2 (control child)

<table>
<thead>
<tr>
<th>Dependent (outcome) variables</th>
<th>Time 2 predictors</th>
<th>Partial R²</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friendships</td>
<td>GAM2</td>
<td>19.0</td>
<td>**</td>
</tr>
<tr>
<td>Victimised</td>
<td>GAM2</td>
<td>17.2</td>
<td>**</td>
</tr>
<tr>
<td>Teacher judged peer problems</td>
<td>GAM2</td>
<td>30.4</td>
<td>***</td>
</tr>
<tr>
<td>Peer ratings (Z&lt;sup&gt;PEER&lt;/sup&gt;)</td>
<td>TIVTOT</td>
<td>26.1</td>
<td>**</td>
</tr>
<tr>
<td>Peer social preference nominations (Z&lt;sup&gt;PREFER&lt;/sup&gt;)</td>
<td>GAM2</td>
<td>21.3</td>
<td>**</td>
</tr>
<tr>
<td>Peer social impact nominations (Z&lt;sup&gt;IMPACT&lt;/sup&gt;)</td>
<td>TIVTOT</td>
<td>11.4</td>
<td>**</td>
</tr>
<tr>
<td></td>
<td>TIQ</td>
<td>9.5</td>
<td>*</td>
</tr>
<tr>
<td>Total positive nominations (Z&lt;sup&gt;LIKE&lt;/sup&gt;)</td>
<td>GAM2</td>
<td>12.0</td>
<td>*</td>
</tr>
<tr>
<td>Total negative nominations (Z&lt;sup&gt;DISLIKE&lt;/sup&gt;)</td>
<td>GAM2</td>
<td>21.6</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>TIQ</td>
<td>10.8</td>
<td>*</td>
</tr>
<tr>
<td>Unpopular</td>
<td>TIVTOT</td>
<td>29.8</td>
<td>**</td>
</tr>
</tbody>
</table>

* = p<0.05, ** = p<0.01, *** = p<0.001
5.11.5 Multivariate analyses: index and controls combined

Tables 5.22 and 5.15 present the variables used in analyses. In this set of multivariate analyses, index and control children have been combined into a single data set with the addition of a new independent variable — 'index', i.e. hemiplegic or not.

**Table 5.22: Means and SD of independent variables (index and control children combined, n=110, Time 2)**

<table>
<thead>
<tr>
<th>variable name</th>
<th>mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>total global adjustment measure</td>
<td>GAM2</td>
</tr>
<tr>
<td></td>
<td>25.9 (13.9)</td>
</tr>
<tr>
<td>total teacher deviance score</td>
<td>tivtot</td>
</tr>
<tr>
<td></td>
<td>14.9 (14.2)</td>
</tr>
<tr>
<td>teacher estimated ratio IQ</td>
<td>TIQ</td>
</tr>
<tr>
<td></td>
<td>95.7 (15.8)</td>
</tr>
<tr>
<td>index child or control</td>
<td>index</td>
</tr>
<tr>
<td></td>
<td>-</td>
</tr>
<tr>
<td>total social information processing</td>
<td>socskill</td>
</tr>
<tr>
<td>score</td>
<td>4.5 (1.9)</td>
</tr>
</tbody>
</table>

* = p<0.05  ** = p<0.01  *** = p<0.001

5.11.6 Multiple regression analyses

The analyses are as described in Section 5.11.1. The significant correlations (Table 5.23) were entered into stepwise linear regression analyses and the results are presented in Table 5.24.
Table 5.23: Index child and control combined: bi-variate correlations of outcome variables with concurrently measured predictor variables

<table>
<thead>
<tr>
<th>Dependent variables (Outcome variables)</th>
<th>Independent predictor variables</th>
<th>Reciprocal friendships</th>
<th>Victimised children</th>
<th>Teacher rating of peer relations</th>
<th>Peer ratings (Zpeer)</th>
<th>Peer nominations social preference (Zprefer)</th>
<th>Peer nominations social impact (Zimpact)</th>
<th>Total positive nominations (Zlike)</th>
<th>Total negative nominations (Zdislike)</th>
<th>Unpopular</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemiplegic</td>
<td></td>
<td>-0.25**</td>
<td>0.42***</td>
<td>0.19*</td>
<td>-0.21*</td>
<td>-0.23*</td>
<td>-0.29*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher estimated IQ</td>
<td></td>
<td>0.22*</td>
<td>-0.38***</td>
<td>-0.22*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher rated Global adjustment score (GAM2)</td>
<td></td>
<td>-0.4***</td>
<td>0.19*</td>
<td>0.5***</td>
<td>-0.34***</td>
<td>-0.43***</td>
<td>-0.35***</td>
<td>-0.41**</td>
<td>0.34***</td>
<td></td>
</tr>
<tr>
<td>Teacher interview total deviance score</td>
<td></td>
<td>-0.34***</td>
<td>0.23*</td>
<td>0.36***</td>
<td>-0.3**</td>
<td>-0.38***</td>
<td>-0.31***</td>
<td></td>
<td></td>
<td>0.29**</td>
</tr>
</tbody>
</table>

Probability = * p<.05, ** p<.01, *** p<.001
Table 5.24: Significant predictors of outcome at Time 2 (index and control combined).

<table>
<thead>
<tr>
<th>Dependent (outcome) variables</th>
<th>Time 2 predictors</th>
<th>Partial R²</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friendships</td>
<td>GAM2 INDEX</td>
<td>16.0</td>
<td>**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7.33</td>
<td>***</td>
</tr>
<tr>
<td>Victimised</td>
<td>TIQ</td>
<td>15.0</td>
<td>***</td>
</tr>
<tr>
<td>Teacher judged peer problems</td>
<td>GAM2</td>
<td>21.5</td>
<td>***</td>
</tr>
<tr>
<td>ZPEER</td>
<td>GAM2</td>
<td>18.1</td>
<td>***</td>
</tr>
<tr>
<td>ZPREFER</td>
<td>GAM2 INDEX</td>
<td>18.0</td>
<td>***</td>
</tr>
<tr>
<td>ZIMPACT</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ZLIKE</td>
<td>GAM2 INDEX</td>
<td>10.1</td>
<td>**</td>
</tr>
<tr>
<td>ZDISLIKE</td>
<td>GAM2</td>
<td>15.6</td>
<td>***</td>
</tr>
<tr>
<td>Unpopular</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

* = p<0.05  ** = p<0.01  *** = p<0.001

5.11.7 Results of multiple regression analyses: index and controls combined.

Six outcome variables are predicted by behavioural adjustment, three were predicted by group membership and one was predicted by teacher estimated IQ. This provides additional evidence that liking, preference and reciprocal friendships are linked to being either an index or control child, after adjusting for background characteristics.
5.12 **Summary of between group differences: support for hypothesis 2**

No significant differences in teacher judged deviance measures (TIVTOT) and teacher judged global adjustment scores (GAM2) were obtained, not supporting hypothesis 2 in this respect. Index children were found to have a lower teacher estimated IQ than controls and this low IQ was related to increased victimisation, thus providing partial support for hypothesis 2. Exploratory post hoc analyses suggest that unpopular control children were more often bullies than unpopular index children. Teachers attributed physical disability as the most frequent explanation for victimisation for index children and personality as the most frequent explanation amongst controls (see Table 5.14). The major predictors for index and control children when considered as separate groups, were the two teacher measures of psychopathology (GAM2 and TIVTOT) with teacher estimated IQ predicting the social isolation and the increased level of negative nominations received by controls. When index and controls were combined and the analyses repeated with an additional variable, hemiplegic or not, the major predictors remain the two teacher measures of psychopathology. Victimisation is predicted by the teacher estimated IQ. The three measures of friendship are all predicted by membership of the defining group — that is being hemiplegic. Neither the social skills of index or control children, nor the measures of school ethos predicted the peer problems of either group.
Table 5.25: Results of between group differences, support for hypothesis 2

<table>
<thead>
<tr>
<th>Hypothesis 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5.8.1 combined total deviance score (TIVTOT)</td>
<td>•</td>
</tr>
<tr>
<td>5.8.1 conduct problems sub-score</td>
<td>•</td>
</tr>
<tr>
<td>5.8.1 hyperactivity sub-score</td>
<td>•</td>
</tr>
<tr>
<td>5.8.1 emotional symptoms sub-score</td>
<td>•</td>
</tr>
<tr>
<td>5.8.2 global adjustment measure (GAM2)</td>
<td>•</td>
</tr>
<tr>
<td>5.9.1 teacher ratio IQ measure</td>
<td>♦</td>
</tr>
</tbody>
</table>

KEY ■ = hypothesis supported ♦ = hypothesis partially supported • = hypothesis not supported

5.12.1 Index vs control children: a comparison

To examine whether being an index rather than a control child influences peer popularity the information is presented graphically. If it were true that differences in popularity were entirely due to group differences on a total deviance score and global adjustment measure, the plots and regression lines would superimpose on the graphs. As is evident from Figures 5.7 - 5.14, despite the fact that the two groups are matched pairs, the index children are consistently more disadvantaged compared to control children.
Figure 5.7  Scattergraph of peer play ratings by total teacher deviance score

Peer Play ratings

Figure 5.8  Scattergraph of peer preference by total teacher deviance score

Peer Preference
Figure 5.9  Scattergraph of peer play rating score by total teacher adjustment score

Figure 5.10  Scattergraph of peer preference score by total teacher adjustment score
Figure 5.11  Scattergraph of total number of positive nominations by total teacher adjustment score

Figure 5.12  Scattergraph of total number of negative nominations by total teacher adjustment
**Figure 5.13** Scattergraph of total number of positive nominations by total teacher deviance score

**Figure 5.14** Scattergraph of total number of negative nominations by total teacher deviance score
5.13  Testing hypothesis 3: *Do previously and contemporaneously measured factors independently predict the peer level of problems of children with hemiplegia?*

5.13.1 Multivariate analyses: index child

Tables 5.26, 5.27 and 5.28 present the variables used in the analyses. The multivariate analyses attempt to predict the social status of index children from information obtained previously (Time 1) and concurrently (Time 2).
Table 5.26: Means and SD of dependent variables (index child)

<table>
<thead>
<tr>
<th>variable name</th>
<th>n</th>
<th>mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total friendship score</td>
<td>frsum</td>
<td>52</td>
</tr>
<tr>
<td>Total victimisation score</td>
<td>vicsum</td>
<td>55</td>
</tr>
<tr>
<td>Parents judgement of peer problems</td>
<td>p2peer</td>
<td>55</td>
</tr>
<tr>
<td>Teachers judgement of peer problems</td>
<td>tfriend</td>
<td>55</td>
</tr>
<tr>
<td>Standardised peer rating score</td>
<td>ZPEER</td>
<td>53</td>
</tr>
<tr>
<td>Standardised social preference score</td>
<td>ZPREFER</td>
<td>53</td>
</tr>
<tr>
<td>Standardised social impact score</td>
<td>ZIMPACT</td>
<td>53</td>
</tr>
<tr>
<td>Total positive nominations</td>
<td>ZLIKE</td>
<td>53</td>
</tr>
<tr>
<td>Total negative nominations</td>
<td>ZDISLIKE</td>
<td>53</td>
</tr>
<tr>
<td>Recoded combined variable of neglected/rejected status</td>
<td>unpop</td>
<td>53</td>
</tr>
</tbody>
</table>

Table 5.27: Means and SD of independent variables (index children, Time 1)

<table>
<thead>
<tr>
<th>variable name</th>
<th>n</th>
<th>mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>family adversity score</td>
<td>fscore</td>
<td>55</td>
</tr>
<tr>
<td>side of hemiplegia</td>
<td>hemiside</td>
<td>55</td>
</tr>
<tr>
<td>full scale WISCR</td>
<td>iq</td>
<td>55</td>
</tr>
<tr>
<td>social class based on father's occupation</td>
<td>nonman</td>
<td>55</td>
</tr>
<tr>
<td>neurological score</td>
<td>nscore</td>
<td>55</td>
</tr>
<tr>
<td>total global adjustment measure</td>
<td>GAMl</td>
<td>52</td>
</tr>
<tr>
<td>parent questionnaire total pro-social score</td>
<td>ppro</td>
<td>55</td>
</tr>
<tr>
<td>parent questionnaire total Rutter score</td>
<td>prtot</td>
<td>55</td>
</tr>
<tr>
<td>total parental (PACS) deviance scores</td>
<td>pacstot</td>
<td>55</td>
</tr>
<tr>
<td>visibility/severity of hemiplegia</td>
<td>severe</td>
<td>55</td>
</tr>
<tr>
<td>dimension of psychiatric caseness</td>
<td>vebld</td>
<td>55</td>
</tr>
</tbody>
</table>
Table 5.28: Means and SD of independent variables (index children Time 2)

<table>
<thead>
<tr>
<th>variable name</th>
<th>n</th>
<th>mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>parent questionnaire total pro-social score</td>
<td>55</td>
<td>14.0 (3.6)</td>
</tr>
<tr>
<td>parent questionnaire total Rutter score</td>
<td>55</td>
<td>12.9 (8.2)</td>
</tr>
<tr>
<td>total global adjustment score</td>
<td>55</td>
<td>25.4 (12.6)</td>
</tr>
<tr>
<td>total teacher interview deviance score</td>
<td>55</td>
<td>13.0 (8.0)</td>
</tr>
<tr>
<td>total social information processing score</td>
<td>52</td>
<td>5.42 (2.0)</td>
</tr>
</tbody>
</table>

5.13.2 Multiple regression analyses: index child

Multiple regression analyses were carried out after correlating all dependent variables (Table 5.26) with previously measured Time 1 variables (Table 5.27). The significant correlations (see Table 5.29) were entered into stepwise linear multiple regression analyses and the results are presented in Table 5.30, column 1.

The second set of stepwise linear multiple regressions examined which of the Time 2 variables predicted the dependent variables after allowing for the significant Time 1 variables identified in the preceding analysis (see Table 5.28). The rationale for this particular analysis was to observe whether Time 2 variables added extra predictive power, over and above any predictive power due to being correlated with Time 1 predictors. The results are presented in Table 5.30, column 2.
Table 5.29 Index child: bi-variate correlations of outcome variables with previously measured predictor variables

<table>
<thead>
<tr>
<th>Independent predictor variables</th>
<th>Dependent (outcome) variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reciprocal friendships</td>
<td>Victimised children</td>
</tr>
<tr>
<td>IQ (WISCR)</td>
<td>0.33*</td>
</tr>
<tr>
<td>Neurological score</td>
<td>0.3*</td>
</tr>
<tr>
<td>Family adversity score</td>
<td>0.46***</td>
</tr>
<tr>
<td>Parent interview total deviance score</td>
<td>0.37**</td>
</tr>
<tr>
<td>Total parent Rutter score</td>
<td>0.37**</td>
</tr>
<tr>
<td>Psychiatric caseness measure</td>
<td>0.47***</td>
</tr>
<tr>
<td>Severity of hemiplegia</td>
<td>0.32*</td>
</tr>
<tr>
<td>Sex</td>
<td>-0.3*</td>
</tr>
<tr>
<td>Teacher rated Global adjustment score (GAM1)</td>
<td>0.38**</td>
</tr>
</tbody>
</table>

Probability = * p<.05, ** p<.01, *** p<.001
Table 5.30: Significant predictors of outcome at Time 1 and Time 2

<table>
<thead>
<tr>
<th>Dependent (outcome) variables</th>
<th>Col 1: Time 1 predictors only</th>
<th>Partial R²</th>
<th>P</th>
<th>Col 2: Time 2 predictors after Time 1 predictors allowed for</th>
<th>Partial R²</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friendships</td>
<td>IQ</td>
<td>14.0</td>
<td>**</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Sex</td>
<td>7.3</td>
<td>*</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Victimised</td>
<td>Nscore</td>
<td>10.0</td>
<td>*</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Parent judged peer problems</td>
<td>Nscore</td>
<td>18.7</td>
<td>***</td>
<td>P2RUTOT</td>
<td>8.2</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>Pacstot</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher judged peer problems</td>
<td>GAM1</td>
<td>20.8</td>
<td>***</td>
<td>GAM2</td>
<td>14.5</td>
<td>**</td>
</tr>
<tr>
<td></td>
<td>IQ</td>
<td>14.0</td>
<td>**</td>
<td>GAM2</td>
<td>12.5</td>
<td>**</td>
</tr>
<tr>
<td>ZPEER</td>
<td>Severe</td>
<td>9.7</td>
<td>*</td>
<td>GAM2</td>
<td>12.4</td>
<td>**</td>
</tr>
<tr>
<td>ZPREFER</td>
<td>IQ</td>
<td>14.0</td>
<td>**</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ZIMPACT</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ZLIKE</td>
<td>IQ</td>
<td>12.0</td>
<td>*</td>
<td>TIVTOT</td>
<td>8.0</td>
<td>*</td>
</tr>
<tr>
<td>ZDISLIKE</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Unpopular</td>
<td>VEBD</td>
<td>8.6</td>
<td>*</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Probability: * = p< 0.05, ** = p< 0.01, *** = p< 0.001

5.13.4 Summary of multivariate analyses: support for hypothesis 3

Measures obtained in the previous study (Time 1) predicted eight of the ten outcome measures. Reciprocal friendships, peer preference - that is being chosen as a best
friend - and the total number of positive nominations received were predicted by the
index child’s psychometrically derived IQ. The child’s neurological score (Nscore)
predicted the parents’ view of peer problems and also the level of victimisation
experienced by index children. The visibility/severity of the child’s hemiplegia
predicted peer ratings - that is playground activities; and psychiatric caseness
predicted the child’s sociometric unpopularity in terms of preferred friendships.
Teacher’s judgements of peer problems were predicted by the child’s global
adjustment measure.

In the final set of analyses the earlier (Time 1) predictors were held constant in the
multiple regression equation in order to test the additional role of Time 2 predictors.
New information about the child (at Time 2), obtained from their current teacher
Rutter and a follow-up parent Rutter questionnaire, explained school based and home
based peer problems, with the teachers’ measure of school based deviance responsible
for the lower number of positive nominations received by index children.

To summarise, Hypothesis 3 is true for part i) since all four predictors predict problems
with peer popularity, friendship, and victimisation but part ii) is true for only one of
the three predictors since social skills and school ethos were irrelevant.
Chapter 6: Discussion

6.1 The main aims of the study

The aim of the study was to explore the experience of children with a mild physical disability (index children) integrated into mainstream primary schools. Integration is generally understood to mean inclusive education in terms of access to the full curriculum and inclusion in all school activities. But it may not accurately represent social integration — that is how well a child is accepted or included by his or her peers (O’Moore and Hillery, 1989; Martlew and Hodson, 1991; Thompson, Whitney and Smith, 1994). Concerns expressed by parents and teachers in an earlier stage of the study (Time 1) had suggested that school life was a struggle for many index children. When those same informants were asked to define what was meant by ‘a struggle’ they indicated that peer problems, friendships, victimisation and the physical difficulties arising from the hemiplegia were factors. The index children had also volunteered limited information (at Time 1) about their school experiences, in particular their problems with friendships and victimisation. Although teachers and parents can be good informants, they provide a limited perspective about the social world of the school: this study attempts to widen that perspective by including the children’s views.

If the concerns of the parents, teachers and index children were to be explored, then direct comparisons of index children and classroom controls, as proposed by Wallander and Hubert (1987), should expose any differences between them. The three hypotheses tested in this study examine firstly, whether index children have more peer
relationship problems than classroom controls; secondly, whether observed group
differences in peer relationships were accounted for by differences in background
characteristics; and thirdly, the predictive power of Time 1 and Time 2 measures in
explaining the individual variability in the peer problems of index children.

6.1.1 Exploring the social world of the school

The measures used in the study are re-stated briefly here for convenience. Information
from the children included the use of two sociometric methods to obtain measures of
popularity. In addition, each child (n=1502) was interviewed briefly about the
behavioural attributes of their classmates. Index and control children were asked about
their experiences of victimisation and also completed a short protocol designed to
measure their social skills in hypothetical situations. Teachers' judgements of
adjustment, classroom deviance and estimated IQ were obtained from interviews and
follow-up questionnaires. Further information about school ethos and the integration
of children with special needs was obtained from headteachers. Finally, parents of
index children completed follow-up questionnaires. Most of the measures described
above were retained in the analyses but some summary measures, either in total or in
part, were found to be less useful and were subsequently dropped (see section 6.10).
Both methods of calculating sociometric status and the summary measures are
discussed below.
6.1.2 Sociometry

Peer Ratings, require a child to rate all the children in their class on a three point Likert scale, producing three categories of sociometric status (as described in Section 4.4.5) popular, average and unpopular. Peer nomination (as described in Section 4.4.6) whether in the original format (Coie, Dodge and Coppettelli, 1982) or in the revised combined format (Asher & Dodge, 1986) is probably the most frequently used measure of sociometric status. In contrast to the peer rating method, peer nominations are more specific in that they ask children to nominate the three children they like to play with most and the three children they like to play with the least. From this procedure, four categories of sociometric status were defined: popular, average, neglected and rejected.

The peer nomination method also enables further analyses to be carried out to ascertain if preferred friendships are also mutually reciprocated friendships (Parker and Asher, 1993). When retained as separate entities, peer ratings and peer nominations can provide a more comprehensive account of sociometric status than just one measure alone. When these measures are used to identify the sociometric status of children with physical disabilities in mainstream schools, the use of peer ratings alone can indicate a more positive picture than peer nominations (Frederickson and Woolfson, 1987). The value of sociometry, regardless of the method employed, is, according to Coie and Kupersmidt (1983), simply a measure of the experience for a child within his or her peer group.
6.2 Peer ratings — who plays with whom in the playground

No significant differences were obtained between index and control children using the peer rating method and index children were only marginally less popular than control children as playmates. Given that approximately two thirds of index and controls were categorised as averagely popular, with very little difference in popular status between the two groups, the greater discrepancy, albeit not significant, was associated with unpopularity. Evidence from the literature suggests that peer rejection is related to aggression, learning problems and social withdrawal but little information is available linking physical disability with unpopular sociometric status although there is some evidence associating unpopularity with obesity and unattractive facial characteristics (see section 2.11.3). As playmates, index children seem not to be discriminated against on account of their physical disability since no quantitative difference was found using concurrent measures in multivariate analyses. However, when Time 1 data measures alone were used for index children, visibility/severity of the hemiplegia was a significant predictor of the index children’s unpopularity as playmates. Despite the non-significant results of concurrent Time 2 measures, a qualitative analysis may indicate why index children are marginally less popular than controls on this measure.

Children with hemiplegia, in common with the group of ‘clumsy children’ described by Henderson *et al* (1989), generally find that most physical tasks require extra effort, particularly those activities requiring fine motor skills, speed or dexterity. As a result there is an expectation that index children would be less likely to take part in playground activities since most are physical pursuits; the major preoccupation in
most primary schools, for boys and some girls, being football. However, it would seem that hemiplegia does not necessarily preclude a child from playing football in the playground since football at this level does not require specific skills, speed or dexterity. But many children report that it does preclude them from playing for the 'team' or their school when these skills are more important. Many index children report that they would usually join in a game of football without being invited, thus becoming part of the group by default. Consequently, other children in the class become accustomed to their presence and include them as playmates in their peer ratings. Inclusion by default is also observed with children who prefer less strenuous activities. Even though a child may appear to be on the periphery of the main class groupings, they frequently tag themselves onto any group that will accept them. These superficial friendships may endure for a day, a week or more, but since the child always has someone to play with they stand more chance of being included in the average rating category (like to play with sometimes) of their classmates. They rarely are viewed by others, including teachers, as friendless nor indeed do they view themselves as being without friends.

A larger discrepancy was obtained in the unpopular playmate category. Here the dissimilarity between index and controls is more pronounced. Of the thirteen unpopular index children, five had estimated IQ's in the low average range and were described as immature or vulnerable by their teachers. Two children were solitary by choice. Of these two, one child was very self-contained and a member of a group of three children who followed their own interests apart from the rest of their class. One child was disruptive, though not particularly aggressive, and another child had conduct problems. Two children had additional physical impairments besides their
hemiplegia and another child a language difficulty which made speech difficult to comprehend.

In contrast to the index children, three of the eight unpopular controls were described as aggressive and disruptive. Three children were obese, one child had a very visible physical impairment and one child was solitary by choice. Two control children had IQ's in the low average range. Several unpopular index and control children were described by their teachers as lacking in self-confidence. Characteristics observed in both rejected index children and rejected controls appear to support the picture described by Rubin et al (1990) and Parkhurst and Asher (1992) of a group of submissive rejected children who are socially unassertive, socially withdrawn and lonely rather than aggressive or disruptive (in the present study, only control children were described as aggressive and just one index child as disruptive). Several index children fitted the description of 'hoverers', i.e. children who are generally unaware of what is going on in their peer group (Gottman, 1977a). No real difference in solitariness was observed between the two groups. A teacher estimated IQ was not a significant predictor, but index children had estimated IQ's in the low average range which was frequently linked by teachers, in interview, to low self-confidence, immaturity and vulnerability.

When peer ratings were entered as the dependent variables in multivariate analyses, teacher adjustment measures (from teacher Rutter scores plus Pro-social scores or teacher measures of classroom deviance derived from measures of emotional symptoms, conduct problems and hyperactivity) predicted 17% of the variance for index children and 26% of the variance for controls. Even when the two groups were combined with an additional grouping variable, index or not, adjustment remained the only predictor
with 18% of the variance. This suggests that visibility, i.e. the physical disability itself, was not a factor in 'who plays with whom' but other less visible factors such as IQ, low self-confidence, immaturity or vulnerability might contribute to the unpopularity of index children, whereas aggression or disruption appear to be important for controls. In terms of playground relationships it would appear that popular and average index children, despite their physical disability, do not appear to differ from classroom controls.

6.3 Peer nominations — whom children choose as their friends

Since no difference was observed between the two groups in playground relationships, it might be expected that children (index or controls) who were popular on this measure (peer ratings) would be popular or at least of average status in terms of peer nominations. But this was not the case. Index children were found to be significantly less popular as a preferred friend (in peer nomination terms) than controls, receiving significantly fewer positive nominations. If a child was acceptable as a playmate what are the factors that decide the same child is less acceptable as a preferred friend?

Approximately one fifth (20%) of the index children were neglected, almost as many as were rejected (23%). Similarly, 11% of controls were neglected and 20% rejected. Thus 43%, almost half the index children and 31%, almost a third of controls, appeared to have problems with peer relationships. More research has been directed towards the 'at risk' hypothesis linked to peer rejection than to the consequences of peer neglect. This latter sociometric category is generally considered to be less stable over time and with less risk for the child's future social adjustment. Despite the
findings of Coie and Dodge (1988) and Kupersmidt and Coie (1990), that neglected children are much like average or popular children, for the purposes of this study it was considered just as important to discover those pathways that lead children to become neglected by their peers as it is to discover those pathways that lead to rejection.

Rejected status is based on direct measures — i.e. an excess of negative nominations and few or no positive nominations resulting in a low social preference score. In contrast, neglected sociometric status is derived from a more indirect method of assessment — i.e. a low social impact score based on few or no negative or positive nominations. This implies neglect rather than a direct nomination of neglected children by their peers (Dygdon & Conger 1990). According to Erwin (1993) this cannot be construed as a calculated measure of social impact. However, it should be noted that even though children of low sociometric status have fewer friendships than their more popular peers, approximately two thirds of index children have at least one friend (see combined friendship score, section 5.3.1).

Peer nominations were entered into multivariate analyses as two separate outcome measures — social preference and social impact. Social preference, the degree to which a child is included in his or her social group, was predicted by teacher measures of adjustment, accounting for 16% of the variance for index children and 21% of the variance for controls. Social impact as a measure of exclusion had no predictor for index children, but for controls teacher measures of adjustment accounted for 11% of the variance with a teacher estimated IQ explaining a further 10%. It would seem plausible that overt behaviour as measured by ‘adjustment’ is responsible for those judgements that children make when choosing a best friend. Yet it has no bearing on
the social impact of index children. They are excluded on the basis of neither their perceived adjustment difficulties nor their lower intelligence, whereas both measures apply to control children. Are their classmates making more allowances for index children? Or perhaps simply ignoring them? It would appear that their classmates are discriminating against control children with lower average intelligence who also exhibit more conduct disorders, although there was no evidence from teacher's accounts that peer problems were linked to low IQ. When the two groups were combined with a grouping variable, index or not, whether a child was chosen as a friend was predicted predominantly by adjustment, accounting for 18% of the variance, and being an index child explaining a further 4% of the variance. This provides some positive evidence that being an index child was a factor, albeit minor, in friendship choice. However, it does leave almost 80% of the variance for index children unexplained. Social impact, the degree to which a child is included, or more often excluded, from the peer group was not explained by being an index or control child, nor indeed by any other measure.

6.4. A comparison of sociometric status resulting from two sociometric measures

Because the index children are a group, with a higher than expected rate of emotional and behavioural problems (Goodman & Graham, 1996), the present study is concerned with current peer problems and those factors that lead children to become unpopular and either rejected or neglected by their peers. Therefore, both sociometric categories have been retained in this study for some of the analyses and combined as a single measure of unpopularity for others. The qualitative analyses discussed below
demonstrate that rejected and neglected children appear to have different behavioural characteristics.

Despite no significant difference in unpopularity (from *peer nomination* data e.g. neglected plus rejected) between the two groups, index children were somewhat more rejected and more neglected than controls. If the majority of index children were experiencing satisfactory relationships in the playground on a standardised *peer rating* score, but were chosen less often as a preferred friend on a standardised social preference score, was the basis for discrimination the same as for controls? Similarly, would the explanations for peer rejection or peer neglect differ from those associated with unpopularity in the playground?

### 6.4.1 Rejected children

Although 13 index children were categorised as unpopular playmates with the *peer rating* method, only eight of these children were also rejected as preferred friends (*peer nominations*). These were the two children who were solitary by choice, the two with additional physical disabilities, the two with conduct problems and two of the children with low average IQ's. The remaining five unpopular playmates had some positive nominations as preferred friends and were categorised as average. The remaining rejected children were previously categorised as average playmates in terms of *peer ratings* and were all 'followers' amongst larger groups. According to their teachers these children were rejected as preferred friends for reasons other than those ascribed to the children who were rejected as playmates. Teacher's descriptions of those
rejected as preferred friends included: unsociable, manipulative, low self-confidence and anxious.

*Figure 6.1 The peer nominations of index children rated by their peers as unpopular playmates*
In the control group, five of the children who were categorised as unpopular playmates (peer ratings) were also rejected as preferred friends — the three children who were obese and the two with conduct problems. The remaining rejected children had all been categorised as average using the peer rating method and all were followers rather than leaders. Teacher’s descriptions of those control children rejected as preferred friends included: manipulative, low self-esteem, disruptive, superior IQ and anxious.

Figure 6.2 The peer nominations of control children rated by their peers as unpopular playmates.
6.4.2. Neglected children

Under the *peer rating* method, the majority of neglected index and control children were of average sociometric status (except for three children who just achieved popular status due to their superior skills at football). In the *peer nomination* method, all the neglected index children received very few or no positive nominations and very few or no negative nominations. If they were as friendless as the rejected children then it was possible that they might be excluded as a preferred friend for reasons other than those associated with peer rejection.

The picture that emerges from a qualitative analysis is of neglected index children (n=11, one fifth of the total group) who are said by their teachers to mix well with others yet do not have any close or special friends. These are the children described in section 6.2 above, who become part of any group that will accept them. Many neglected children are reported by their teachers to have difficulties with one or more children in their class. Yet, conversely these are children who are rarely confrontational and invariably choose to avoid conflict. They are described both by their teachers, and sometimes by their peers, as children who are extremely sensitive to any reference made to their failures or disabilities — preferring to opt out the majority of the time rather than promote themselves. All are described as anxious to please — whether it is their teachers in relation to schoolwork or their classmates: they suffer considerably if they give the wrong answer in class or misunderstand the rules of the game. Many are excessive worriers, but rarely divulge their anxieties, either to their teachers or to their parents. All are described as lacking in self-confidence — some of them markedly so. Some children are described as sad. Teachers report that sadness
was often related to a child’s feelings about his or her disability and the constraints that this imposed on them and was also associated with difficulties arising from schoolwork and problems with peer relationships.

A qualitative analysis of neglected control children (n=6) found some shared characteristics with neglected index children. The majority of neglected control children generally mixed well with others but only two children had a special friend and one child spent the majority of free time with an older sibling. All the children were members of larger groups. The children who did not get on well with one or more children in their class lacked confidence and were somewhat anxious. The two control children who most resembled neglected index children were described as immature, vulnerable, anxious and of low average intelligence.

6.5 Two measures of friendship

Two measures of friendship were calculated in this study. Firstly, a friendship score was calculated by combining peer nominations and peer ratings (as described in sections 4.8.3 and 4.8.4) because no difference had been observed between the two groups in terms of playtime friendships given that most index children and control children had someone to play with at playtime. Therefore, by adding the peer rating score to the peer nomination score a more accurate representation of a child’s friendships across the two domains of ‘play’ friendships and preferred friendships can be presumed. Even so, index children had significantly fewer friendships based on this combined measure than did controls.
The second level of friendship to be calculated was based on mutually reciprocated nominations. In the index group, 64% of the children received one or more reciprocated nominations. However, only 3 index children received the maximum of 3 reciprocated nominations. Within the index group, 6 of the 13 rejected children and 4 of the 11 neglected children had one or two mutually reciprocated friendships. The remaining unpopular children, whether neglected or rejected, had someone to play with at playtime but no special friends.

In the control group 83% of the children received one or more reciprocated nominations, with thirteen children receiving the maximum of three reciprocated nominations. Within this group 6 of the 11 rejected children and 5 of the 6 neglected children had one or two reciprocated friendships. Each of the remaining unpopular children had someone to play with at playtime but no special friends. In multivariate analyses friendship was predicted solely by teacher measures of adjustment accounting for 17% of the variance for index children and 19% of the variance for controls. When the two groups were combined, being an index child explained a further 7% of the variance. Thus having hemiplegia seems to have some influence on whether a child is chosen as a best friend or not, over and above their degree of personal adjustment.

Given that rejected children are generally described as being actively disliked and socially inactive, it might be expected that the rejected children in this study would be similarly lacking in friends. However, approximately half the children in each group (index and controls) did have one or two reciprocated friendships. Amongst the neglected children, the picture is somewhat different. More than twice as many neglected control children (83%) had at least one reciprocated friendship compared to
neglected index children (36%). This runs counter to the hypotheses derived from previous literature that neglected children are much like average or popular children with at least one reciprocated friendship (Asher and Wheeler, 1985; French and Waas, 1985; Parker and Asher, 1987; Rubin et al, 1990).

Contrary to the notion that it was only children of low sociometric status who were without friends, Parker and Asher (1993) found that not all highly accepted children had friends. Just under a third of popular children in their study did not have the child they named as their best friend include them on his or her list whereas all the popular children in the present study had their nominations reciprocated. Conversely, many of the low accepted children, as in the present study, did have friends.

6.6 **Why are index children less popular with fewer friends?**

As demonstrated in the combined multivariate analyses, being an index child does have a bearing on friendship. It is plausible that differences in peer relationships and popularity might be explained by differences in background characteristics. Yet despite the large number of post hoc analyses (section 5.6) undertaken to test various hypotheses, no significant differences were found between unpopular index children and unpopular controls. The only significant difference was in the opposite direction to the one predicted, in that control children were more conduct disordered than index children (based on a sub-scale rating from the teacher interview schedule). 

[The two groups were matched for school based symptoms as measured by teacher Rutter scores]
with 37% of the index children and 30% of the controls defined as ‘cases’
}. This unexpected
finding could be explained in a number of ways.

Either (i) the index children have no more psychiatric problems than normal children,
or (ii) the control group is deviant simply by chance. The level of caseness for index
children in this study (37%) was lower than the rate of over 50% described in
Goodman & Graham (1996) as the broader study incorporated all children, including
those in special schools.

Teacher Rutter and Parent Rutter scores have been used in various studies to ascertain
psychiatric caseness. In the IOW population study (1970) 11% of children were cases
as measured by their teacher Rutter score, as were 19% of children in a Camberwell
study (Rutter, Cox, Tupling, Berger and Yule, 1975). A more recent epidemiological
study of 132 children in Camberwell (Goodman, unpublished data, 1995) again found
that 19% were ‘cases’ according to their Rutter scores. However, the Camberwell
studies derive from one of the most deprived areas of London and this study combines
approximately half its population from inner London boroughs and half from the
outer London suburbs. Overall, the expectation is that the proportion of ordinary
London children who will be classified as ‘cases’ by their teacher Rutter scores should
be around 15%.

The strikingly higher rate of caseness observed in the controls in this study is probably
due to chance; no plausible alternative suggests itself. Nonetheless, precisely because
of the higher than expected rate of caseness in the controls, the two groups are
fortuitously matched for psychiatric symptoms, thus allowing balanced matched pairs
analyses. Even so, index children are still less popular with fewer friendships and
according to their teachers likely to experience significantly more peer problems. Had the control group of psychiatric caseness been as expected for the general population (i.e. half the rate observed) then the differences in friendship would likely to have been even greater.

Sociometric findings in this study are in general agreement with teacher judgements of peer problems, all demonstrating more peer problems in children with hemiplegia. It is unclear why index children have more peer problems than controls given that differences in contemporaneous background characteristics offer no obvious explanations. Perhaps information obtained about index children at Time 1 might offer further explanations about the sociometric position of index children relative to controls?

6.7  **Could the current sociometric position of index children be predicted from previous information?**

Since measures available from the earlier study (Time 1) included information about caseness, neurological severity, parental measures of adjustment and a psychometrically derived IQ, a multivariate analysis was carried out to explore possible predictors at Time 1.

Current friendship, i.e. the number of positive nominations, being chosen as a best friend or having friends to play with, was predicted by psychometrically derived IQ measures obtained some four years earlier. This was in line with previous expectations that lower intelligence would affect social status reported in this and other
studies (see section 2.11.2). A parental view (obtained at Time 1 during in depth interviews) of peer problems was predicted by indices of neurological severity and home based adjustment measures. The severity or visibility of the hemiplegia predicted the exclusion of index children in playground activities, and the severity of the psychiatric disorder the child's unpopularity (e.g. neglected and rejected status). Perhaps poor relationships are an inevitable concomitant of greater impairment? It could be argued that classmates are discriminating in the playground on the basis of overt impairment, in that index children cannot necessarily compete at the same physical pace as their able bodied peers, whereas it is the more invisible impairments, such as poor social skills, immaturity and vulnerability, that discriminate at the mutual friendship level.

Further analysis carried out after allowing for Time 1 predictors but adding Time 2 predictors in some instances added no more; because the Time 1 predictors were so powerful that they obliterated Time 2 measures. As might be expected, current peer problems as judged by parents and teachers were predicted by current measures of adjustment. The number of positive nominations received from sociometry was predicted by the level of deviance (emotional symptoms, conduct problems and hyperactivity) observed by teachers. The fact that the friendship measure of index children was predicted by psychometrically derived IQ and moreover, they were either neglected or rejected on the basis of their impaired psychiatric status, suggests that the impaired quality of their social status might be related to the psychopathological consequence of their hemiplegia (Kupersmidt, Coie and Dodge, 1990).
In summary, the qualitative analyses did indicate that index children were less mature, more vulnerable and of lower intelligence whereas the controls were more aggressive and disruptive. Both rejected index and controls were inclined to be solitary, particularly the index children, and a number of children in both groups were rejected on the basis of physical characteristics. Furthermore, both neglected index and control children were inclined to be anxious, particularly index children who frequently attributed their anxieties to their physical problems and the extra effort required by them to keep up with their peers. In terms of preferred or mutually reciprocated friendships, it would appear that index children who are of popular or average sociometric status do not appear to differ from average and popular classroom controls, despite their physical disability.

6.8 Victimisation

The other main concern of this study was the increased victimisation reported by index children, their parents and teachers. Indeed twice as many (70%) of index children were victimised compared to controls (34%) if all three categories mild, moderate and severe are included. Even if the mild category is omitted on the assumption that many children are subjected to mild or dubious victimisation at some point in their school lives, 25 (45%) of index children are still victimised compared to just 8 of the control children (14.5%). The victimisation of control children, as in other outcome measures for this group, was explained by current teacher adjustment measures but not one of the current measures explained the excessive victimisation of index children.
However, victimisation was predicted from Time 1 indices of neurological severity which included items relating to the visibility of the impairment, (e.g. use of affected hand, and leg and the less obvious signs such as seizures and bi-lateral involvement resulting in excessive drooling or language articulation problems), but not by a psychometrically derived IQ. At Time 2, however, index children with a lower teacher estimated IQ were also more likely to be victims, although this was not significant. Intelligence is highly correlated with the degree of neurological problems, making it difficult to tease apart the two factors. However, the fact that neurological score took precedence over the more robust psychometrically derived IQ measure suggests that it may be the level of neurological damage, rather than IQ, that best predicts victimisation. Further support for a neurologically driven explanation may also relate to the increased immaturity reported by parents and teachers which the latter have also associated with lower intelligence along with increased vulnerability. Since the earlier study (Time 1), ongoing studies of children with hemiplegia attending a Brain and Behaviour Clinic have lent support to the hypothesis that social and emotional immaturity is associated with delayed maturation of 'Theory of Mind' (Balleney, personal communication, March 1996). This accords with other research that proposes that impaired social cognition may be a contributory factor (Asher and Hymel, 1981; Asher, 1983; Dodge and Feldman, 1990).

Dunn (1996), reviewing the relationships between cognitive and social development, albeit with younger children, suggests that successful peer relations and peer collaboration are a function of both social interactions and a 'meeting of minds'. Children who lack the ability to develop good mind-reading skills also lack the ability to understand what is required to initiate and maintain a relationship. Observation of children's interaction with a close friend (Herrera and Dunn, 1995) indicated two
dimensions, firstly, warm expressive harmony and secondly, co-ordinated play plus sophisticated shared pretend. This latter dimension was found to be linked to the child's mind-reading ability, which fits in with research that impaired social cognition, i.e. that is an inability to pick up social cues or intention, may well be a contributory factor towards victimisation (Asher and Hymel, 1981; Asher, 1983; Dodge and Feldman, 1990). However, teachers, when asked to provide an explanation during interview, were more inclined to attribute increased victimisation solely to the visibility or severity of the physical impairment, although 'severity' as a single explanation was not a significant predictor in multivariate analysis.

As in many areas of life, actual events are not always open to scrutiny. In schools, teachers in particular are unlikely to witness incidents of victimisation, unless they happen to be on the scene. Thus most incidents are judged from second-hand reports with evidence as to cause and consequence being sought from victims, perpetrators and witnesses. Peer reports can provide more information about cause and consequence, given that they are more likely to have observed incidents and are also party to information about 'who is a victim' or even 'who is victimising whom' in their class. But the most useful informants are the victims themselves — if they are willing to divulge evidence of victimisation to their parents, teachers and researchers. In this study, when conflicting information was obtained from teachers, peers and victims, greater weight was given to the victim's report.

A qualitative analysis of both groups (index and controls) from verbatim reports has indicated that psychological bullying as reported elsewhere (Hawker and Boulton, 1996) is probably the most frequent form of victimisation. This generally takes the form of name calling, followed by social exclusion in or out of school and being picked
on or put down. In the index group name calling was invariably related to the physical aspects of the hemiplegia, with 'spastic' the most frequently used term of abuse. Many children with hemiplegia were also mimicked about their gait. But in the control group the children who suffered most were ridiculed about their clothes i.e. not having the 'right' clothes or trainers, having dirty clothes or obviously second hand clothes, or belonging to a low income group. All these factors provided good material for the class bullies. Premeditated or significant physical abuse was rare for either index or control children in this age group and having items stolen or rumours spread about them was also relatively infrequent. However, rumour mongering was reported more frequently amongst the girls and sending notes (to others) about the victim, the preferred method. Girls were reported by their teachers to be more adept at psychological bullying than boys.

Some factors leading to victimisation were common to both index and controls and have been reviewed by Erwin (1993). For example, children who were particularly small and slight for their age, or considerably overweight and also those with learning difficulties — either specific learning difficulties like dyslexia, specific mathematical difficulties or more global difficulties. Two of the control children reported that they were victimised because they were of superior intelligence compared to their classmates. This placed a great strain on them as they sought to avoid situations where their cleverness could be ridiculed. Some bright children avoided answering questions in class and some even concealed their test results.

Many index children were clear that it was their inability to complete their written work in time or work as fast as their peers in practical tasks which subjected them to ridicule or victimisation. Others thought it was due to the fact that they were both
slow and clumsy. Almost all the children in this group attributed the cause of their victimisation to the more visible aspects of their physical condition, e.g. the usefulness of their affected hand, whether they limped or not, or because they wore a special shoe or splint and so on. Similarly, victimisation was also attributed to excessive drooling for one child and articulatory problems for another, both associated with bi-lateral involvement rather than a purely unilateral brain lesion. Just one child thought that having seizures at school was the major reason for his ostracism and several others thought that their over-sensitivity to comments about their disability and a propensity to become visibly upset or to cry easily was responsible. Following Rubin et al’s (1990) hypothesis, these children are easy targets for the bullies in the class — just one well-aimed word or phrase will provoke a reaction for the class bully. In the most severe cases this ‘pay off’ might occur several times each day and thereby reinforce the bully’s actions.

As might be expected from the qualitative evidence thus far, victimised index children were over represented in the rejected and neglected sociometric categories. In the index group, 69% of rejected and 72% of neglected children were victimised compared to just one of the rejected and one of the neglected controls. Given this, it is possible that victimisation in the index group could be confounded in some way with low sociometric status, since children are possibly either rejected or neglected in sociometric terms for exactly the same reasons as they are being picked on, ridiculed or excluded. Since the neurological score obtained at Time 1 was the only predictor of victimisation, it might be argued that sociometric status and victimisation are both explained by the psychopathology of hemiplegia, in terms of neurologically driven consequences and psychiatric ‘caseness’, rather than the severity of the physical impairment.
6.9 Why are index children different to their peer in some respects but not others? A summary of the hypotheses tested

The first hypothesis tested and discussed in this study proposed that index children would fare worse than control children on measures of peer relationships. This was true with regard to their popularity as a preferred friend or being a best friend, but not in terms of being a playmate. Perhaps this is due to the fact that index children are different to their peers, but not so different that they stand out. Hence at the 'playmate' level the majority of index children are 'invisible' and treated as just one of the group. In contrast, the child in a wheelchair in a mainstream school mobilises the protective instincts of his or her classmates, who may in essence assume the protective role of 'the family' (Jones, 1992, and personal communication). Whether this represents a measure of friendship or not is questionable. Children with hemiplegia are less rewarding than the wheelchair bound child, since they neither seek help nor do they need such visible support from their classmates. Therefore, measures of friendship for children with hemiplegia are generally based on discriminations that are comparable to their non-disabled peers.

In terms of being a best friend or having a mutually reciprocated friendship, the index children did fare worse. Although the majority did have someone to play with at break or lunchtime, 33% had no mutually reciprocated friendship in comparison to 14% of the controls. A mutual friendship confers support and acts as a buffer against the demands of school life (Parker and Asher, 1993). For a third of index children, this support was denied. Comparisons of children with hemiplegia with other similar mildly disabled children — for instance children with mild motor problems (dyspraxia
or 'clumsy children' described by Henderson and her colleagues, see section 2.11.3) have observed many of the same difficulties that are associated with hemiplegia. It is these less visible impairments which are the most difficult to accommodate, since special considerations are rarely sought by the children, demonstrating quite clearly that they want to be treated in exactly the same way as their able-bodied peers.

Nonetheless, a significant number of index children are missing out on the close friendships enjoyed by the rest of their classmates. It could be argued that being someone's friend is infinitely more demanding than just playing with a group of children in the playground. It is perhaps even more difficult for the child who feels different, even if they do not publicly acknowledge that difference. Not only do they have to learn to live with the constraints their hemiplegia imposes on them, they also have to accept the way that the rest of the world, especially their peers, view their disability.

The final part of the hypothesis was concerned with victimisation and as might be have been expected from other research (O'Moore and Hillery, 1989; Martlew and Hodson, 1991; Whitney, Nabuzoka and Smith, 1992; Nabuzoka and Smith, 1993; Thompson, Whitney and Smith, 1994) the index children were significantly more victimised than the controls. Undoubtedly, a child who is physically different is an easy target (Rubin, LeMare Mare and Lollis, 1990). If that child is also easy to provoke, socially immature, vulnerable or of lower ability, he or she also provides an instant reward for the class bully. The study has shown that the neither the visibility nor the severity of the physical impairment predicted victimisation. This suggests that it is the 'invisible' factors, i.e. the neurological consequences or psychiatric
caseness, that are responsible. To put it another way, it is possible that it is the child's deviant behaviour, social impairment or lower intelligence that attracts the bully.

The schools in this study rarely addressed the social problems associated with the integration of these mildly disabled children, although considerable effort was expended in educational terms. For the majority of the children, index and control children, school life up to the time of the study had been very stable. Only three index children had changed schools in the recent past and just four children had moved to a middle school (aged 9), along with most of their classmates. Given that the majority of the index children had travelled throughout their entire primary school career with the same peers, it may be surprising that they are discriminated against at any level. The expectation would be that their classmates have become familiar with the limitations of their physical disability and index children have been shown to be no different to their peers in terms of playground friendships, although they are less popular as preferred friends. As these index children reach maturity, it is perhaps the less visible, neurologically derived factors which set them apart from their peers and discriminate at the 'preferred friendship' level.

Whether the difficulties experienced by the index children can be neatly fitted into either the causal or incidental model for later adjustment difficulties as described by Parker and Asher (1987) (see section 2.7, Figures 2.1 and 2.2) is uncertain.

Case study 1: Neil an 11 year old, meets the criteria for the 'causal' model. Shy and withdrawn, he rarely manages to be included in playground activities and has no best friend at school. Hence he is neglected by his peers, has few socialisation experiences
at school and is somewhat depressed at 11 with the possibility that this may worsen as he gets older, if his school experiences do not improve.

**Case study 2:** Stephen, aged 10, also meets the criteria for the causal model although his starting point differs. Stephen is disruptive, clumsy and socially impaired. Constantly thwarted in his efforts to join his peers in the playground and rebuffed by his peers for his ineptness, Stephen's behaviour becomes more maladaptive as he increases his attempts to become noticed.

**Case Study 3:** The neurological problems of Barbara, aged 11, fit the incidental model rather better. Somewhat odd in her behaviour and with a total disregard for the impact that this might have on her peers, Barbara was isolated of her own choosing. This has led to peer rejection and may well lead to a maladjusted outcome.

For children with hemiplegia, both models may be true, but the balance can vary depending on the factors involved. Given the difficulty of separating out the overt impairment from the more covert associated impairments, the experiences of the index children in this study fit better into the reciprocal model described by Weiner (1987) (see section 2.11.2). Although the model is concerned with the peer status of children with learning disabilities, it can also be used in relation to children with physical disabilities. Here, a direct causal pathway can be assumed between the disability and peer status via psychological processing skills and the maladaptive strategies employed by the child resulting in their low peer status. This may be true for some of the index children. On the other hand a reciprocity between child, significant people in their lives and the outside world is thought to influence peer status. Thus,
differential treatment because of their impairments would influence the child's strategies for dealing with the world and again result in poor sociometric outcome.

Taking account of the pathways depicted in the causal, incidental and reciprocity models, a third model demonstrating a two-way causation of poor peer status can be hypothesised (see figure 6.3). In this model there is a possibility of positive feedback between poor peer status and its outcomes amenable to intervention strategies to improve matters. In other instances following Goodyer et al (1990), a loss of friends resulting in anxiety or depression — leading in turn to lower peer competence with a consequent risk of alienating peers — and a loss of friends may set up a vicious cycle. In some situations there may be a direct pathway leading to psychopathological outcome. In other cases, unsuccessful intervention or a failure to break the vicious cycle at level 1 (Figure 6.3) may eventually lead to later psychopathology.
Figure 6.3  Psychopathological outcome; a hypothetical model of two-way causation

- Intervention at Level 1 might interrupt a vicious cycle and prevent children from reaching Level 2
- There is always a possibility that children may reach Level 2 if intervention strategies or gains are not maintained, or adverse events increase the risk
- Some children may be at greater risk or unamenable to any intervention and thus follow a direct pathway to later psychopathology
The second hypothesis tested questioned whether differences in background characteristics of the two groups could be responsible for differences in peer relationships. Apart from a significant difference in a teacher estimated ratio IQ, this hypothesis was not supported. Even though the two groups were matched for analysis, it did not prevent some speculation (and post hoc analyses) as to why the index children had poorer peer relationships at the more intimate level of mutual friendships than the controls. According to their teachers behavioural adjustment was the only predictor for index children, with behavioural adjustment and IQ as predictors for the controls.

Why this is so is open to question. Are their classmates aware that on some level index children differ from them above and beyond their hemiplegia and as a consequence treat them differently? Could it be that the index children are unaware that they lack the social skills or the maturity to maintain their relationships or to deal with their problems and therefore, they behave inappropriately? Are their mind-reading abilities so impaired that they miss the 'hidden agenda' that operates in large groups and therefore misconstrue everyday situations? Perhaps, as suggested by earlier research (see section 2.11.2), it is related to intellectual impairment and the social comparisons that operate between the index children and their classmates. According to the qualitative information obtained during the course of the study from teachers, parents, peers and the children, extreme sensitivity may well be important. Explanations for poor peer relationships amongst this group are complex and so subtle that even the index children without close friends seem not to know why this should be so. Like their teachers, they generally attribute their problems to their overt impairment — the visible hemiplegia and the constraints this imposes on them.
The objective of the third hypothesis to be tested was two-fold. Firstly, to see if information obtained in the earlier study would predict the peer status of the index children, and secondly, to see if new information — the in-depth information from teachers and current information from parents — would alter the outcome. The less visible aspects of hemiplegia (IQ and neurological score), relating to an underlying organic cause, predicted popularity, at best friend level, and also victimisation; only playground relationships were predicted by the visibility/severity of the physical impairment. In sum, the social experience of the index children can be predicted from stable factors identified four years earlier. The visibility and/or severity of the hemiplegia, would appear to be important in practical terms. For example, can the child keep up with his or her peers? When the quality or the mutuality of the relationship assumes greater importance, neurological factors have greater influence.

6.10 Limitations of the study

Several components of the data collection were dropped from the analyses because they failed to correlate with other variables or proved to be less than useful.

6.10.1 Social skills

A measure of social skills as described in section 4.5.2 was designed to provide some understanding of social cognition and competence in four hypothetical situations. Although this had proved a useful adjunct in other studies (Olurin, 1991, personal communication), no significant difference on this measure was obtained between the
two groups in this study. Since ‘social skills’ did not correlate significantly with any outcome measures of popularity, friendship, victimisation or teacher judged peer problems, this measure was subsequently dropped from the analyses.

6.10.2 School ethos

Finding a formula to define school ethos proved to be the most difficult task of all. Although information was collected systematically there were too many confounders to adequately define the schools in comparison with each other. When this variable was entered into bivariate correlations with the outcome measures it was not significant and was subsequently dropped from the analyses. The notion of attempting some measure of school ethos was developed from the Mortimore, Sammons, Stoll and Ecob (1989) study and early discussions with headteachers during the pilot study. It perhaps failed on two counts. Firstly, there was no structured observational component in collecting this data. Secondly, it was possibly too ambitious given the time available (to the author) in each school.

6.10.3 Behavioural descriptions

Asking children about the behavioural attributes of their peers has been useful for many researchers attempting to predict those children who may be at risk for later adjustment difficulties (see section 2.6). Only one description of a behavioural attribute obtained from the children during their individual interviews was useful in the calculation of just one summary variable — victimisation. Children had been
asked who was teased or picked on the most in their class. This was incorporated into a summary victimisation score for each index and control child along with other measures of victimisation described in Section 4.8.2. Insufficient information on the remaining three measures — shyness, disruptiveness and aggression — was obtained from children in the class with several schools providing very little or no information. These three categories were subsequently dropped from the analyses although other information about behaviour obtained from this source has been included in qualitative explanations where applicable.

6.10.4 Impact of hemiplegia

This section of the teacher interview was written specifically for the study. However, it became clear that the summary measures obtained correlated so highly with teacher measures of adjustment that it was evidently measuring the same factors. As a result this variable was dropped from the analyses. Perhaps asking teachers about the impact of the index child’s hemiplegia on their peer relationships was of less value than asking the children themselves would have been. The analyses of this study, in particular that relating to victimisation, has clearly demonstrated that teachers are not party to all that occurs in the school — or even within the classroom. That they viewed the impact of hemiplegia in more concrete terms of success or failure is not unexpected given that teachers spend a great deal of their time assessing attainment targets. But it had been hoped that the interview with the teachers would be able to elicit rather more of their intuitive explanations for the difficulties experienced by the index children in their class. Asking the children themselves might
have been a better option and perhaps altering the focus of questions included in the teacher interview had more time been available, might have improved the data.

The limitations of the data (sections 6.10.1 to 6.10.4) described above can be attributed to the difficulties of following a cohort of children through longitudinal research. In order to include as many subjects as possible, the time available to pilot adequately any novel measures to be included is compromised. Furthermore, to obtain a high level of compliance, particularly where parents and children are involved, requires great sensitivity on the part of the researcher. Had the study requested in-depth interviews with the index children, then fewer parents and children might have given consent. Similarly, schools might have been less than happy to allow the inclusion of classroom controls on this basis. The desire to obtain as much information as possible must be always be balanced with the need to retain the goodwill of the participants — especially if the same participants are likely to be followed up in the future.

6.11 Further limitations

Despite the reservations outlined above, the study might have benefited from a larger control group for comparison, even though the number of index children who met criteria was fixed. For example a larger control group may have produced a more representative sample for comparison.

A more structured observational component would have allowed not only a comparison across schools but also a clearer indication of what makes a school community either mutually supportive and cohesive, or not. Allowing more time in
the school to observe children at play would have indicated the patterns of friendship and play relationships operating in the class in order to confirm or refute sociometric choices.

The present study attempted to calculate a broader definition of friendship than can be derived from peer nomination data alone. This was achieved (as described in section 4.8.4) by calculating a friendship score based on both rating and nomination scores. There has been a move towards more qualitative measures of friendship (Parker and Asher, 1993) and an increasing focus on friendship relations rather than sociometric status. Friendship is now hypothesised as being of greater importance in a child’s social and emotional development (Bukowski, Newcomb and Hartup, 1996). The present study might well have provided more information about the quality of the friendships enjoyed by the index children, and the protection such relationships confer, if a measure of the quality in addition to the quantity of friendships had been included (Parker and Asher, 1993). Finally, any study is limited by the predictive capacity of any variable or set of variables since there will always be factors that are not accounted for in a complex multifactorial picture.

6.12 Have the goals of the study been attained?

The overriding aim of the study was to follow up the received impressions of the author and colleagues, parents, children and teachers that school life was a problem for many children with hemiplegia. Sociometry is generally used for screening and assessment purposes in addition to its predictive power for later psychopathology. It can also provide a guide for planning and primary prevention (Parkhurst and Asher,
1992). In the present study, the measure was used to compare a group of children thought to be at risk for later psychopathology as a function of their physical disability. The present study was a comparative study because in order to evaluate observed patterns, index children had to be compared to their peers, otherwise any differences in social status might have been wrongly attributed to their disability — and thus any ‘difference’ may simply be seen as an artefact. Even though the study has identified children in both index and control groups as either rejected or neglected, the post — hoc analyses have shown that rejected index and control children are more alike than expected. Both groups exhibit internalising behaviours (solitariness and anxieties), rather than the more externalising behaviours, (aggressiveness and disruptiveness), reported as a function of rejected status in other studies (see Chapter 2). Although there is an excess of solitary index children in this study, there is little insight as to how they have developed into solitary beings following Rubin et al’s (1990) developmental pathway hypothesis.

Two explanations are possible, either solitariness is an imposed consequence rather than a trait such as inhibition or wariness, or the child’s withdrawal is linked to dispositional inhibition, aloofness and insecurity. In this latter case, rejection could be hypothesised to come about because the child’s behavioural withdrawal and emotional insecurity becomes salient to their peers. There is some controversy in the literature regarding those children thought to be most at risk for later psychopathology on the grounds that most studies have drawn on retrospective or follow through data. However, most studies of peer rejection have come about as a desire to help children who are rejected to acquire competent social strategies. Therefore, it should perhaps be of less importance to criticise how such predictions are made than to use the information to help improve matters.
Despite the paucity of data reported, this study has linked the presence of psychiatric disorder determined four years earlier (Goodman and Graham, 1996) with sociometric status. This lends support to the view that the child's neurological and psychiatric status could be a marker for current and later social adjustment. It follows then that if previous measures have predictive power, then early intervention may improve matters. For example "is the child liked" may be helped by altering the constructs held by other members of the child's peer group of "what is the child like" (Parker and Asher, 1987). This can be achieved by making the teacher and the class aware of the problems. The index child can also be helped to increase and improve their social skills and strategies. If as Rubin et al (1990) assert, early intervention may prevent the development of a social reputation, then this study has demonstrated that caseness identified four years earlier predicted sociometric status and by definition allows intervention for 'at risk' children without sociometric evaluation.

6.13 Implications for future research

The present study has suggested several themes for future research as a result of the support obtained for two of the three hypotheses tested. Clearly, any future work would need to consider the individual pathways leading to low sociometric status. For example, would two similar children at different mainstream primary schools, identified by the Time 1 measures described earlier as being 'at risk' for peer problems, experience the same outcome? If this proves to be the case, then perhaps it could be hypothesised that developmental pathways will override any other factors operating
in the child’s life? If not, then perhaps the external influences of school and peer relationships can override the individual’s predisposition to a poor outcome?

Although comparative studies, such as the current study, are useful in exploring the differences between children with disabilities and their non-disabled peers, within group studies are also of value, especially when they are used to inform clinical practice or intervention strategies. The outcome for children of low sociometric status may be improved through a two-pronged intervention programme. Firstly, intervention directed at the child with a known impairment to improve their social skills and strategies can lead to an improvement in their peer relationships (Gresham 1981). Such training could also be helpful for the next cohort of index children just beginning their school careers and those making the transition to secondary school. Secondly, schools could be helped to incorporate some level of disability awareness into their personal and social education curriculum. In effect, greater awareness might influence and possibly alter the personal constructs of non-disabled peers and result in more positive behaviour towards index children, based on a greater understanding of the problems they face. Finally, school behaviour policies should incorporate a training programme for teachers and playground supervisors to deal with the bullies and to provide support for the victims. More importantly, teachers and other staff need to be made aware that children with special needs are more likely to be bullied or to experience peer rejection.

If, as Gresham (1981) asserts, providing index children with the necessary social skills for peer and teacher interaction improves the chances of successful mainstreaming at the personal, social and academic levels, then such training may help the unpopular children identified in the present study. However, whether sociometry alone can
identify the children who will benefit most is debatable. Gresham and Stuart (1992) addressing just this issue, suggest that sociometry (following the Coie et al, 1982 method used in the present study) is more likely to identify children who do not need social skills training (false positives) than to fail to find those who do need social skills training (false negatives). Given that the risk of major peer problems in the general population is fairly low, then there is a greater chance of providing intervention for those who do not need it. The authors suggest that the identification of those who are most in need of help would need to be based on a combination of sociometry, psychometrically adequate social skills rating scales and naturalistic observations. Gresham and Stuart's (1992) concerns about the adequacy of sociometry as a sole screening measure is not unfounded. There is no doubt that the inclusion of sociometry along with other measures can complement the clinical profile of those children most at risk. However, in the present study, sociometry rather than being used as a screening measure, provided confirmation of those children who had been predicted, from a clinical assessment at Time 1, to be at risk for peer problems. Since the risk of major peer problems is greater for children with hemiplegia, many will need some intervention during their school careers. Confirming peer status via sociometry, social skills rating scales and naturalistic observations as described above suggests a reactive intervention model which may be useful for the cohort of children already identified as being at risk. However, the utility of the Time 1 measures in identifying children who may experience difficulty later on would be useful for younger children outside the cohort included in this and the previous study. Intervention based on clinical judgements or parental concerns, rather than using sociometry to confirm their status, would result in a more proactive model designed to equip younger children with the social skills and strategies they need to make, and keep friends.
Gresham (1981) has identified three main social skills deficits and methods to improve matters. For example, deficits in social skills or appropriate ways of interacting with peers can be altered through observational learning or modelling. Children with performance deficits may well have the appropriate social skills for interaction but do not perform well because they are over-anxious or poorly motivated. These skills can be improved by the reinforcement of the child's newly established social skills. The final group are those children who lack self-control and are impulsive, disruptive or aggressive. Their behaviour is either inappropriate or carried out without regard for the consequences. Various techniques can be applied to this group, from behaviour and/or cognitive modification to various methods of self-control, self-reinforcement, verbal mediation, relaxation and so on.

On a broader level, comparative studies that include other children with disabilities in mainstream schools would be helpful. These might include children who are dyspraxic, partially hearing, partially sighted, children with medical conditions such as diabetes, asthma, eczema and epilepsy to name just a few of the more common conditions found in mainstream schools. By including different groups, some hypotheses could be proposed about the effects on peer relationships relating to the visibility and/or severity and neurological involvement of different conditions, and whether this is mediated by knowledge or awareness of the condition.

Re-visiting index children in mid-adolescence around the age of 15 would also be important on two counts, firstly in order to test the stability of sociometric status and secondly, to see if any adjustment difficulties have dissipated or persisted. This would increase the knowledge gained thus far about the consequences of hemiplegia.
A follow-up study with this cohort of children with hemiplegia would be a valuable exercise, especially for the parents of younger children trying to prepare for and predict the future. In the course of making an information film for younger children with hemiplegia by older children with hemiplegia (June 1996), the author was able to talk to several adolescents. Four were in Year 9 (aged 14—15) and there were also two 12 year olds (in Year 7), who had been included in the present study. The four older children reported that they had had difficulties with friendships and teasing at primary school and one had even fabricated a story about having been in a car crash rather than say that she had been born with a disability. Now halfway through their secondary school careers, the four reported that they had found one or more true mutual friendships at school and that their sense of self-worth had improved; three had used the opportunity to talk to the class about their hemiplegia when a topic opportunity arose. They were agreed that the demands of sport and practical activities, which had been so divisive at primary school, no longer mattered and they channelled their energies and abilities in other directions. Although this was heartening to hear, the experiences of the two boys who had been in the present study were even more so.

These two had been rejected and neglected respectively in their last year of primary school. Both had made the transition to secondary school and reported that they had been able to leave their reputations behind them. As the previously rejected boy commented:

"I could be a different person in this school, nobody knew what I was like when I was small......some of the things that mattered in my last school are not important in this school".
Coie and Kupersmidt (1983), studying the behaviour of children entering new groups, comment that it is the presence of familiar peers who keep children locked in to their social reputations. The 12 year old described here lends support to their hypothesis that children entering new groups have the opportunity to re-invent themselves — in the same way that this child has done in his new school. This can work in some instances, unless of course the maladaptive behaviour arises from an organic basis, meriting further investigation of brain and behaviour links. The outcomes for the two children described here occurred by chance, personality and circumstance. There is no guarantee that the outcome will be the same for the other 53 children included in the present study. Some will shift sociometric status in line with that reported in other studies; others may not.

In summary, the focus of the present study was to explore the notion that school life was a 'struggle' for many children with hemiplegia. The results show that this was indeed the case for a significant number of children with hemiplegia. Future research based on intervention techniques could address the problem in several ways. Firstly, social skills training would aim to equip the child about to begin formal schooling with the required skills to make and keep friends. Secondly, using the 're-invention' paradigm described above, social skills training could help children at the transition to secondary school to make a fresh start. Thirdly, intervention and disability awareness can improve matters for children with disabilities within mainstream schools.

Finally, comparisons between this and other groups of children with relatively mild conditions would indicate if the 'struggle' experienced by children with hemiplegia is a shared one.
6.14 A postscript

Two studies (Dawkins, 1996; Williams, Chambers, Logan and Robinson, 1996), published just as this thesis was completed, have been encouraging in their support for some of the conclusions drawn from the present study.

Dawkins (1996) carried out a case control study of children with conditions affecting their gait attending a child development centre (CDC), and children without a visible abnormality attending an out-patient clinic (OPD). The children were matched for intelligence and all completed a self-report bullying inventory used in the DES Sheffield Bullying Project (Whitney and Smith, 1993). Dawkins found that the CDC children were bullied more than the OPD children. Using the cut-off point of 'bullied sometimes or more', Dawkins reported almost identical percentages to those reported in the present study, i.e. 30% of CDC children and 14% of OPD children were regularly bullied. [In the present study 45% of index and 14.5% of controls were bullied]. Dawkins suggests that future studies should include interviews with teachers and pupils, as was done in the present study.

In multivariate analyses Dawkins identified four factors thought to be responsible for the increased victimisation of CDC children: being alone at playtime, being male, having fewer than two good friends and needing extra help in school. In Dawkins' study as for index children in the present study, index children in common with the CDC children were not more likely to spend time alone in the playground, had fewer preferred friendships and many were receiving extra help.
Dawkins also questions the widespread assumption that visible abnormalities increase the risk of being bullied, suggesting that it is the focus as other personal attributes may be for non-disabled children. She suggests two possible hypotheses; either it is the stigma of needing extra help at school or the way that the extra help is given, that increases the chances of being bullied. As reported in the present study, Dawkins concludes that it is being ‘different’ in some way that sets a child apart from his or her peers rather than the visible abnormality per se. In common with this study, she identifies this group of children with cerebral palsy and similar conditions as a vulnerable group of children who merit special support and protection at school.

The second study, (Williams, Chambers, Logan and Robinson, 1996) looked at the association of common health symptoms with bullying in primary school children. Children seen by health professionals (mainly school nurses), who were bullied sometimes or more often, reported higher than expected levels of headaches, tummy aches, feeling sad or difficulties in sleeping. A significant trend for symptoms to increase with increased bullying was reported. The findings of this study appear to be in line with the higher levels of disorder reported for index children in the present study. But on a more practical level, the inclusion of school nurses in the intervention and training programmes as suggested in section 6.13 would be helpful since they are ideally placed to pick up early signs of bullying.
References

Educational & Child Psychology 4,110-120


212
   *American Journal of Psychiatry, 126*, 884-888

   follow up of early detected vulnerable children. *Journal of Consulting and Clinical 
   Psychology, 41*, 438-446.

. Dawkins, J. L., (1996), Bullying, physical disability and the paediatric patient, 
   *Developmental Medicine and Child Neurology, 38*, 603-612

. DeRosier, M.E., Kupersmidt, J.B., & Patterson, C. J., (1994), Children’s academic and 
   behavioural adjustment as a function of the chronicity and proximity of peer rejection. 
   *Child Development, 65*, 1799-1813

   Journal of Rehabilitation Research, 6*, 205-207

   1386-1399,

   detection skills in children: implications for developmental psychopathology. *Child 
   Development, 55*, 163-173

   S.R. Asher & J.D. Coie (Eds) *Peer Rejection in Childhood*, Cambridge University Press


. Dunn, J. (1996) Children’s relationships: bridging the divide between cognitive and 

213


Hartup, W.W., Glazer, & Charlesworth (1967), Peer reinforcement and sociometric status, *Child Development, 38*, 1017-1024


-Hogan, R., & Mankin D., (1970), Determinants of inter-personal attraction: a clarification, Psychological Reports, 26, 235-238


-Jones, M., (1992) Integrating children with physical disability in primary schools Special Issues in Education, 2, 5-7


Kupersmidt, J.B., & Coie, J.D., (1990), Preadolescent peer status, aggression and school adjustment, *Child Development*, 61,1350-1362


Ladd, G.W., (1990), Having friends, making friends, and being liked by peers in the classroom:predictors of children's early school adjustment, *Child Development* 61,1081-1100


Langelois, J.H. & Downs, (1979), Peer relations as a function of physical attractiveness. *Child Development, 50,* 409-418


218


Ollendick, T.H., Weist, M.D., Borden, M.C., & Greene, R.W., (1992), Sociometric status and academic behaviour and psychological adjustment; a five year longitudinal study. Journal of Consulting and Clinical Psychology, 60, 80-87

Olurin, J., (1992) Unpublished data, Personal communication


Patterson, C.J., Kupersmidt, J.B., & Greisler, P.C., (1990) Children’s perceptions of self and of relationships with others as a function of sociometric status, Child Development, 61, 1335-1349


Putallaz, M., (1983), Predicting children’s sociometric status from their behaviour, Child Development, 54, 1417-1426


Rutter, M., & Graham, P., (1968), The reliability and validity of the psychiatric assessment of the child: I. Interview with the child. *British Journal of Psychiatry*, 114, 563-579


Sharp, S.,(1996), The role of peers in tackling bullying in schools, Educational Psychology in Practice, 11,17-22.


Smith, P.K., & Thompson, D. (1991) Practical Approaches to Bullying, London, David Fulton


Thompson, D., Whitney, I., & Smith, P.K. (1994), Bullying of children with special needs in mainstream schools. *Support for Learning, 9*, 103-106


Whitney, I., & Smith, P.K., (1991) Interview schedule, personal communication

Whitney, I., Nabuzoka, D. & Smith, P.K. (1992) Bullying in schools: mainstream and special needs, Support for Learning 7, 3-7


Appendices
Appendix 1

The London Hemiplegia Register

Dear

Thank you for your interest in the latest stage of our study where we hope to learn more about how children with hemiplegia manage in mainstream schools. You have previously allowed us to contact Jane's school to ask the class teacher to fill in a questionnaire for us. When we looked at all the parents and teachers reports, it was clear that some children with hemiplegia thrive in mainstream schools whilst others find their school life more difficult.

We feel that it is time to look in more detail at the factors which enable a child to settle happily into school. We would like to interview the teachers of some of the children who took part in the second phase of our study. Would you be willing to give us permission to contact your child's school? If you are, this is what we intend to do.

Firstly, we will explain the project to the headteacher and class teacher to see if they are willing to take part. If they would like to help, we will interview them about how well Jane is getting on in the classroom and playground. We will also ask them about any particular "tips" they might wish to pass on to other teachers and about the school's experience in "mainstreaming" other children with special needs. In addition, we will be assessing, very carefully and sensitively, the pattern of friendships of every child in Jane's class (without drawing any special attention to Jane). All the information will be collected in the strictest confidence and it will be used for research purposes only.

By the end of the study, we will be in a much stronger position to advise parents and teachers on how to help those children with hemiplegia who are struggling in school. We are very grateful for your help in the past. Whether or not you decide to take part in this new study, we will continue to invite you to conferences and keep you informed of our progress and findings.

If you are happy for us to contact Jane's school as part of the new study, please complete the enclosed consent form and return it to us in the envelope provided.

Yours sincerely,

Dr Robert Goodman  Carole Yude

226
Appendix 2

The London Hemiplegia Register

I am the parent of ..........................................................................................................................

I am *willing/unwilling for my child’s school to be contacted as part of the London Hemiplegia research study of children with hemiplegia in mainstream schools.

All information is collected in the strictest confidence and will be used for research purposes only.

*Please delete as appropriate

Signed..................................................................................................Date...........................................

Parent(s) Name ...........................................................................................................................

Address.................................................................................................................................

...........................................................................................................................................................

...........................................................................................................................................................

Tel No (Day)................................................................................(Evening)...........................................

Name of School..........................................................................................................................

Address of school....................................................................................................................... 

...........................................................................................................................................................

...........................................................................................................................................................

Tel No..................................................

Headteacher............................................................................................................................

Class teacher...............................................................................................................................
Appendix 3

The London Hemiplegia Register

Dear

We are writing to you with the permission of the parents of one of your pupils, Jane Smith. As you know, Jane has hemiplegia involving a weakness or stiffness down one side. In an earlier phase of our study, Jane's class teacher was kind enough to complete a brief questionnaire on Jane's progress in school. Judging from teacher and parent reports on several hundred children with hemiplegia, it is clear that while some children with hemiplegia thrive in mainstream schools others find their school life more difficult, particularly in their social relationships.

We feel that it is time to look in more detail at the factors which make the difference between success and failure at school. We would like to interview the teachers of some of the children who took part in the earlier phase of our study. Since this next phase of our study requires rather more involvement for the schools than simply filling in a questionnaire, we would welcome the opportunity to explain the project to you in person. Unless we hear to the contrary within the next week or so, one of us will telephone the school to request an appointment.

We do hope that you will agree to take part, and we look forward to meeting you in the near future.

Yours sincerely,

Dr Robert Goodman MRCP
Hon Consultant GOS

Carole Yude
Research Psychologist
Appendix 4

The London Hemiplegia Register

Dear 

I am writing to confirm that I will be coming along to the school as arranged to interview Jane’s teacher and carry out sociometry with the whole class. I thought it would be helpful if I set out the arrangements as we discussed them when we last met.

Firstly, I will be interviewing Jane’s teacher and repeating the interview about the next same sex child on the register as a comparison. This comparison child can remain anonymous, I will simply allocate a study number. These interviews will take about an hour and a half in total, although they do not necessarily need to be completed in one continuous session.

The sociometry will take approximately one whole school day for a class of 28-30 children. Ideally, I would prefer a quiet room or area where we will not be disturbed. I will see the children individually and each child will be out of the classroom for about 5 minutes. The teachers who have taken part so far reported very little disruption in their classrooms whilst the sociometry was being carried out. I would prefer to carry out the sociometry on the first day to ensure that both Jane and the comparison child are included before I interview Mrs.....

Finally, I would like to interview you about more general issues. This should take about 30 minutes. Could I ask you to arrange a timetable for all three sessions which will fit in with the demands of the school day? It would also be helpful if you could let me have a class list by return of post to allow me to prepare my materials beforehand.

I have allocated two whole days to each school which hopefully will enable me to minimise pressure on you or your staff and also allow time to meet any ancillary or special needs teachers who work with Jane. I also enclose a copy of the consent letter for you to send out to the parents on school notepaper, and of course I will be happy to answer any questions from parents which might arise.

Unless I hear to the contrary I will plan to come along as arranged just before school begins - although I am happy to come along earlier or stay later if it would be easier to interview either you or Mrs..... then. In any case I will telephone during the week before my visit to confirm the arrangements.

With best wishes

Carole Yude
Appendix 5

Dear Parent

The school is helping Great Ormond St. Hospital and the Institute of Child Health with important research they are doing on children's friendships. This will involve one of their researchers spending a few minutes chatting individually to all the children in your child's class.

If you do not wish your child to take part or if you want to discuss the research project with one of the researchers before agreeing, please complete the slip below and return it to the class teacher. If we do not hear from you we will assume that you are happy for your child to take part.

Thank you.

_________________________________________________________________________

Please tick one of the boxes below and return to your child's class teacher

Please delete as necessary

☐ I/we do not want our child to take part.

☐ I/we would like some further information.

Your name...........................................................................................................

Your child's name..........................................................................................Class..............................
Appendix 6

STRENGTHS AND NEEDS QUESTIONNAIRE

TO BE COMPLETED BY TEACHERS

Name of child .......................................................................................................................................................

Age of child ........................................................................................................................................................

Questionnaire completed by ............................................................................................................................

Class Teacher/Head of Year/Headteacher/Other (Please delete as appropriate)

Below are a series of descriptions of behaviour often shown by children. After each statement are three columns: "Doesn’t Apply", "Applies Somewhat" and "Certainly Applies". If the child definitely shows the behaviour described by the statement place a cross in the box under Column 2 "Certainly Applies". If the child shows the behaviour described by the statement but to a lesser degree or less often place a cross in the box under Column 1 "Applies Somewhat". If, as far as you are aware, the child does not show the behaviour, place a cross in the box under Column 0 "Doesn’t Apply".

Please complete on the basis of child’s behaviour DURING THIS SCHOOL YEAR

Put ONE cross against EACH statement. Thank you.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doesn’t Apply</td>
<td>Applies Somewhat</td>
<td>Certainly Applies</td>
</tr>
</tbody>
</table>

If there is a quarrel or dispute will try to stop it  □ □ □
Very restless, has difficulty staying seated for long  □ □ □
Offers to share rulers, pencils etc. being used in a task  □ □ □
Will invite bystanders to join in a game  □ □ □
Truants from school  □ □ □
Squirmy, fidgety child  □ □ □
Will try to help someone who has been hurt  □ □ □
Often destroys or damages own or others’ property  □ □ □
Frequently fights or is extremely quarrelsome with other children  □ □ □
Not much liked by other children  □ □ □
Apologises spontaneously after bad behaviour  □ □ □
Often worried, worries about many things  □ □ □
Tends to be on own - rather solitary  □ □ □
<table>
<thead>
<tr>
<th>Item</th>
<th>0 Doesn't Apply</th>
<th>1 Applies Somewhat</th>
<th>2 Certainly Applies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irritable. Touchy. Is quick to &quot;fly off the handle&quot;</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Shares out sweets or extra food</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Often appears miserable, unhappy, tearful or distressed</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Has twitches, mannerisms, or tics of the face or body</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Frequently sucks thumb or finger</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Is considerate of the teacher's feelings</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Frequently bites nails or fingers</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Stops talking quickly when asked to</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Tends to be absent from school for trivial reasons</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Is often disobedient</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Spontaneously helps to pick up objects which another child has dropped (e.g. pencils, books etc.)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Takes the opportunity to praise the work of less able children</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Shows sympathy to someone who has made a mistake</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Cannot settle to anything for more than a few moments</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Tends to be fearful or afraid of new things or new situations</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Offers to help other children who are having difficulty with a task in the classroom</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Fussy or over-particular child</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Often tells lies</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Helps other children who are feeling sick</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Has stolen things on one or more occasions in the past 12 months</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Can work easily in a small peer group</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Unresponsive, inert or apathetic</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Comforts a child who is crying or upset</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Often complains of aches or pains</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
SPECIAL NEEDS SUPPLEMENT

Child’s Name: ..............................................................

Statement

Is this child statemented?

☐ No
☐ In Process
☐ Yes

→ Has the statement enabled the school to provide extra resources?

☐ No
☐ Yes, but not as much as we would have liked
☐ Yes

→ Did the statement contain information that helped you plan your teaching strategy for this child?

☐ No
☐ Quite helpful
☐ Very helpful

Extra Help

Does this child receive any extra help in school? (Please tick more than one box if appropriate)

☐ No

☐ Help with physical activities (e.g. in PE or CDT)
☐ Help with specific learning problems
☐ Other - please specify:

→ How much extra help is given?

☐ Less than 2 hours per week
☐ 2-10 hours per week
☐ More than 10 hours per week

→ Who provides the extra help?

☐ An ancillary assistant
☐ A specialist teacher
☐ Other - please specify:

Information

How did you obtain information on the educational implications of hemiplegia? (Please tick as many boxes as necessary)

☐ I have not been able to obtain much information
☐ It is largely common sense
☐ From previous experience
☐ From the parents
☐ From the Statement
☐ From Hemi-Help’s teacher leaflet
☐ From other teachers or other professionals - please specify:

Your Name ........................................................................ Date ............................................

THANK YOU VERY MUCH FOR YOUR HELP
<table>
<thead>
<tr>
<th>Behavior</th>
<th>0 Doesn’t Apply</th>
<th>1 Applies Somewhat</th>
<th>2 Certainly Applies</th>
<th>For Office Use Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is helpful with regular classroom tasks</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Settles down to work quickly</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Has had tears on arrival at school or has refused to come into the building in the past 12 months</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Will clap or smile if someone else does something well in class</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Has a stutter or stammer</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Resentful or aggressive when corrected</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Volunteers to help clear up a mess someone else has made</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Bullies other children</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Tries to be fair in games</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

Below are some more descriptions of behaviour. After each statement, place a cross in the column which best describes this child. Please complete on the basis of the child’s behaviour in the past month.

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Not at all</th>
<th>Just a little</th>
<th>Quite a lot</th>
<th>Very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constantly fidgeting</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Hums and makes other odd noises</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Coordination poor</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Restless or overactive</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Inattentive, easily distracted</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Fails to finish things started - short attention span</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Disturbs other children</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Excessive demands for teacher’s attention</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Sullen or sulky</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Appears to lack leadership</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>
ACADEMIC PROGRESS

Compared with an average child of the same age, how does he or she fare in the following areas:

<table>
<thead>
<tr>
<th></th>
<th>Above</th>
<th>Average</th>
<th>Some Difficulty</th>
<th>Marked Difficulty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Accuracy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading Comprehension</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spelling</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handwriting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arts and Crafts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sport and P.E.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Although "mental age" is a crude measure that cannot take account of a child being better in some areas than in others, it would be helpful if you could answer the following question:

In terms of overall intellectual and scholastic ability, roughly what age level is she or he at?

Signature: .......................................................................................................................... Date ...............................................................
Dear Parent,

It is now 3-5 years since you first helped us by filling in a questionnaire. We would be very grateful if you could now help us again by filling in this shorter questionnaire so we can see how things have changed. Your answers are strictly confidential and will only be used for our research.

Most of the questions can be answered by ticking the box next to the correct answer. Only a few questions need a brief written answer.

With many thanks,

Robert Goodman
Children’s Doctor

Carole Yude
Researcher

Child’s first name .........................................................................
Child’s surname .........................................................................
Child’s date of birth ....................................................................

Over the last 2 years has your child been seeing a physiotherapist?

- □ No
- □ Only when there is a problem
- □ Occasional sessions only
- □ Just during the school holidays
- □ Regular sessions

► Please say how often:

Over the last 2 years has your child been seeing an occupational therapist?

- □ No
- □ Occasional sessions only
- □ Regular sessions

Over the last 2 years has your child been seeing a speech therapist?

- □ No
- □ Occasional sessions only
- □ Regular sessions
Has your child had any operations on the affected arm or leg over the last 2 years?

□ No
□ Yes

► Please give details and approximate dates:

Has your child had any help for emotional or behavioural problems over the last 2 years?

□ No
□ Yes

► Please give details:

Has your child had any sort of fit or epilepsy over the last 2 years?

□ No
□ Yes

► Please give details:

Over the last 2 years has your child been on medicines for fits or absences?

□ No
□ Yes

School and Learning

What sort of school does your child go to?

□ Ordinary class in ordinary school
□ Special unit in ordinary school
□ Special school

Is the special unit or school mainly for:

□ Physical Handicap
□ Moderate learning difficulties
□ Severe learning difficulties
□ Emotional or behavioural problems
□ Other - please say what:
Does your child have difficulties with specific subjects at school?

- Reading □ No □ Yes
- Spelling □ No □ Yes
- Handwriting □ No □ Yes
- Maths □ No □ Yes
- Art □ No □ Yes
- Computers □ No □ Yes
- Science and CDT □ No □ Yes
- P.E. and Games □ No □ Yes

Apart from the school subjects we have just asked about, have any other activities at home or school posed particular problems?

Does your child have particular difficulty organising school work?

□ No
□ Yes

Overall, how does your child's performance at school compare with the average for a child of that age?

□ About average
□ Delayed
□ Above Average

Roughly what age level is your child at?

Statement of Special Educational Need?

Is there a Statement on your child?

□ No
□ Being drawn up at the moment
□ Yes

Has that led to the school and Local Education Authority providing the extra help needed?

□ No extra help needed
□ Extra help needed but none provided
□ Some extra help, but not as much as needed
□ The right amount of extra help is being provided
If your child has a Statement, or if one is being drawn up at the moment, who first decided that a
Statement was needed?

☐ We did
☐ The school did
☐ Other - please specify:
☐ Not applicable

Extra Help

Does this child receive any extra help in school? (Please tick more than one box if appropriate)

☐ No

☐ Help with physical activities (e.g. in PE or CDT)
☐ Help with specific learning problems
☐ Other - please specify:

→ How much extra help is given?

☐ Less than 2 hours per week
☐ 2-10 hours per week
☐ More than 10 hours per week
☐ Don’t know

→ Who provides the extra help?

☐ An ancillary assistant
☐ A specialist teacher
☐ Other - please specify:
☐ Don’t know

Friendships

Does your child have difficulty getting on with other children (not counting brothers or sisters)?

☐ No
☐ Yes

→ How serious are these difficulties?

☐ Not very serious, little effect on child’s daily life
☐ Quite serious, some effect on child’s life, child upset
☐ Serious, considerable effect on daily life, child very upset

Does your child have one or more best friends?

☐ One best friend
☐ Small group of 2-4 best friends
☐ No best friend but usually has someone to play with
☐ Mostly plays alone - by choice
☐ Mostly plays alone - not by choice
Teasing and Bullying

Are teasing or bullying problems for your child?

☐ No, never seriously teased or bullied (but may have the odd fight or quarrel)
☐ Yes, teasing and/or bullying are problems

► How often does this happen?

☐ Less than once a week
☐ A few times a week
☐ Every day

► Please tell us more if you can about what happens and how your child reacts:

Impact and Response

Over the last year, how much have the following problems interfered with your child’s life?
(Please tick one box on each line)

<table>
<thead>
<tr>
<th>Problem</th>
<th>No problem</th>
<th>A minor nuisance</th>
<th>Makes a big difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm and leg weakness interfering with everyday life, sport and so on</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Learning problems</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Epileptic fits</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Emotional or behavioural problems</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

At present, how does your child respond to the hemiplegia? (Please tick one box on each line)

<table>
<thead>
<tr>
<th>Response</th>
<th>False</th>
<th>Partly True</th>
<th>True</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accepts it. Makes the best of it</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Won’t talk about it. Pretends it’s not so</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Gets angry about it. Resents it</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Gets sad. Cries about it</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Lacks self-confidence</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Uses handicap to gain sympathy or as an excuse</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Relies too much on help from adults and other children</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
General Health and Behaviour

This is the longest section of the questionnaire - but it is also the last and needs no written answers, so please keep going. This part of the questionnaire is to tell us about your child’s strengths, as well as those areas with room for improvement! Since the questionnaire is going to the parents of a wide range of children aged from 5 to 17, we have put in questions to cover all possibilities. So please don’t be put off by questions that are not relevant to your child. **It would help us if you answered all the questions even when they do seem daft!**

Please give the answers according to the way your child has been during the past 12 months.

### Health Problems

<table>
<thead>
<tr>
<th>Issue</th>
<th>Never</th>
<th>Occasionally - less than once a week</th>
<th>At least once a week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complains of headaches</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has stomach-ache or vomiting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asthma or attacks of wheezing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wets the bed or pants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soils or loses control of bowels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has temper tantrums (that is, complete loss of temper with shouting, angry movements etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Had tears on arrival at school or refused to go into the building</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Truants from school</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Habits

<table>
<thead>
<tr>
<th>Habit</th>
<th>No</th>
<th>Yes, mildly</th>
<th>Yes, severely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does she/he stammer or stutter?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is there any difficulty with speech other than stammering or stuttering?</td>
<td>No</td>
<td>Yes, mild</td>
<td>Yes, severe</td>
</tr>
<tr>
<td>Does he/she ever steal things?</td>
<td>No</td>
<td>Yes, occasionally</td>
<td>Yes, frequently</td>
</tr>
<tr>
<td>Is there any eating difficulty?</td>
<td>No</td>
<td>Yes, mild</td>
<td>Yes, severe</td>
</tr>
<tr>
<td>(fussy, eats too much or too little)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is there any sleeping difficulty?</td>
<td>No</td>
<td>Yes, mild</td>
<td>Yes, severe</td>
</tr>
<tr>
<td>Common Behaviours</td>
<td>Doesn’t Apply</td>
<td>Applies Somewhat</td>
<td>Certainly Applies</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------</td>
<td>--------------</td>
<td>------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Tries to be fair in games</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very restless, has difficulty staying seated for long</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Considerate of other people’s feelings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Squirmy, fidgety child</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Often destroys own or other’s property</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easily gets overexcited</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Helpful if someone is hurt or feeling ill</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequently fights or is extremely quarrelsome with other children</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not much liked by other children</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volunteers to help around the house or garden</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Often worried, worries about many things</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quick changes in mood</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sees tasks through to the end</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tends to be on own - rather solitary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irritable. Is quick to fly off the handle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kind to younger children</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Often appears miserable, unhappy, tearful or distressed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acts rashly and impulsively</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comforts a child who is upset</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has twitches, mannerisms or tics of face or body</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thinks things out before acting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequently sucks thumb or finger</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gets on well with other children</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequently bites nails or fingers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is often disobedient</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Can we contact your child's teacher?

In the first part of the study, we found it very helpful to get teachers to fill in a brief questionnaire on each child. Could we have your permission to send a questionnaire to your child's teacher to see how things have changed? As before, the replies will be completely confidential and will only be used to help our research.

I am willing/unwilling* for my child's teacher to be contacted to fill in a confidential questionnaire.

Name of School

Address of School

Phone No. (if known)

Name of Class Teacher

Your Signature: Today's Date

* Please delete as appropriate

THANK YOU VERY MUCH FOR YOUR HELP

Please check that you haven't missed out any pages by mistake and then return the questionnaire to us in the reply-paid envelope. If you have moved since we were first in contact with you, please give your new address and phone number:
Thank you for agreeing to talk to me. In this interview I am going to ask you questions about ........................ about his/her behaviour in class, about how he/she gets on with other people at school, and also how he/she is doing academically.

I would like to begin by filling in some background details and then go on to talk about particular areas like classroom behaviour and friendships and, of course, ........................'s special needs and his/her hemiplegia. (Whatever you tell me will be strictly confidential).

How long have you been ........................'s class teacher?

How much contact do you have with ........................?

0 = class teacher
1 = more than 50% of lessons
2 = less than 50% of lessons

If yes, which ones and how many

Support in mainstream classes

Does ........................ have a statement of SEN?

0 = no
1 = yes
2 = in process
9 = NK

Have you read the statement?

0 = no
1 = yes
8 = NA (not statemented)

If yes, could you tell me the type of SEN identified in the statement?
Do you think ................. has other needs not recognised in the statement?

0 = no
1 = yes
8 = NA
9 = NK

If yes, what are these?

What are the school doing for ................. based on the statement?

For example:
0 = support teacher
1 = ancillary support
2 = extra supervision
3 = social skills training
4 = other
8 = NA

Are you doing anything in addition to this?
(Also applies if child not statemented or has needs not identified in statement & funded by LMS or other)

For example:
0 = support teacher
1 = ancillary support
2 = extra supervision
3 = social skills training
4 = other
8 = NA

If extra help given is this:(applies whether Statemented or not)

0 = within own classroom
1 = outside own classroom

Given the amount of effort that goes into writing or contributing to a SEN, there are some people who question how useful an exercise this really is.

As .................'s teacher, how valuable do you think the statement has been for ................. and the school?

Do you think you could list the advantages of having a statement?

For example, in .................'s case, what might they be?

0 = resources
1 = guidance on cognitive limitations (eg ways of getting around them)
2 = guidance on physical limitations (eg ways of getting around them)
3 = guidance on emotional difficulties
4 = guidance on social/behavioural difficulties
5 = guidance on developing organisational skills
8 = NA

What other use might you get out of this statement?
Were you (and other staff) briefed before this child joined the school? Teacher

0 = no
1 = yes
8 = NA
9 = NK

Other staff

Were you or the school given any specific information about hemiplegia?

0 = no
1 = yes
8 = NA
9 = NK

Was the class prepared either before or when their new classmate arrived?

0 = no
1 = yes
2 = Child started in reception school policy not to make child special case
8 = NA
9 = NK

If yes, in what way?

Do you have much contact with ...............’s parent(s)?

For example, do they make too much or too little of ...............’s problems? Do they come into school frequently to see either you or the teacher, or are they happy to let you contact them as and when you need to?

School contact

0 = very little contact
1 = average/on a par with other parents
2 = frequent visits
9 = NK

Parents perceptions of problem

0 = under emphasis
1 = about average
2 = over emphasis
8 = NA
9 = NK
PART 1  BEHAVIOUR IN THE CLASSROOM

I would like to ask you about .............'s behaviour in the common day to day situations in the classroom.

In my experience this will be easiest to do by focusing on the most recent days. Has ............... been coming to school for the past week? Has it been an ordinary kind of week for him/her?

The purpose here is to establish a time frame in the very recent past on which the questioning will focus. The aim is to choose examples of "ordinary" school days (ordinary for both the child and the class i.e. the child has been well and as far as the teacher is aware nothing untoward has been happening in the child's life; also ordinary for the class in the sense that the usual classroom routine and practice have prevailed).

This is done in order to avoid picking up artificially low or high scores just because the occasions questioned about were unusual in some way.

If the past week has not been an ordinary school week, choose an alternative one for the recent past as possible.

I would like you to reflect for a minute or so on ............'s behaviour over the past week.

Because the styles and methods of teaching vary quite a lot in the classrooms, I have made an attempt to allow for this and devised my questions separately for different kinds of teaching situations - different in terms of the amount of structure and the type of task involved. I have chosen three different situations ranging from the formal to an informal free to choose situation. These might not necessarily apply to your classroom and this doesn't matter.

STRUCTURED SITUATION SET TASK

This would be a formal structured situation i.e. a lesson during which .............. was expected to sit quietly and do a piece of work set by the teacher. Has ............... had one such lesson within the past week? When was it?

Gross motor activity

Did .............. get up and walk about at all during that task?

If yes, would this be typical in say a 10-15+ min period?

0 = not at all
1 = once only
2 = twice
3 = 3-5 times
4 = 6 times or more
8 = NA
9 = NK

Did he/she ask for permission to get up?

0 = no
1 = yes
8 = NA
9 = NK

246
Fidgeting

In this particular work situation is ................. restless or fidgety? And how much?  

Would this be usual?
0 = no fidgeting  
1 = fidgeting a little  
2 = fidgeting quite a lot  
3 = more or less constant fidgeting  
8 = NA  
9 = NK  

Concentration

What about .................’s level of concentration in this situation?
0 = concentrating well  
1 = occasional lapses  
2 = frequent lapses  
3 = hardly concentrating  
8 = NA  
9 = NK  

Would this be typical of .................’s ability to concentrate during a structured set task?
0 = more than 15 min  
1 = between 10-15 min  
2 = between 5-10 min  
3 = less than 5 min  
8 = NA  
9 = NK  

Noisiness

In this particular work period was he/she noisy at all? Is he/she more or less noisy than others?
0 = not at all  
1 = yes a little  
2 = yes quite a lot  
3 = yes a lot( more or less constantly)  
8 = NA  
9 = NK  

0 = much the same  
1 = less noisy  
2 = more noisy  
8 = NA  
9 = NK
Disruptiveness

Apart from what you have already told me, is ................ at all disruptive in this particular working situation?

Could you give me some examples? Would this be typical?

0 = not disruptive
1 = a little disruptive
2 = disruptive quite a lot
3 = disruptive a lot
8 = NA
9 = NK

Exhibition

Is this particular work situation is ................ rousing or exciting? And how about:

Would this be typical?

0 = not exciting
1 = a little exciting
2 = exciting quite a lot
8 = NA
9 = NK

Concentration

What about ................ a need of concentration in this situation?

Would this be typical of ............... 's ability or concentration having a task-oriented we hold?

0 = too much
1 = too less
2 = approximate
8 = NA
9 = NK

248
SOME MOVING ABOUT SET TASK SITUATION

This would be a situation where .................. was expected to work on a set piece of work but at the same time was allowed to move about to some extent within the class. Has there been a lesson like this recently? □

Gross motor activity

In this particular situation does .................. become more active in terms of getting up and moving around? Was he/she moving about more than the task demanded?

Would this be usual?
0 = bodily activity equal to the demands of the task
1 = moved about somewhat more than necessary
2 = moved about a lot more than necessary
3 = continuously rushing about
8 = NA
9 = NK

Fidgeting

In this particular work situation is .................. restless or fidgety? And how much?

Would this be usual?
0 = no fidgeting
1 = fidgeting a little
2 = fidgeting quite a lot
3 = more or less constant fidgeting
8 = NA
9 = NK

Concentration

What about ..................’s level of concentration in this situation?

Would this be typical of ..................’s ability to concentrate during a semi-structured set task?

0 = more than 15 min
1 = between 10-15 min
2 = between 5-10 min
3 = less than 5 min
8 = NA
9 = NK

249
Noisiness

In this particular work period is .......... noisy at all? Is .......... more or less noisy than the others?

0 = not at all
1 = yes a little
2 = yes quite a lot
3 = yes a lot (more or less constantly)
8 = NA
9 = NK

Disruptiveness

Apart from what you have already told me, is ................. at all disruptive in this particular working situation? Could you give me some examples? Would this be typical?

0 = not disruptive
1 = a little disruptive
2 = disruptive quite a lot
3 = disruptive a lot
8 = NA
9 = NK

QUIET GROUP SITUATION such as story time, TV time, listening

Gross motor activity

In this particular situation does ................. get up and move around at all?
If so how many times per 10-15+ min? Would this be typical?

0 = not at all
1 = once only
2 = twice
3 = 3-5 times
4 = 6 times or more
8 = NA
9 = NK
Fidgeting

In this particular work situation is ................. restless or fidgety?
And how much? Would this be usual?
0 = no fidgeting
1 = fidgeting a little
2 = fidgeting quite a lot
3 = more or less constant fidgeting
8 = NA
9 = NK

Concentration

What about ..........’s level of concentration in this situation?
Do you think .......... was paying attention. Would this be usual?
0 = concentrating well
1 = occasional lapses
2 = frequent lapses
3 = hardly concentrating
8 = NA
9 = NK

Noisiness

In this particular situation is ................. noisy at all?
Is ................. more or less noisy than the others?
0 = not at all
1 = yes a little
2 = yes quite a lot
3 = yes a lot (more or less constantly)
8 = NA
9 = NK

Disruptiveness

Apart from what you have already told me, is ................. at all disruptive in that particular situation? Could you give me some examples?

Would this be typical?
0 = not disruptive
1 = a little disruptive
2 = disruptive quite a lot
3 = disruptive a lot
8 = NA
9 = NK
I would like to ask you some questions about relationships and behaviour, and then go on to talk about how he/she gets on with school work.

How does he/she get on with other children?

Would you say he/she is a good mixer?

Or does he/she prefer to do things on his/her own?

Rate: Solitary behaviour
0 = never, hardly ever solitary on his/her own
1 = occasionally solitary, but more often with other(s)
2 = quite often (50%) solitary
3 = definitely/frequently solitary
9 = NK

Rate: General assessment of mixing with others
0 = no or only trivial difficulties
1 = slight/occasional difficulties
2 = marked/frequent difficulties
3 = other
9 = NK

Does he/she tend to be a follower or a leader?
0 = leader
1 = follower
2 = both, depends on situation
3 = neither
9 = NK

Has he/she a have one or more particular friend(s), someone he/she gets on well with and enjoys being with?
0 = a particular friend
1 = small group (2-4) friends
2 = larger group (5-10) friends
3 = no particular friend(s), friendly with whoever is around
4 = very little/no involvement with peers
9 = NK
Is there any group of children he/she definitely does not get on with? In what ways?

0 = no
1 = yes a particular child
2 = yes a group of children
9 = NK

How long does he/she keep friends?

How long has he/she had a special friend?

Has he/she any friends he/she had over 3 months ago?

Or any he/she had a year ago?

0 = special friend(s) > 1 year
1 = special friend(s) > 6m < 1 year
2 = special friend(s) > 3m < 6m
3 = special friend(s) < 3m
4 = no special friend(s)
9 = NK

Is he/she a self confident child?

If yes, how does he/she show it?

Are there any particular ways he/she lacks confidence?

0 = frequently confident, marked confidence
1 = mostly confident, but occasionally lacks confidence
2 = rarely confident, frequently shows lack of confidence
3 = no confidence, marked lack of confidence
8 = other
9 = NK

**IMPACT OF HEMIPLEGIA**

How did the majority of the class react to their classmate with hemiplegia
(in terms of physical disability)?

0 = Accepted his/her particular physical difficulties without comment or extra efforts to help.
1 = Accepted the physical disability and made a particular effort to accommodate.
2 = Made things even worse.
9 = NK
Visibiiitv

Do ..........’s physical problems cause difficulties in the ordinary range of classroom activities, including PE, CDT, science, cookery?

In what way?
0 = not at all
1 = to a very minor degree
2 = causes some difficulty
3 = causes considerable difficulty
9 = NK

Do ..........’s physical problems cause difficulties in ordinary range of playground activities?

In what way?
0 = not at all
1 = to a very minor degree
2 = causes some difficulty
3 = causes considerable difficulty
9 = NK

To what degree do you think ..........problems (if any) affect his/her relationships with classmates? In what way?

(for target and control child based on information obtained earlier in interview)

In the classroom
0 = not at all
1 = to a very minor degree
2 = causes some difficulties in relationships
3 = causes considerable difficulty in relationships
9 = NK

In the playground
0 = not at all
1 = to a very minor degree
2 = causes some difficulty in relationships
3 = causes considerable difficulty in relationships
9 = NK
How far do you think these difficulties stem from:
(rate symptom and level of contribution)

- immaturity
- vulnerability
- physical disability
- learning problems/IQ
- personality
- behaviour
- ethnicity
- poor self confidence
- seizures
- language/articulation difficulties
- other physical distinguishing features (obese, wears glasses, skin blemishes, hair colour etc.)

For each of the above, rate:
0 = no contribution
1 = minor contribution
2 = major contribution
8 = NA
9 = NK

Does he/she pose any particular difficulties within the class other than his/her physical limitations?
0 = no
1 = yes
8 = NA
9 = NK

If yes, please give details
Rate each of the following 10 questions

0 = does not apply
1 = applies somewhat
2 = definitely applies
9 = NK

Is he/she frequently verbally demanding e.g. calling out in class? □

Does he/she interrupt on-going conversations? □

Does he/she frequently push to the front of the class, or jump queues? □

Does he/she have difficulty waiting for his/her turn in games or group situations? □

Does he/she often ignore directions? □

Does he/she like to be the centre of attention? □

Does he/she show excessive volunteering? □

Does he/she often appear over anxious to please? □

Does he/she often act before thinking? □

Does he/she seem to need constant individual attention and teacher surveillance to get on with tasks and activities? □

How often do you go to him/her? Do you give him/her more attention than you give to children in your class as a whole? □

0 = average
1 = more than average
2 = less than average
9 = NK

In terms of his/her academic work, do you think he/she is doing as well as he/she is capable of? □

0 = yes
1 = somewhat worse
2 = a great deal worse
9 = NK
How is he/she getting on compared with other children in the class?

Rate the following 8 in terms of

0 = average
1 = somewhat above average
2 = a great deal above average
3 = somewhat below average
4 = a great deal below average
9 = NK

Reading

Writing - script

Writing - stories, news, concepts

Number - practical concepts, computations, written, recorded

PE. motor control

Manipulative skills, constructive skills, eye-hand co-ordination

Drawing

Creative abilities (ie vs. systematic, well-defined or problem solving abilities)

Language; use of fluency

Does he/she ever refuse to comply with requests? In what way does he/she refuse to comply?

0 = never non-compliant
1 = rarely non-compliant
2 = sometimes non-compliant (slight but definite)
3 = frequently non-compliant (marked)
9 = NK
Does ................... ever get really aggressive to other children and try to hurt them physically? Perhaps threaten to hit them while playing? Does he/she sometimes have to be restrained?

**Severity**

0 = no aggressiveness
1 = minimal aggressiveness (threatening without physical contact or uncertain if represents rough play or momentary provoked lashing out
2 = mild aggressiveness, physical but transient not intensely
3 = severe aggressiveness, attacking others, hurt them, required restraint

**Frequency**

0 = not occurred
1 = less than weekly
2 = 1-2 days per week
3 = 3-6 days per week
4 = daily

Have there been any other conduct problems such as:

For each of the following, rate

0 = no problems
1 = minimal
2 = moderate
3 = severe
9 = not known

stealing
destructiveness
verbal abuse
other problems (describe)
What is his/her mood like usually? Is he/she a cheerful child?
Can you think of any times recently (present school year) when he or she has been unhappy?
How did he/she show that he/she was unhappy?
(detailed descriptions of the behaviour should be obtained so that misery is not inferred on the basis of other signs e.g. defiance)

How bad (severe) was it?
0 = no misery
1 = transient misery (at most 1 day easy to cheer up)
2 = marked misery (lasting for more than one day could only be cheered up with difficulty e.g. special treat long chat)
3 = severe misery (could not be cheered up at all or was talking of a wish to die or to run away, or too miserable to engage in usual activities, or persisting for several days at a time although not necessarily at the same severity.
9 = NK

Frequency
0 = not occurred
1 = less than weekly
2 = 1-2 days per week
3 = 3-6 days per week
4 = daily

Does he/she tend to worry about things? (Worrying is defined as a round of painful uncomfortable thoughts in anticipation of stress.) How bad would the worrying be? Could you give me an example of an incident when he/she appeared to be worrying about something (in this school year).
0 = no worrying
1 = mild or transient worrying (related to definite external problem and appropriate to it, lasting no more than one school day at a time, easy to reassure)
2 = marked worrying (persisting for more than one school day at a time or difficult to reassure, or moderate interference with usual activities, or out of proportion to external problem)
3 = severe worrying (cannot be reassured, or serious interference with activities, or present for several days at a time though not necessarily at the same severity all the time.
9 = NK

Frequency
0 = not occurred
1 = less than weekly
2 = 1-2 days per week
3 = 3-6 days per week
4 = daily

Is ................ a fearful child?
What sort of things frighten him or her? Could you give me some examples?
0 = no fears
1 = mild, little distress or impact on child's life
2 = moderate, some distress, but can tolerate if necessary
3 = marked, distress/anxiety, avoidance without incapacity
4 = severe, extreme anxiety/panics, avoidance with incapacity
9 = NK
Teasing/bullying

This is our definition of bullying: We say a child is being bullied, or picked on, when another child or group of children, say nasty and unpleasant things to him or her. It is also bullying when a child is hit, kicked, threatened, locked inside a room, sent nasty notes, when no-one ever talks to them and things like that. These things can happen frequently and it is difficult for the child being bullied to defend him or herself. It is also bullying when a child is teased repeatedly in a nasty way when their possessions are hidden or when they are intimidated. BUT it is not bullying when two children have the odd fight or quarrel. Does he/she ever get teased or bullied by other boys and girls? What is the teasing about usually?

<table>
<thead>
<tr>
<th>0 = no or not mentioned</th>
<th>1 = yes</th>
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<tbody>
<tr>
<td>name calling (racial)</td>
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<td>name calling (disability)</td>
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<td>general name calling</td>
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<tr>
<td>being physically hit</td>
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<td>being threatened</td>
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<td>excluded/ignored</td>
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<td>having rumours spread about them</td>
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<tr>
<td>having things stolen from them</td>
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<tr>
<td>is he/she bullied in other ways</td>
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</tbody>
</table>

Do you think he/she gets teased or bullied more than other children?

<table>
<thead>
<tr>
<th>0 = not teased or bullied</th>
<th>1 = teased/bullied, but no more than other children</th>
<th>2 = teased/bullied somewhat more than other children</th>
<th>3 = teased/bullied a lot more than other children</th>
<th>9 = NK</th>
</tr>
</thead>
</table>

Severity (level of impact on child)

<table>
<thead>
<tr>
<th>0 = not teased or bullied</th>
<th>1 = mild e.g.</th>
<th>2 = moderate e.g.</th>
<th>3 = severe e.g.</th>
<th>9 = not known</th>
</tr>
</thead>
</table>

Frequency

<table>
<thead>
<tr>
<th>0 = not teased or bullied</th>
<th>1 = less than weekly</th>
<th>2 = 1-2 times per week</th>
<th>3 = 3-4 times per week</th>
<th>4 = daily</th>
<th>9 = NK</th>
</tr>
</thead>
</table>
Is this child teased or bullied in own class?
0 = not teased/bullied
1 = consistently teased/bullied by one child in own class
2 = teased/bullied by a small group of children in own class
3 = teased/bullied by many members of own class
4 = teased/bullied by nearly all the class
9 = NK

Or teased or bullied by members of other classes?
0 = not teased/bullied
1 = teased/bullied only by children in same year
2 = teased/bullied by children in a lower year
3 = teased/bullied by children in a higher year
4 = teased/bullied by mixture of 1, 2 and 3
9 = NK

Are the perpetrators:
0 = mainstreamed children
1 = other SEN children
2 = both
9 = NK

How does he/she react to being teased/bullied?
0 = not teased/bullied
1 = takes it well (e.g. ignores it)
2 = retaliates
3 = gets angry
4 = gets upset
5 = reacts in some other way (probe for details)
9 = NK

If teased/bullied, does he/she:

Tell the teacher
Another child
Lunchtime supervisor
Support/ancillary
Someone else
A parent

0 = never
1 = occasionally
2 = usually
3 = always
8 = NA (not teased)
9 = NK

(Code only if the teacher’s answers to sections referring to teasing and bullying identify the child as a "victim").
You have told me that you think that ................. is teased and/or bullied. How far do you think the teasing and/or bullying stems from:

- immaturity
- vulnerability
- physical disability
- learning problems/IQ
- personality
- behaviour
- ethnicity
- poor self confidence
- seizures
- language/articulation difficulties
- other physical distinguishing features (obese, wears glasses, skin blemishes, hair colour etc.)

For each of the above, rate:

0 = no contribution
1  = minor contribution
2 = major contribution
8 = NA
9 = NK

**Perpetrator**

(Code only if teacher has indicated that this child fights with other children)

You have told me that ................. fights with other children.

Would you describe this as teasing or bullying behaviour?

Does this child ever tease or torment other boys and girls? What is it about usually?

Do you think he/she bullies others more often than other children?

If so, why do you think this happens?

(probe for retaliation)

0 = never bullies
1  = bullies, but no more than other children
2 = bullies somewhat more than other children
3 = bullies a lot more than other children
9 = NK
Does this child bully only children within own class?
0 = Never bullies
1 = consistently bully one child in own class
2 = Bullies a small group of children in own class
3 = Bullies many members of own class
4 = Bullies nearly all the class
9 = NK

and/or

0 = Never bullies
1 = Bullies only children in same year
2 = Bullies children in a lower year
3 = Bullies children in a higher year
4 = Mixture of 1, 2 and 3
9 = NK

Are the victims:
0 = mainstreamed children
1 = other SEN children
2 = both
9 = NK

How often do you think this occurs?

Frequency
0 = not occurred
1 = less than weekly
2 = 1-2 days per week
3 = 3-6 days per week
4 = daily

Rate judgement: Is this child ...
0 = no problem/or about average for the class
1 = a victim of teasing and bullying
2 = a provocative victim
3 = a provocative bully
4 = a bully/victim
9 = NK

Teacher/school strategies for dealing with bullying/teasing

Is there a whole school policy to deal with the teasing/bullying?
Or is each incident dealt with on its own merits?

Can you tell me about it?

Could you give me a recent example of a bullying incident?
And tell me how you (and the school) dealt with the incident?

How do you (and the school) deal with teasing/bullying?

0 = Talk to the victim alone
1 = Send victim to another member of staff
2 = Talk to perpetrator(s) alone
3 = Send perpetrator(s) to another member of staff
4 = Talk to victim first and then perpetrator(s)
5 = Send victim and perpetrator(s) together to another member of staff
6 = Talk to victim and perpetrator together
7 = Ignore it
8 = NA
9 = NK

Who is usually the first line of intervention?

0 = Whoever is on site
1 = The headteacher
2 = Class teacher
3 = Professional support
4 = Other (probe for details)

Is there anything you would like to add?
I would like to begin by asking you about the way that your school is organised. This demographic information helps us to compare the similarities and differences across all the schools taking part in the study.

School location

How many pupils are there in the school?
0 = less than 200
1 = 200 - 400
2 = 400 - 500
3 = over 500

How many classes in each year?
0 = 1 form entry
1 = 2 form entry
2 = 3 form entry

What is the average class size?
0 = under 30
1 = over 30

What percentage of children come from different ethnic groups?
0 = less than 5%
1 = less than 10%
2 = less than 25%
3 = between 25%-50%
4 = about 75%

If yes, could you tell me which they are?

Is there a mix of different social class backgrounds?
If yes, could you estimate the percentages?
0 = highly advantaged (nearly all 1 & 2)
1 = advantaged (clear excess of non-manual)
2 = average (roughly equal numbers of non-manual & manual)
3 = disadvantaged (clear excess of manual)
4 = highly disadvantaged (mostly 4 & 5)
9 = NK

Is this a designated school for integration?
0 = No
1 = Yes

Is there a school policy for SEN?
0 = No
1 = Yes

How many of your SEN children are statemented?

Does ................ have a statement?
0 = No
1 = Yes
2 = in process

If yes, what has this meant to you in terms of extra resources?

Given the amount of effort that goes into writing or contributing to a SEN, there are some people who question how useful an exercise this really is.

As HT how valuable do you think the statement has been for ................ and the school?
I will, of course, be asking ................ ’s teacher this question too.
Do you think you could list the advantages of having a statement?

For example, in ...............’s case, what might they be?

- 0 = resources
- 1 = guidance on cognitive limitations (eg ways of getting around them)
- 2 = guidance on physical limitations (eg ways of getting around them)
- 3 = guidance on emotional difficulties
- 4 = guidance on social/behavioural difficulties
- 5 = guidance on developing organisational skills

What other use might you get out of this statement?

Are you able to provide any resources for SEN with or without statements?

- 0 = Through LMS
- 1 = through LEA/LSS general support funds

Does the LEA (or the school) provide any INSET for teachers working with SEN?

Could you tell me a little more about how the children are integrated?

How well do you think the SEN children integrate socially?
Do you have much contact with ..........’s parent(s)?

For example, do they make too much or too little of ..........’s problems? Do they come into school frequently to see either you or the teacher, or are they happy to let you contact them as and when you need to?

School contact
0 = very little contact
1 = average/on a par with other parents
2 = frequent visits
9 = NK

Parents perceptions of problem
0 = under emphasis
1 = about average
2 = over emphasis
9 = NK

As you know, we are particularly interested in the factors which differentiate between success and failure in school, particularly in children's social relationships. One of the factors in parent's minds is the incidence of teasing and bullying which occurs in schools.

This is our definition of bullying. We say a child is being bullied, or picked on, when another child or group of children, say nasty and unpleasant things to him or her. It is also bullying when a child is hit, kicked, threatened, locked inside a room, sent nasty notes, when no-one ever talks to them and things like that. These things can happen frequently and it is difficult for the child being bullied to defend him or herself. It is also bullying when a child is teased repeatedly in a nasty way, when he or she is intimidated or when his or her possessions are hidden.

BUT it is not bullying when two children have the odd fight or quarrel.

Is this a problem in your school?
0 = No
1 = Yes

Could you give me a recent example of a bullying incident?

And tell me how the school (and your staff) dealt with the incident?

Is the way an incident is dealt with based on a whole school policy for bullying? Or is each incident treated on its own merits?

If a whole school policy exists, could you give me a brief description of the policy?
Who supervises the playground?

At break?
At lunchtime?

0 = teachers
1 = lunchtime supervisors
2 = parents

How many would normally be on duty?

At break?
At lunchtime?

0 = 2-4
1 = 4-6
2 = more than 6

How far are the playground supervisors involved in the management of bullying incidents?

Is there anything else you would like to add?
We would like you to tell us who your friends are at school. For example, the children you like to play with.

Please put a ✓ in column 1 against the names of the children you like to play with the most.

In column 2, put a ✓ against the names of the children you like to play with sometimes.

In column 3, put a ✓ against the names of the children you don't like to play with very much.

Make sure you have a ✓ for every child in the class.

<table>
<thead>
<tr>
<th>Name</th>
<th>Like to play with</th>
<th>Like to play with sometimes</th>
<th>Don't like to play with much</th>
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</table>
We would like you to tell us which children you **play with the most.**

Please put a ✔️ against the names of just three children you like to **play with the most in your class.**

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<th>Name</th>
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</tbody>
</table>
We would like you to tell us which children you **play with the least**

Please put a ✓ against the names of just three children you like to **play with the least** in your class

<table>
<thead>
<tr>
<th>Name</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18</td>
</tr>
<tr>
<td>2</td>
<td>19</td>
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<tr>
<td>3</td>
<td>20</td>
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<td>21</td>
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<tr>
<td>16</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
</tr>
</tbody>
</table>
Social Skills Situations

1) You are in the playground when someone in your class throws a ball really hard into your back.

Do you think that this was an accident? Or did it happen on purpose?

1 = accident
2 = intentional
3 = don't know

What would or could you do? (Record total number of strategies)

Out of the things you have just told me, what are you most likely to do?

1 = passive
2 = competent
3 = authority/rule bound
4 = aggressive
5 = other

2) One wet playtime, you are in the classroom with nothing to do. You see two children in your class get out a game of Monopoly to play. You go over to play with them and they say "we didn't ask you to play with us".

Do you think that this was an accident? Or did it happen on purpose?

1 = accident
2 = intentional
3 = don't know

What would or could you do? (Record total number of strategies)

Out of the things you have just told me, what are you most likely to do?

1 = passive
2 = competent
3 = authority/rule bound
4 = aggressive
5 = other
3) It is going home time, you go to get your coat off the peg, but you can’t find it anywhere. Then you see someone from your class walk past wearing a coat exactly like yours.

Do you think that this was an accident? Or did it happen on purpose?

1 = accident
2 = intentional
3 = don’t know

What would or could you do? (Record total number of strategies)

Out of the things you have just told me, what are you most likely to do?

1 = passive
2 = competent
3 = authority/rule bound
4 = aggressive
5 = other

4) At breaktime you generally play most of the time with your friend. One day you see your friend playing with someone you don’t like.

Do you think that this was an accident? Or did it happen on purpose?

1 = accident
2 = intentional
3 = don’t know

What would or could you do? (Record total number of strategies)

Out of the things you have just told me, what are you most likely to do?

1 = passive
2 = competent
3 = authority/rule bound
4 = aggressive
5 = other
### Teasing/bullying

Do you ever get teased, bullied or picked on at school? What would it usually be about? For each way: code how often does it happen.

Who picks on you?
Do you think you get teased or bullied more than other children? How do you feel about it?

#### Frequency

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>does not occur</td>
</tr>
<tr>
<td>1</td>
<td>less than weekly</td>
</tr>
<tr>
<td>2</td>
<td>1-2 times per week</td>
</tr>
<tr>
<td>3</td>
<td>3-4 times per week</td>
</tr>
<tr>
<td>4</td>
<td>daily</td>
</tr>
</tbody>
</table>

#### Who picks on you?

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>not teased or bullied</td>
</tr>
<tr>
<td>1</td>
<td>teased/bullied no more than other children</td>
</tr>
<tr>
<td>2</td>
<td>teased/bullied somewhat more than other children</td>
</tr>
<tr>
<td>3</td>
<td>teased/bullied a lot more than others</td>
</tr>
</tbody>
</table>

#### Focus

<table>
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<th>Description</th>
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<tr>
<td>0</td>
<td>not teased or bullied</td>
</tr>
<tr>
<td>1</td>
<td>unrelated to hemiplegia (e.g. glasses, obese etc)</td>
</tr>
<tr>
<td>2</td>
<td>directly related to hemiplegia (e.g. spastic etc)</td>
</tr>
<tr>
<td>3</td>
<td>indirectly related to hemiplegia (SZ)</td>
</tr>
<tr>
<td>4</td>
<td>mixture of 2 &amp; 3</td>
</tr>
<tr>
<td>5</td>
<td>mixture of 1 plus 2 &amp;/or 3</td>
</tr>
<tr>
<td>9</td>
<td>NK</td>
</tr>
<tr>
<td>Dimension</td>
<td>Frequency</td>
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<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>None = 0</td>
<td>Zero</td>
</tr>
<tr>
<td>Dubious = 1</td>
<td>No different to others</td>
</tr>
<tr>
<td>Mild - 2</td>
<td>less than 1-2 days per week</td>
</tr>
<tr>
<td>Severe = 3</td>
<td>3-5 days per week</td>
</tr>
</tbody>
</table>
Rating Child Psychiatric Caseness From Detailed Case Histories

Robert Goodman, Carole Yude, Hilary Richards and Eric Taylor

Department of Child and Adolescent Psychiatry, Institute of Psychiatry, London, U.K.

Novel operationalized criteria were used to rate detailed psychiatric case histories on 151 schoolchildren with hemiplegia. Ratings of psychiatric caseness or non-caseness were reliable and valid; the method may be widely applicable. Caseness was defined both narrowly (in terms of social incapacity for the child) and broadly (in terms of disruption to others and distress too). Both definitions could be applied reliably to children of normal intelligence but broadly defined caseness was more reliable for children with low intelligence. Barely half of the psychiatric cases met operationalized criteria for one or more DSM-IV or ICD-10 diagnosis. The others mostly had partial or mixed syndromes that could, with clinical judgement, be assigned to 'not otherwise specified' diagnoses. Even with clinical judgement, however, a substantial minority of children with low intelligence had clinically significant but undiagnosable abnormalities in social relatedness.

Keywords: Child psychiatry, caseness, diagnostic criteria, classification

Introduction

In most child psychiatric studies of epidemiological or high-risk samples, the prevalence of psychiatric disorder ('caseness rate') is a key measure. When psychiatric disorder is defined solely in terms of recognized constellations of psychiatric symptoms, this can result in implausibly high caseness rates. For example, Bird et al. (1988) estimated from their epidemiological study that 49.5% of Puerto Rican children aged between 4 and 16 years met criteria for at least one DSM-III diagnosis. As Bird, Yager, Staghezza, Gould, Canino and Rubio-Stipec (1990) note, many of the children who were eligible for DSM-III diagnoses were not significantly socially impaired by their symptoms, did not seem in need of treatment, and did not correspond to what clinicians would normally recognize as 'cases'. For most epidemiological purposes, children should not be classified as psychiatric cases unless their psychiatric symptoms have a significant impact (e.g. Rutter, Tizard & Whitmore, 1970b; Bird et al., 1990).

The impact of child psychiatric symptoms can potentially be judged in one of several ways. Bird et al. (1990) suggest that the impact of symptoms should be judged solely from the resultant social impairment, i.e. from the extent to which the symptoms compromise the child's ability to fulfil normal role expectations in everyday life. Though this unitary criterion is appealingly parsimonious, two other potential indices of symptom impact have considerable face validity, namely the extent to which the symptoms cause disruption for others or distress for the child.

Externalizing symptoms can sometimes lead to substantial disruption for others without resulting in much social impairment for the child. For example, the parents and siblings of children with severe physical or intellectual disabilities are sometimes remarkably stoical in the face of marked opposition, tantrums and destructiveness, having learned to circumvent or tolerate these behaviours at considerable cost to themselves. It does not seem reasonable to say that such a child does not have a disorder simply because the family absorbs the disruption without making the child 'pay for it'. In keeping with this, caseness in the Isle of Wight studies was defined in terms of symptoms that resulted in social impairment for the child or that had a major impact on others (Rutter et al., 1970b).

In some children, internalizing symptoms result in substantial distress without much social impairment. Like their adult counterparts, anxious or depressed children are sometimes able to fulfil normal role expectations while experiencing considerable inner anguish. It does not make clinical sense to describe such children as free from disorder for as long as they continue to 'go through the motions' of their ordinary lives; it is presumably for this reason that DSM-IV diagnoses of anxiety and affective disorders can be made if symptoms cause clinically significant distress even if they do not result in social impairment (American Psychiatric Association, 1994). Perhaps all psychiatric caseness should be defined broadly in terms of symptoms that result in significant distress for the child, significant social impairment of the child, or significant...
The reported rate of caseness in any population will depend not only on whether caseness is defined broadly or narrowly but also on whether the investigators use a bottom-up or top-down approach to the recognition of psychiatric disorder. Investigators using a bottom-up approach determine whether their subjects meet the diagnostic criteria for any of the specific disorders recognized by the current classifications (perhaps applying additional ‘impact’ criteria to ensure that children are only diagnosed as having a disorder if their symptoms have a significant impact). Following this bottom-up approach, children need to meet the criteria for at least one disorder to be considered a ‘case’. The potential problem with this approach is that some children may fall between the cracks of our current diagnostic systems—a concern that may be particularly relevant to individuals of low intelligence (Sturmey, 1993). A child with disparate symptoms might fail to meet the diagnostic criteria for any currently recognized disorder even though the cumulative impact of the symptoms is substantial. In order to include such children, a top-down approach starts by classifying children as cases or not according to whether they have psychiatric symptoms that meet some chosen criterion of impact. How many of these children would also have been recognized by a bottom-up approach is then open to empirical investigation.

The caseness rates reported by different studies are commonly contrasted with one another or combined in meta-analyses. The value of doing this will depend on the comparability and reliability of the caseness measures. Despite the existence of standardized psychiatric interviews for children and informants, there are still major obstacles to generating reliable and valid caseness ratings that have the same meaning when used by different investigators in different places or at different times. In particular, there is no generally accepted method for integrating and reconciling the different information obtained from different sources about symptoms or impact. For instance, how should one judge impairment in peer relations if a standardized interview with the child suggests good peer relationships while standardized interviews with teachers and parents suggest the opposite? Researchers may be tempted to define a simple decision rule, e.g. that priority should always be given to the child’s report, or that the results of the three informants should be averaged. Clinicians are likely to be suspicious of such simple rules, preferring to use multiple clues and clinical experience to arrive at a decision. How convincing was the child’s account of his friendships? Did the rest of what the child said suggest that he was a poor informant or prone to giving socially acceptable but inaccurate information? How long had the teacher known the child? Did the teacher appear to be an astute observer? Was that teacher ever on playground duty? Having weighed up these and numerous other factors, the clinician will arrive at a judgement, sometimes prioritizing one informant, sometimes another. If the final rating of caseness depends on such clinical judgements, does this seriously undermine reliability?

In the course of a study of the psychiatric complications of childhood hemiplegia, we devised and used an operationalized top-down method for determining the presence or absence of psychiatric disorder. Caseness was defined both narrowly and broadly, and clinical judgement was used in the interpretation of conflicting information. In this paper we address several questions. How reliable and valid was our method for rating caseness? What sorts of cases proved particularly difficult to rate reliably? What difference did it make whether caseness was defined narrowly or broadly? What proportion of cases identified using a top-down approach would have been missed with a bottom-up approach? What sorts of cases are particularly likely to be missed by a bottom-up approach?

Method

The London Hemiplegia Register (LHR) used multiple ascertainment techniques to recruit a large and representative sample of London children with a clinical diagnosis of hemiplegia (Goodman & Yude, 1996). Individual assessments were carried out on a representative sub-sample of six- to ten-year-olds from the LHR, involving 150 children from Greater London (Goodman & Yude, 1996), plus one hemiplegic child who lived just outside the Greater London boundary but had been included by error. These 151 children are the same sample described in Goodman (1994). Although the sample included two children who did not appear to be hemiplegic on personal examination, these two nonhemiplegic children have been included in the analyses reported here since the focus of this paper is not on hemiplegia.

A research psychologist (CY) interviewed one or both parents about their child’s emotions, behaviour and relationships using a standardized semi-structured interview—the Parental Account of Child Symptoms (PACS; Taylor, Schacher, Thorley & Wieselberg, 1986). The same assessor subsequently administered the Wechsler Intelligence Scale for Children—Revised (WISC-R, Wechsler, 1974) to subjects, obtaining meaningful scores on 139 subjects (92% of the sample). One of the remaining 12 subjects would not cooperate with the testing despite repeated attempts (but clearly had mild learning difficulties as judged by school and home observation), while 11 subjects were functioning at or below the floor of the WISC-R. Overall, 98 subjects were of normal intelligence (IQ > 70), 34 had mild intellectual impairment (IQ 50–69), and 19 had moderate, severe or profound intellectual impairment (IQ < 50).

Independently of the first assessor, a second assessor (RG) who had trained in paediatric neurology and child psychiatry saw each child for a standard neurological examination and mental state examination (Rutter & Graham, 1968). Each assessor was blind to the other’s findings until all 151 children had been seen, at which stage the two assessors pooled their findings and generated anonymized psychiatric case histories on each subject following a standard format. Each case history included the child’s age, gender and approximate intelligence so that symptoms could be judged for developmental appropriateness. Enough information on family composition and social circumstances was provided to make the rest of the case history comprehensible. To reduce the risk of bias, no mention was made of the type or degree of physical disability unless the case history would have been uninterpretable without this information. In no case was it necessary to disclose the degree or laterality of the motor disability. It was
necessary, however, to mention the occurrence of seizures in 5 of the 60 children who had current or resolved epilepsy (e.g. in the case history of a boy whose marked worrying was largely focused on when he would next have a seizure). Similarly, it was necessary in seven instances to mention visual or hearing impairments, sickle cell disease or diabetes mellitus (e.g. in the case history of a boy whose marked fear of falling or tripping was related to his visual impairment).

The following parent-reported symptom domains were covered in each case history: eating problems; sleep problems; anxieties; fears; misery and depressive symptoms; social relationships with parents, other adults, siblings and other children; fidgetiness, restlessness, distractibility and impersistence in specified situations (watching television, reading, playing alone and with others, at meal times and on outings); irritability; noncompliance; tantrums; aggression; destructiveness; lying; stealing; and other antisocial behaviours. If any potentially autistic symptoms were reported, these were included in the case history, along with an account of the presence or absence of other potentially autistic symptoms. The following child-reported symptom domains were covered in each case history: social relationships; anxieties; fears; misery and other depressive symptoms; obsessions and compulsions; and aggressive and antisocial behaviours. Verbatim transcripts of the parents' and children's own descriptions of symptoms were used wherever possible. Each case history also recorded the standardized observational ratings made by the assessors at the time of the neurological, psychiatric and psychometric assessment; these ratings covered the child's attention, activity, oppositionality, affect and style of relating to the assessor. Finally, the case history summarized which items from the Rutter (1967) and Conners (1969) questionnaires had been endorsed by the child's class teacher.

Using these standardized case histories, the two original assessors—an experienced child psychiatrist (RG) and research psychologist (CY)—rated the 151 subjects on a novel caseness scale (Appendix 1), as well as on separate scales for emotional, conduct and hyperactivity disorders (Appendix 2). Two sample case histories, along with formulations and ratings, constitute Appendix 3; a wider range of sample case histories is available from the first author on request. When children met Appendix 1 criteria for psychiatric caseness (level 2 or above), the Appendix 2 ratings were used, where possible, to subclassify cases into emotional disorders, hyperkinesis (with or without a conduct disorder), or conduct disorders (including mixed disorders of conduct and emotions but excluding hyperkinetic conduct disorders). Children with either hyperkinesis or significant situational hyperactivity were combined to create a group with broadly defined hyperactivity disorder [equivalent to Attention Deficit Disorder with Hyperactivity (ADDH) in DSM-III; American Psychiatric Association, 1980].

All the subjects were independently re-rated using the same caseness criteria by an experienced child psychiatrist (HR) who had had a period of training in the use of the novel caseness criteria but who had no knowledge of the subjects other than from the case histories, and who had never worked clinically with the other assessors. The assessors' rating of caseness and the independent rating of caseness were both used in the reliability analyses; only the assessors' rating was used in the other analyses.

The PACS interview with parents can be used to generate separate symptom scores for hyperactivity, emotional symptoms and conduct problems (Taylor et al., 1986; Taylor, Sandberg, Thorley & Giles, 1991). Using these scores, subjects who did and did not meet our criteria for psychiatric caseness were compared with community controls and psychiatric clinic attenders who had previously been assessed in other studies using the PACS interview (Taylor et al., 1986, 1991). This comparison seemed justified since the researcher (CY) who administered and scored the PACS interview in this study had been trained to do so by the team that studied the community controls and psychiatric clinic attenders. When a member of that team and CY independently rated 11 audiotapes of PACS interviews, the intraclass inter-rater reliabilities were 0.95 for emotional symptoms, 0.98 for conduct problems and 0.80 for hyperactivity (Heptinstall & Yude, unpublished data).

Results

Reliability

There was substantial agreement between the independent rater and the assessors on each subject's caseness rating (Table 1). The ratings were identical for 60% (91/151) of subjects. Furthermore, the discrepancy was relatively minor for most of the remaining subjects, with 7% (10/151) of subjects being allocated to different subcategories of level 2, and with a one-point difference in caseness rating for 31% (47/151) of subjects. The inter-rater reliability was 0.81 (p < 0.001), calculated as the Spearman intra-class correlation after combining both subcategories of level 2.

There were major two-point discrepancies for just three subjects (2% of sample), whose relevant characteristics are summarized in Table 2. All three had IQs under 70 and two of the three had odd personalities with some autistic features. Thus subject A had an odd social manner and she sometimes wandered away from home, being unperturbed when lost, even when taken to a police station. Subject B was preoccupied with aeroplanes and windows and tended to perseverate on favourite themes. The primary cause of the disagreement between the two sets of raters was different in each of the three cases. For subject A, the existence of social impairment was uncertain because of a conflict of

Table 1

<table>
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<tr>
<th>Assessors' rating of caseness</th>
<th>Independent rating of caseness</th>
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<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>0 = No disorder</td>
<td>26</td>
</tr>
<tr>
<td>1 = Dubious disorder</td>
<td>8</td>
</tr>
<tr>
<td>2A = Mild disorder (distress or disruption only)</td>
<td>0</td>
</tr>
<tr>
<td>2B = Mild disorder (with social impairment)</td>
<td>1</td>
</tr>
<tr>
<td>3 = Severe disorder</td>
<td>0</td>
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Table 2
Subjects Occasioning Markedly Discrepant Rating

<table>
<thead>
<tr>
<th>Subject A</th>
<th>Subject B</th>
<th>Subject C</th>
</tr>
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<tbody>
<tr>
<td>Age</td>
<td>7 years</td>
<td>9 years</td>
</tr>
<tr>
<td>IQ</td>
<td>59</td>
<td>44</td>
</tr>
<tr>
<td>'Odd' personality</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>Conflicting evidence on social impairment</td>
<td>+++</td>
<td>-</td>
</tr>
<tr>
<td>Uncertain if social impairment is due to psychiatric symptoms</td>
<td>(+)</td>
<td>+++</td>
</tr>
<tr>
<td>Uncertain if 'symptoms' are developmentally appropriate</td>
<td>-</td>
<td>(+)</td>
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Table 3
Rates and Reliabilities of Broadly and Narrowly Defined Caseness

<table>
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<th>Broadly defined caseness</th>
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<th>Narrowly defined caseness</th>
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<tbody>
<tr>
<td>Caseness rate</td>
<td>Caseness rate</td>
<td>( \kappa ) (95% CI)</td>
<td>Caseness rate</td>
<td>Caseness rate</td>
</tr>
<tr>
<td>(assessors rating, %)</td>
<td>(independent rating, %)</td>
<td></td>
<td>(assessors rating, %)</td>
<td>(independent rating, %)</td>
</tr>
<tr>
<td>Whole sample (N = 151)</td>
<td>60</td>
<td>0.74 (0.58, 0.90)</td>
<td>50</td>
<td>0.67 (0.51, 0.83)</td>
</tr>
<tr>
<td>IQ ( \geq 70 ) (N = 98)</td>
<td>48</td>
<td>0.75 (0.56, 0.95)</td>
<td>37</td>
<td>0.76 (0.56, 0.96)</td>
</tr>
<tr>
<td>IQ &lt; 70 (N = 53)</td>
<td>83</td>
<td>0.62 (0.36, 0.88)</td>
<td>74</td>
<td>0.35 (0.08, 0.61)</td>
</tr>
</tbody>
</table>

evidence: parents and teachers were unequivocal that A was isolated and had no special friends, whereas A herself named friends readily and said she was never isolated and lonely. There was no doubt that subject B was socially impaired—he was isolated from peers and fitted poorly into his own family—but it was uncertain whether this rejection stemmed from his odd personality rather than from his physical and intellectual disabilities combined with the prejudices of those around him. For subject C, the problem was knowing how much allowance to make for his very low mental age. C was markedly restless and inattentive but the two sets of raters disagreed as to whether this amounted to an additional hyperkinetic disorder or was simply one aspect of C’s profound learning difficulties. The factors contributing to these marked but rare two-point discrepancies also contributed on a lesser scale to the commoner one-point discrepancies.

The five-point scale of psychiatric caseness was dichotomized in two ways to generate narrowly and broadly defined caseness. As narrowly defined, caseness was limited to children categorized as 2B or 3, i.e. children whose persistent psychiatric problems resulted in significant social impairment (handicap). The broad definition of caseness included children categorized as 2A as well, i.e. all children whose persistent psychiatric problems resulted in substantial handicap, distress or disruption. Table 3 shows the kappa coefficients—a measure of chance-corrected agreement—for each caseness definition, both for the sample as a whole and for intellectually normal and learning disabled children separately. Using Landis and Koch’s (1977) benchmarks, all the kappa values indicate ‘substantial’ agreement (and were significant at \( p < 0.001 \)), with the exception of the ‘fair’ agreement for narrowly defined caseness among children with an IQ under 70 (\( p < 0.01 \)). With the narrow definition of caseness, agreement was significantly worse for children with IQs below 70 than for children with higher IQs (\( z = 2.44, p < 0.02 \)). This poorer agreement was partly attributable to cases in which it was difficult to judge whether challenging behaviour resulted just in disruption to others, or whether it also resulted in significant handicap for the child over and above the handicap already attributable to severe learning difficulties.

Validity

Our caseness criteria could be applied reliably, but did caseness as defined by these criteria correspond to what most clinicians would recognize as a case? To examine this, we compared the level of symptomatology in our ‘non-cases’ and ‘cases’ with the levels found in community controls and psychiatric clinic attenders. To make the present sample more comparable with the community and clinic groups, subjects with IQs below 70 were excluded. For the comparisons presented graphically in Fig. 1, the broad definition of caseness was used to dichotomize the present sample into cases and non-cases. The dimensional measures of hyperactivity, conduct problems and emotional symptoms used in Fig. 1 are based on the number, frequency and severity of symptoms. In Fig. 1(a), the scores of our non-cases are compared with those of normal controls from a previous epidemiological study (Taylor et al., 1991). In Fig. 1(b)–(e), the scores of our cases are compared with psychiatric cases from a previous study of children attending a psychiatric clinic (Taylor et al., 1986)—
Subjects Identified by Broad but not by Narrow Definitions of Caseness

Of the 91 subjects who met our broad criteria for caseness, there were 16 (18%) who did not meet our narrow criteria because their psychiatric symptoms resulted in substantial distress to themselves or disruption to others but not in substantial social impairment. The proportion of broadly defined cases who would not have met a narrow definition of caseness was 23% (11/47) among children with IQs of 70 or more, as compared with 11% (5/44) among children with lower IQs—a nonsignificant difference (continuity-adjusted $\chi^2 = 1.5$, 1 df, $p = 0.2$).

The 16 subjects identified by broad but not by narrow criteria comprised: 11 subjects whose emotional symptoms resulted in substantial distress; three subjects whose conduct problems resulted in substantial disruption; one subject whose feeding and sleeping problems resulted in substantial disruption; and one subject with mixed emotional and conduct problems that resulted in both distress and disruption. The preponderance of emotional disorders among the children with broadly but not narrowly defined disorders applied both to children with normal and low IQs.

Cases that Might Have Been Missed with a Bottom-Up Approach

Of the 91 children who met our broad caseness criteria, 56% (51) could be assigned to at least one ICD-10 (World Health Organization, 1993) or DSM-IV (American Psychiatric Association, 1994) diagnostic category defined by operationalized criteria, e.g. separation anxiety disorder, oppositional defiant disorder, hyperkinesis, attention-deficit/hyperactivity disorder (ADHD). An additional 36% (33) could be assigned to at least one ‘residual’ diagnostic category of ICD-10 or DSM-IV, e.g. anxiety disorder, unspecified; disruptive behaviour disorder, not otherwise specified; attention-deficit/hyperactivity disorder, not otherwise specified (ADHD-NOS). The remaining 8% (7) could not be diagnosed using any ICD-10 or DSM-IV category (apart from a ‘catch-all’ category such as ‘Disorder of infancy, childhood or adolescence not otherwise specified’). The proportion of cases falling into the three categories—having an operationalized diagnosis, having a residual diagnosis, and being undiagnosable—was almost the same when the analysis was restricted to the 75 children with narrowly defined caseness (59%, 33% and 8% respectively). Though we report further analyses only for broadly defined caseness, our findings were similar for narrowly defined caseness.

Children who had to be assigned residual diagnoses failed to meet the criteria for operationalized diagnoses for two main reasons: in some cases, the children met some but not enough of the criteria for one operationalized diagnosis (‘partial syndromes’); in other cases, the children had some of the features of a variety of related diagnoses but did not meet full criteria for any one of them (‘undifferentiated syndromes’). The commonest partial syndrome in our series was ADHD-NOS—the only DSM-IV diagnosis on 14 children. These children

Figure 1. Mean symptom scores for cases and non-cases from this series compared with community controls and children attending a psychiatric clinic. HA = hyperactivity; CP = conduct problem; ES = emotional symptoms.

having matched for diagnostic grouping. As can be seen from the profiles, our non-cases were as normal as community controls, while our cases were as abnormal as clinic cases. Subjects and controls differed significantly on only 4 out of 15 comparisons (asterisked in Fig. 1, $p < 0.05$ in each case) without any clear pattern of differences emerging.
had inattention and hyperactivity that resulted in impairment in just one setting, usually school, thereby precluding a diagnosis of ADHD. These children could not be assigned any diagnosis from the ICD-10 scheme since this scheme has no category for situational hyperactivity. Another partial syndrome found in nine children in our series involved one or two very prominent externalizing problems without a great enough variety of problems to meet criteria for an operationalized diagnosis of oppositional defiant disorder or conduct disorder. For example, one seven-year-old boy’s marked problems with irritability and frequent temper tantrums overshadowed most aspects of his family life and had led the family to seek treatment—but he did not have enough associated problems to qualify for a diagnosis of oppositional defiant disorder. Such children were classified under the rubric of ‘disruptive behaviour disorder not otherwise specified’ in DSM-IV and ‘conduct disorder, unspecified’ in ICD-10. Two further children in this series had partial autistic syndromes. The remaining eight children with residual diagnoses all had undifferentiated emotional disorders, involving variable mixtures of generalized worrying, separation anxiety, specific and social fears, misery, obsessions and somatic complaints. They had some of the elements of many operationalized disorders but did not meet the full criteria for any of them. The children with residual diagnoses did not differ significantly from children with operationalized diagnoses in terms of age, sex or IQ.

Whereas roughly half of the children with operationalized or residual diagnoses were of normal intelligence, all seven undiagnosable children had an IQ of 70 or less. One 10-year-old who was functioning at about an 18-month-old level had a miscellany of nonorganic feeding and sleeping problems that severely disrupted her mother’s life. The primary problem in the remaining six undiagnosable children, all of whom had IQs between 40 and 70, was an abnormal manner of relating to other people that resulted in significant impairment in peer relationships (and sometimes in wider handicaps too). The assessors felt these children had ‘odd personalities’ but found it hard to characterize the oddness. Though these children did not meet full diagnostic criteria for autism, Asperger’s syndrome, hyperkinesis or social phobia, their abnormalities of social relatedness did involve elements found in these disorders. Thus the following elements were apparent to varying degrees: lack of social interest, social gauche- ness, insensitivity to social cues, passivity, social anxiety, disinhibition and a wheeling or pestering style that others found hard to tolerate. Impoverished pretend play and rituals or preoccupations were evident in some but not all cases. Borderline levels of conduct problems or emotional symptoms were variable accompaniments.

Discussion

Reliability and Validity

Our operationalized criteria provided a reliable method for using detailed case histories in order to dichotomize children into ‘cases’ who had a level of symptomatology comparable to psychiatric clinic attenders, and ‘non-cases’ who had a level of psychiatric symptomatology comparable to community controls. Though these findings suggest that our rating scheme is useful, the subjects of this study all had a diagnosis of childhood hemiplegia. Would the criteria be as useful with other children? The question can only be answered by empirical study, but we have no reason to doubt the generalizability of our findings; although children with cerebral palsy have a very high rate of psychiatric disorders, these disorders are qualitatively similar to those found in other children (Rutter, Graham & Yule, 1970a). It is uncertain how far the reliability and validity of the method would be undermined if the criteria were applied without prior training or if the criteria were applied to less detailed case histories.

We identified three factors that made some cases difficult to rate reliably. Firstly, when there was conflicting evidence on social impairment, different clinicians did not always agree on which source of evidence to prioritize. In this study, using clinical judgement rather than a ‘mechanical’ decision rule (e.g. always to give precedence to the child’s own account) only resulted in one instance of a marked discrepancy between raters—a relatively small cost that may have been more than offset by increased validity. The second factor that impaired reliability was uncertainty about how much allowance to make for low IQ when judging inattention and other psychiatric symptoms that are closely related to developmental level. Once again, since we currently lack the empirical evidence needed to formulate a valid decision rule on this issue, there is little to gain by abandoning clinical judgement and adopting an arbitrary decision rule for the sake of a small increase in reliability.

The third factor reducing reliability was difficulty in partitioning handicap. Our criteria specified that psychiatric problems only amounted to a psychiatric disorder if they had a substantial impact in their own right. For the narrow definition of caseness, this involved determining not only that the child was socially impaired but also that the psychiatric problems accounted for a substantial portion of this impairment. The second task was often harder, particularly when the child also had a learning disability. Consider, for example, a hemiplegic boy who is socially isolated in a mainstream school. It may not be easy to judge whether the isolation is due to the boy’s irritability and social anxiety (making him a psychiatric ‘case’), or if the isolation is attributable instead to his peers’ responses to the combination of physical disability, epilepsy, borderline IQ and socially deprived background (making him a ‘non-case’). This was less of a problem when we used a broad definition of caseness, judging the impact of symptoms from distress and disruption as well as from social incapacity; even in children with severe learning and physical disabilities, it was usually clear, for example, whether separation anxiety resulted in substantial distress or whether tantrums significantly increased the burden on carers—even when it was unclear whether the anxiety or tantrums resulted in additional social impairment.

One possible solution to the difficulty in partitioning
handicap between psychiatric and nonpsychiatric causes is to abandon the enterprise and consider a child as a ‘case’ provided the child has psychiatric symptoms and is socially impaired (for whatever reason). In our view, this would create more problems than it solved. Many normal children meet diagnostic criteria for specific psychiatric disorders without being significantly impaired by their symptoms—this is precisely why additional impairment criteria are used to reduce the rate of ‘false positive’ cases (Bird et al., 1990). It would seem absurd, therefore, to label children with relatively low levels of worrying or oppositionality as psychiatrically disordered simply because they had concurrent physical or cognitive disabilities that did result in impairment—the inevitable consequence would be a falsely inflated rate of psychiatric co-morbidity in all physical and cognitive disabilities.

Using the disability scales of ICD-10 or DSM-IV to decide whether a child does or does not have a psychiatric disorder would potentially embody the worst of all worlds since these scales insist on some partitioning of disability without separating out the impact of psychiatric problems from the impact of other problems. The global assessment of psychosocial disability that constitutes Axis VI of the multi-axial version of ICD-10 (World Health Organization, 1991), for example, includes disability due to psychiatric problems, specific learning problems or low intelligence but specifically excludes disability due to physical or environmental limitations. The global assessment of functioning (GAF) scale of DSM-IV is similar (American Psychiatric Association, 1994). If either of these scales were used to determine who did and did not have a psychiatric disorder, it would still be necessary to partition handicap. For example, did a child lack friends because of her behavioural problems or because she was obese and came from the ‘wrong’ social class? At the same time, a child with low-level worrying might warrant an anxiety diagnosis if concurrent reading problems led to appreciable social impairment. Given all these difficulties, we conclude that when social impairment is used to determine who does and does not have a psychiatric disorder, that measure will have to incorporate a clinical judgement on how far the impairment is due to the psychiatric problems themselves. Attempting to improve reliability by removing this judgement is liable to undermine validity.

**Broad or Narrow Criteria?**

Among children with normal intelligence, both broadly and narrowly defined caseness could be rated with high reliability. Since the threshold for broadly defined caseness identified a group of subjects with a level of symptomatology equivalent to that of clinic cases, there is no particular reason to suppose that the broad definition was so wide that a lot of false positives were included. For every three cases detected by the narrow criteria, another case was detected by widening the criteria—with most of the extra cases having emotional disorders. Whether the broad or the narrow definition was ‘best’ cannot be answered by this study. The empirical question that needs answering is how far

the ‘core’ cases detected by narrow criteria differ from the ‘extra’ cases detected only by the broad criteria—in terms of aetiology, service need, treatment response and prognosis.

Sturme (1993) has highlighted the uncertain reliability of applying DSM or ICD diagnoses to people with learning difficulties. In our study, the reliability of our caseness ratings was relatively poor when narrow criteria were applied to children with IQs under 70. By contrast, good reliability was obtained using broad criteria with this group of children. We tentatively suggest, therefore, that a broad definition of caseness should be preferred with this group unless there are compelling arguments to the contrary.

**Top-Down or Bottom-Up?**

With DSM-III diagnostic criteria, many children qualify for at least one psychiatric diagnosis even though their symptoms do not have a significant impact and they do not correspond to what clinicians would normally recognize as cases (Bird et al., 1988; 1990). In other words, a bottom–up approach to case recognition can have an unacceptably high false positive rate. To avoid this, the DSM-IV classification includes an impact criterion in the definition of the common child psychiatric diagnoses (American Psychiatric Association, 1994). As a result, a bottom–up approach to case recognition using DSM-IV should not include children who would not also have been recognized by a top–down approach.

The converse does not necessarily apply, however. The top–down approach specifies that children are cases if their psychiatric problems have a significant impact—even if they do not meet the diagnostic criteria for any currently recognized disorder. How often would cases recognized by this top–down approach be missed by a bottom–up approach? Our findings suggest that the answer depends both on diagnostic practice and on the nature of the sample.

Barely half of the cases detected with a top–down approach would have been recognized by a bottom–up approach that stuck rigidly to the operationalized diagnostic criteria of ICD-10 and DSM-IV. Most of the remaining children had partial or undifferentiated versions of these well-defined syndromes; clinical judgement was needed to assign these children to residual diagnoses such as ‘disruptive behaviour disorder, not otherwise specified’. Given a willingness to use clinical judgement in this way, our findings suggest that a bottom–up approach functions as well as a top–down approach for children of normal intelligence. It is important to note, though, that epidemiological studies that use lay interviewers and a ‘checklist’ approach to diagnosis may miss a substantial number of clinically significant cases of partial or undifferentiated disorders.

For children of low intelligence, a bottom–up approach that used both operationalized and residual diagnoses would still have missed roughly 20% of children found by a top–down approach. Many researchers have encountered problems applying unmodified DSM or ICD criteria to individuals with learning disabilities (Sturme, 1993). Our findings suggest that
ICD-10 and DSM-IV particularly lack the range of diagnostic categories needed for comprehensive coverage of learning disabled children who are additionally handicapped by an abnormal manner of relating to other people. Some but not all of these children could potentially be classified as having broadly defined autistic spectrum disorders, with 'aloof', 'passive' and 'active but odd' subtypes (Wing, 1985). Other children had rather different abnormalities of relatedness, more reminiscent of the social anxiety seen in the Fragile X syndrome (Maea, Fryns, van Walleghem & van den Berghe, 1993), or of the disinhibition seen in hyperkinesis (Luk, Thorley & Taylor, 1987). There are important practical and theoretical reasons for wanting to identify these children as cases. Practically, identifying such children is important for service planning and provision. Theoretically, these children may provide an important window on brain-behaviour links. For both these reasons, top-down approaches to case definition are to be preferred when studying learning disabled children.

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References


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Appendix 1: Criteria for Psychiatric Caseness

Children should only be rated as psychiatric cases if they meet all of the following three criteria:

Presence of psychiatric problems i.e. abnormalities of behaviour, emotions, or style of relating to others. Examples of abnormal styles of relating to others include: aloofness, over-friendliness and gaucheness. Not being popular, or being actively disliked, are common consequences of psychiatric abnormalities, but peer neglect or rejection are not evidence in themselves for an abnormal style of relating to others—they may reflect prejudice about race, class, disability, etc. For ‘quantitative’ symptoms, such as misery or oppositionality,
distinguishing between problem behaviours and normality depends on severity, frequency, persistence, pervasiveness and associated features. Enuresis, tics, specific learning problems and low intelligence are not counted as psychiatric problems.

**Persistence for at least six months** Problems that have unequivocally ceased by the time of assessment are not coded, but if problems wax and wane without entirely disappearing, the coding should be based on the average level of problems over the preceding twelve months even if this average level of problems is higher than that at the time of assessment.

**Substantial impact** This is judged primarily by the social impairment (handicap) to the child, i.e. the extent to which the psychiatric problems limit or prevent the fulfilment of normal childhood roles. The key domains here are home life, friendships, class work, leisure activities and physical safety/wellbeing. In some cases, psychiatric problems result in marked distress for the child without significant social impairment, e.g. the child reports persistent and severe worrying or misery (and parents or teachers may confirm this), but the child continues to lead a full life, and classroom performance is not substantially affected. In other cases, the psychiatric problems result in significant disruption to others without socially impairing the child, e.g. the child extorts money from younger children, steals from shops, and vandalizes telephone boxes—but gets on well with family members, friends and classroom work. Because it is uncertain whether problems resulting in distress or disruption without social impairment should be coded as disorders, they are coded separately here to allow either splitting or lumping.

On the basis of the information available, each subject should be assigned to one of the following **caseness levels**:

0 = Normal: no psychiatric problems, or problems resulting in little or no distress, disruption or handicap.
1 = Dubious disorder: the child has symptoms that are not so clearly outside normal limits that they warrant a 2 or 3 rating, but neither are they likely to be trivial as far as the child, the family or the school are concerned.
2A = Mild disorder involving distress or disruption without handicap: psychiatric problems causing significant distress or disruption (or both) but not causing significant social impairment.
2B = Mild disorder with handicap: psychiatric problems causing significant social impairment (and often significant distress or disruption too).
3 = Severe disorder: psychiatric problems causing severe social impairment—with marked social incapacity in at least one key domain, or moderate social incapacity in at least two domains.

(In principle, level 3 could also have been subdivided according to whether the psychiatric problems did or did not result in handicap for the child. In practice, we did not encounter any child who had what we considered on clinical grounds to be a severe disorder that resulted in distress or disruption without social impairment—so a level 3A category was unnecessary.)

**Appendix 2: Criteria for Subtype Ratings: No Attempt is Made Here to Separate Mild and Severe Disorders**

### Hyperactivity Level

0 = Not hyperactive. Code here if: not restless (out of seat, fidgety) or inattentive; equivocal restlessness or inattentiveness (e.g. minimal, or contradictory reports from the same setting); restless with normal attention; attention deficit without restlessness.

1 = Borderline: definite restlessness and inattentiveness in at least one setting (allowing for chronological and mental age) but not enough of a problem to result in significant social impairment in any setting.

2A = Significant situational hyperactivity: definite restlessness and inattentiveness (allowing for chronological and mental age) that is prominent and handicapping either at home or at school—and neither prominent nor significantly handicapping in the other setting.

2B = Significant pervasive hyperactivity: definite restlessness and inattentiveness (allowing for chronological and mental age) that are prominent both at home and at school, and that result in significant social impairment in at least one of those settings.

### Emotional Disorder Level

0 = Normal: no problem/minimal problem.

1 = Borderline: the level of fears, worries, misery or obsessive–compulsive features is not trivial but neither is it resulting in significant distress or social impairment. This level of symptoms can be thought of as the top end of the normal range.

2A = Significant distress without handicap: fears, worries, misery or obsessive–compulsive features are prominent and distressing for the child, but result in little or no social impairment.

2B = Significant handicap: fears, worries, misery or obsessive–compulsive features are prominent and result in significant social impairment (and usually significant distress too).

#### Notes:
Irritability is not counted as an emotional disorder. Fears should only be coded if they are: definite, e.g. reported both by the child and an adult, or reported by an adult with convincing details of resultant avoidance or incapacity; high impact—fears that are not prominent are not coded (e.g. a child who has a definite but isolated fear of snakes, who avoids going to the zoo, and who does not think about snakes in their absence, is coded 0).

A definite and prominent fear (of a commonly encountered stimulus) is coded 2B if the child avoids the situation leading to significant social impairment, and is coded 2A if the child endures the stimulus with intense anxiety but is not significantly socially impaired by attempts to avoid the stimulus.

### Conduct Disorder Level

0 = Normal: no problem/minimal problem.

1 = Borderline: the level of defiant, aggressive or antisocial
behaviours is not trivial but neither is it resulting in significant disruption or social impairment. This level of symptoms can be thought of as the top end of the normal range; most of these children will be thought of as ‘difficult’ rather than disordered.

2A = Significant disruption without handicap: defiant, aggressive or antisocial behaviours are prominent and result in significant disruption to others, but there is little or no resultant social impairment for the child.

2B = Significant handicap: defiant, aggressive or antisocial behaviours result in significant social impairment for the child. The behaviours (and the social impairment) may be situational or pervasive—and usually result in significant disruption too.

Note: Marked problems with just one behaviour (e.g. frequent severe tantrums but nothing else) can be coded 2A or 2B if they result in significant disruption or social impairment.

Appendix 3: Sample Case Histories, with Formulations and Ratings

Case 1

Teresa is an eight-year-old girl of average intelligence. She lives with both her parents and a sister two years younger than her. Her mother does not work outside the home. Her parents have a warm marriage with many shared interests.

By her mother’s account Teresa has no eating or sleeping problems. She has a marked fear of heights (which has increased over the last two years) and the dark. She will not go out into the garden at night and keeps a light on in her room at night. On most school days she worries about being teased and about her difficulties with two-handed activities—with the worries being particularly prominent when sport or science practicals are on the timetable. According to her mother, these worries result in distress during term time (so that she is noticeably more relaxed and happier during holidays) but do not result in any avoidance of school. Teresa is mildly shy, and sometimes feels that people are against her. She gets on well with her sister though there are some negative interactions on most days. There are no problems with disinhibition. Her mother described her as a “grumpy, unenthusiastic child who is difficult to motivate at times”.

She is able to watch TV for over 30 min without restlessness or fidgetiness. She can read for up to 15 min without restlessness or fidgetiness. She can play alone or with others for over 30 min without restlessness or fidgetiness. There are no problems at meal times or with running away outside the home.

There are mild grumbles at bedtime on most days. Her tempers are mild and infrequent. She can be cheeky to her mother but only rarely. She will generally stall when asked to comply with a request on most days. There are no problems with lying, stealing or destructive. Her aggressive outbursts are minimal and relate to episodes of rough play with her sister. There are no problems with conduct outside the home.

Teresa needed a little encouragement at the start of psychometric testing, but was happy to work once she felt comfortable with the demands of the situation. During the psychiatric assessment, she was very restless and fidgety but she persisted well with tasks and was not distractible. Though she was able to name friends at school, she often played alone either because her ‘friends’ were playing with someone else or because she found them too bossy. She had two good friends who lived near her but did not go to her school. She will generally stall when asked to comply with a request on most days. There are no problems with lying, stealing or destructive. Her aggressive outbursts are minimal and relate to episodes of rough play with her sister. There are no problems with conduct outside the home.

Teresa’s fears and worries do result, according to her mother, in some distress during term time, and this is corroborated by the teacher’s report of definite fears and worries. Given Teresa’s own account, however, it is not clear that the level of distress warrants more than a ‘dubious’ rating. Her peer relationships at school are impaired but the cause is uncertain—teasing and lack of friends may be due to her physical problems rather than to her emotional problems or shyness. Teresa’s account that she does have some good friends out of school suggests that her problems in school may reflect ostracism rather than a lack of social competence on Teresa’s part. The restlessness during the psychiatric assessment and the teacher’s report of possible inattentiveness are not enough for any hyperactivity rating (particularly given her low average IQ).

Psychiatric disorder: assessors’ rating = 1; independent rating = 1.

Hyperactivity rating: assessors’ rating = 0; independent rating = 0.

ED rating: assessors’ rating = 1; independent rating = 1.

CD rating: assessors’ rating = 0; independent rating = 0.

Case 2

Sandrea is an eight-year-old girl of average intelligence. She lives with both parents and a sister two years older than her. Her parents have a good marriage. They sometimes deal with her rather differently, but there is no direct countermanding.

By her mother’s account, there are no problems with eating or sleeping. Sandrea has many worries. Will the boat she is on sink? Will the train she is on crash? Will she be able to get off the bus in time at the bus stop? Will she be able to cope with school work? Will she get lost in a crowd? On outings, she is keen to hold on to someone’s hand at all times. She sometimes worries about friendships at school, about teasing, and about not being very good at sport. When a smoke alarm was first installed in her home, she lay awake much of the night worrying about fire. She is somewhat worried before separations (e.g. when going to stay with grandparents) and takes several anxious farewells before finally leaving. After seeing a young child bowled over by a dog on a lead, she was very frightened of dogs for a couple of weeks, running and
clinging to her mother if a dog was anywhere in the vicinity. This concern was less prominent at the time of the interview, but she still ran to her mother if a dog came quite near. She is also frightened of thunder, leaping into her mother's lap. Subsequent reassurance does not prevent her being equally frightened by the next thunderclap. Sandra has wanted to be able to cook things and she and her mother have purchased a variety of one-handed aids, but progress with cookery is impeded because of her marked concerns about lighting matches and using the gas stove. Anxieties sometimes interfere with her falling asleep, or cause her to wake with nightmares. Her mother also attributed frequent stomachaches to anxiety and reassurance-seeking. These various problems do not prevent Sandra leading a very full life, attending school regularly and engaging in a wide variety of after-school activities, either alone or with other children. Sandra fairly often seems down and miserable—mildly so two or three times a week, and more profoundly so once a week or less. It is not easy to jolly her out of these moods but she does usually respond if her mother sits and reads to her. Sandra has daily positive interactions with her older sister, but also squabbles with her most days. She is appropriately reserved with strangers.

She can watch TV, read a book and play alone or with others for up to 30 min without restlessness, but with moderate fidgetiness. There are no problems at meal times or with running away outside the home. She sometimes grumbles at bed-time. She is generally compliant, but resists getting ready for school in the mornings (because it interrupts her games). She is slightly cheeky to her mother most days. There is some lying, mostly related to her apparent difficulty in distinguishing between pretend and reality—but she sometimes sticks to false accounts even when challenged. She sometimes worries at night about what the boys were going to get up to. She sometimes worries at night about her parents dying or becoming ill the next day. When asked directly, she said that she did sometimes have episodes of unprovoked anxiety without any focus, but she does not tell anyone about these and they are not very severe. She is scared of the dark, so that she is very reluctant to go to sleep without a light on. She is also scared of dogs, so that she tries hiding behind her mother when a dog is coming along—but she would not avoid going to the park even if she knows that there will be dogs there. "Sometimes, I am afraid of eagles, but I have not seen any". She is a bit scared of escalators but goes on them provided someone holds her hand. She no longer goes on the top floor of a bus since a scare when she almost got separated from her father because of the delay in getting off after sitting upstairs. There were no feelings of worthlessness or definite obsessive-compulsive symptoms.

A Rutter questionnaire (Rutter, 1967) completed by her teacher reported no definite problems but possible problems with worries.

Assessors' formulation of Case 2 Sandra has many worries and fears, though she mostly keeps these to herself and they are not very evident to her teacher. She also describes significant misery and she did seem sad when describing bullying at school. Her mother's account puts less weight on the misery, and the teacher questionnaire did not report it at all. Overall, it does seem likely that anxiety and depression are a cause of significant distress to Sandra even though they do not result in significant social incapacity (even if she does less cooking than she would otherwise want to and is unusually clingy when out).

Psychiatric disorder: assessors' rating = 2A; independent rating = 2A.

Hyperactivity rating: assessors' rating = 0; independent rating = 0.

ED rating: assessors' rating = 2A; independent rating = 2A.

CD rating: assessors' rating = 0; independent rating = 0.

RESUMEN
Morbididad asociada a esclerosis tuberosa: estudio de población.
Se estudiaron las complicaciones neurológicas y otras causas de morbilidad en 122 de 131 individuos (64 varones y 67 hembras) con esclerosis tuberosa, en una población en la que la prevalencia era de 1/26 500. Aparecieron convulsiones en el 78 por ciento iniciándose a menos de un año de edad en el 69 por ciento (más en varones que en hembras en ambos casos) y después de los 16 en el 4 por ciento. Igualmente los espasmos infantiles y las convulsiones existentes se vieron más en varones que en hembras. Alteraciones en el aprendizaje ocurrieron en el 53 por ciento (también más en varones), todos con una historia de convulsiones y estaban fuertemente correlacionadas con la edad de inicio de las convulsiones, el tipo de convulsión y el curso del control de las mismas. De los individuos con alteraciones del aprendizaje, el 85 por ciento requirieron una supervisión para su vida diaria y el 65 por ciento no tenían lenguaje o muy poco; el 97 por ciento tenían una movilidad completa. La hemiparesia estaba presente en ocho de los 131 casos, astrocitomas de células gigantes en nueve, enfermedad poliquística renal en dos y 97 por ciento tenían una movilidad completa. La hemiparesia estaba presente en ocho de los 131 casos, astrocitomas de células gigantes en nueve, enfermedad poliquística renal en dos y 97 por ciento tenían una movilidad completa. La hemiparesia estaba presente en ocho de los 131 casos, astrocitomas de células gigantes en nueve, enfermedad poliquística renal en dos y 97 por ciento tenían una movilidad completa. La hemiparesia estaba presente en ocho de los 131 casos, astrocitomas de células gigantes en nueve, enfermedad poliquística renal en dos y 97 por ciento tenían una movilidad completa. La hemiparesia estaba presente en ocho de los 131 casos, astrocitomas de células gigantes en nueve, enfermedad poliquística renal en dos y 97 por ciento tenían una movilidad completa. 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Accumulating large and representative samples of children with rare disorders can be a researcher's nightmare. Identifying adequate numbers of affected individuals by screening tens or hundreds of thousands of children individually is rarely an option. More often, subjects are located using multiple ascertainment techniques. Typically this involves large numbers of hospital and community paediatricians, other health professionals, special schools, and parents' organisations and other voluntary groups. In an ideal world, all these agencies would keep complete and accurate records, be highly motivated to help researchers, and find the time to carry out a thorough search of current and closed cases. In the real world, however, there are marked variations in the quality of records, access to them, and the enthusiasm of key personnel for research. When research is based on case-finding from a large area involving a multiplicity of hospitals, community health services and schools, local variations in record-keeping and research-mindedness may well result in substantial geographical variations in apparent prevalence. It could be argued that this does not matter. However, it is a serious problem if the cases recruited from low-ascertainment areas are primarily children who are memorable by virtue of the severity of their conditions, their complications or the frequency of their clinic attendances. Patchily poor ascertainment could reduce representativeness and thereby undermine the value of attempting an epidemiological rather than a clinical study.

Problems with patchy case-finding are potentially compounded by the need for parental consent. This consent is obviously necessary if the child or family are expected to take part in additional assessments for research purposes. For legal and ethical reasons, parental consent may increasingly be required even if the data are gathered entirely from existing records (Lynge 1994). The representativeness of a sample might be seriously compromised if the likelihood of obtaining parental consent were markedly influenced by factors such as the severity of the child's problems, the family's level of satisfaction with existing services, or parental literacy. In their study of the sequelae of preterm delivery, Wariyar and Richmond (1989) found that children who were easy to follow up had, on average, milder sequelae than children whose parents were reluctant for them to be assessed. Similarly, Cox et al. (1977) found that parental refusal or reluctance to be interviewed about their child's behaviour was associated with more behavioural deviance in the child, more psychiatric disorder in the parents, and more marital discord. Overall, parental willingness to be interviewed was more
As part of a large study of the causes and consequences of childhood hemiplegia, we examined whether the representativeness of our sample was influenced by patchy ascertainment or the need for active parental consent. Our objectives were to establish how far these potential biases distorted the sample’s demographic, neurological, cognitive and psychiatric characteristics.

**Method**

The London Hemiplegia Register (LHR) study was conducted in two phases. In the first phase, 458 hemiplegic children under the age of 17 years were recruited from Greater London and assessed using parent and teacher questionnaires; in the
second phase 148 of these children, all aged between six and 10 years, were individually assessed in great detail.

Figure 1 summarises the first phase of the study. Intensive recruitment techniques were employed in two of the 28 London health authorities (HAS) — one in the suburbs and the other in the inner city. Children with hemiplegia were ascertained from multiple sources, including hospital and community paediatricians, orthopaedic surgeons, neurosurgeons, hospital and community physiotherapists, special schools and voluntary organisations. These agencies were asked to review their closed cases as well as their open ones so that mildly affected individuals who had been seen only briefly would not be missed. When requested, the research team provided the clerical help for manual searches of current and closed records. Families were initially sent an introductory letter by a person they already knew — usually a doctor or a teacher — commending the study to their attention. An enclosed leaflet from the research team outlined the study. Interested parents were asked to complete a brief consent form and return it directly to the research team. Non-respondents were sent one reminder letter. 59 families were sent an invitation letter (and a reminder letter if necessary); 35 consent forms were returned. For the 24 families who did not respond to either letter, the local professional who knew the family best was asked why they thought the parents had not responded. In two instances, it seemed likely that the family did not want to take part in the study; no further approaches were made to these two families. For the remaining 22 families, however, it seemed more likely that they had simply not got round to responding to the original letters or lacked the literacy skills to do so. A member of the research team made a home visit to explain the study to each of these families (visiting up to six times, if necessary, to find the parents at home). These visits were uniformly well received and all the parents agreed to participate (with the questionnaire being administered verbally if there was any doubt about the parents' literacy).

Home visits by the research team were so time-consuming that it was not practicable to mount a similarly intensive recruitment drive throughout Greater London. In the remaining 26 London HAS, the same initial ascertainment techniques were employed but no attempt was made to recruit families who did not return their consent form after being sent an introductory letter and one reminder. 401 subjects were recruited in this way. The apparent prevalence of hemiplegia in each HA was calculated by dividing the number of children with hemiplegia born in each HA over the 15-year period from 1974 to 1988 by the total number of children aged 15 or under in that HA, as

### Table 1

**Questionnaire-based measures for group comparisons**

<table>
<thead>
<tr>
<th>Demographic variables</th>
<th>Medical variables</th>
<th>Basis for estimating IQ</th>
<th>Basis for assessing behavioural deviance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Side of hemiplegia</td>
<td>Parent’s judgement</td>
<td>Parent’s report</td>
</tr>
<tr>
<td>Age</td>
<td>Severity of hemiplegia (mild vs severe)</td>
<td>Teacher’s judgement</td>
<td>Teacher’s report</td>
</tr>
<tr>
<td>Socio-economic class (non-manual vs other)</td>
<td>Hemiplegia congenital or acquired</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seizures (ever vs never)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Preterm birth (&lt;37 wks)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
calculated from 1991 census data (Office of Population Censuses and Surveys 1993). On the basis of these apparent prevalence rates, the 401 'routinely recruited' subjects were divided into tertiles: 138 subjects came from 13 low-ascertainment HAS; 141 came from seven medium-ascertainment HAS; and 122 came from six high-ascertainment HAS.

Parents of the 458 children with hemiplegia — 57 from the intensively recruited and 401 from the routinely recruited HAS — were asked to complete a specially designed questionnaire about demographic and medical background, current disability, mental age, and emotional and behavioural difficulties. When the parents agreed, questionnaires were also sent to teachers or preschool professionals, asking about mental age as well as emotional and behavioural difficulties. 12 questionnaire-based measures were used in the comparisons of the different groups of subjects (Table I). Severity was judged by dichotomising a parental rating of hand-function on the hemiplegic side, with 'mild' referring to a hand that was a 'good helper' or better, and with 'severe' referring to a hand that was a 'poor helper' or a 'paperweight'. Congenital hemiplegia was operationally defined to exclude subjects with causal lesions acquired after the end of the neonatal period (Goodman 1994a). The two measures of intelligence were both ratio IQs, obtained by dividing parent and teacher estimates of mental age by chronological age. The two measures of emotional and behavioural difficulties were parent-rated and teacher-rated total behavioural deviance scores obtained from modified Rutter questionnaires (Goodman 1994b).

Two additional questionnaire measures were used in the comparison of our sample with previous population-based samples. These two measures were birthweight and weight for gestational age, with subjects being classified as light for gestational age if their birthweight was below the 10th centile for gestational age, sex and plurality (Yudkin et al. 1987, Buckler and Green 1994).

Figure 2 summarises the second phase of the study. 204 of the children with hemiplegia recruited in the first phase were aged between six and 10 years, of whom 148 were individually assessed. Neurological, cognitive and psychiatric measures from these individual assessments were used to judge the validity of
TABLE II
Outcome measures by subject group

<table>
<thead>
<tr>
<th></th>
<th>Intensive recruitment area</th>
<th>Routine recruitment area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A: easy to recruit (N=35)</td>
<td>D: total (N=401)</td>
</tr>
<tr>
<td></td>
<td>B: hard to recruit (N=22)</td>
<td>E: lowest tertile (N=138)</td>
</tr>
<tr>
<td></td>
<td>C: total (N=57)</td>
<td>F: middle tertile (N=141)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>G: highest tertile (N=122)</td>
</tr>
<tr>
<td>Prevalence^</td>
<td>0.33</td>
<td>0.32</td>
</tr>
<tr>
<td>Demography</td>
<td></td>
<td>0.22</td>
</tr>
<tr>
<td>Age (yrs)</td>
<td></td>
<td>0.57</td>
</tr>
<tr>
<td>Sex (N)</td>
<td>23</td>
<td>243</td>
</tr>
<tr>
<td>Male (N=35)</td>
<td>13</td>
<td>74</td>
</tr>
<tr>
<td>Female (N=22)</td>
<td>12</td>
<td>158</td>
</tr>
<tr>
<td>Mean</td>
<td>8.6</td>
<td>8.3</td>
</tr>
<tr>
<td>SD</td>
<td>4.5</td>
<td>4.3</td>
</tr>
<tr>
<td>Medical variables</td>
<td></td>
<td>4.2</td>
</tr>
<tr>
<td>Right-sided</td>
<td>20/35</td>
<td>89/365</td>
</tr>
<tr>
<td>Hemiplegia</td>
<td>(57%)</td>
<td>(57%)</td>
</tr>
<tr>
<td>Severe</td>
<td>4/33</td>
<td>158/123</td>
</tr>
<tr>
<td>Hemiplegia</td>
<td>(12%)</td>
<td>(19%)</td>
</tr>
<tr>
<td>Acquired</td>
<td>11/33</td>
<td>24/129</td>
</tr>
<tr>
<td>Hemiplegia</td>
<td>(33%)</td>
<td>(24%)</td>
</tr>
<tr>
<td>Epilepsy (current</td>
<td>14/32</td>
<td>228/401</td>
</tr>
<tr>
<td>or past</td>
<td>8/19</td>
<td>(57%)</td>
</tr>
<tr>
<td>Preterm birth</td>
<td>7/29</td>
<td>78/138</td>
</tr>
<tr>
<td>IQ</td>
<td></td>
<td>72/141</td>
</tr>
<tr>
<td>Parent based estimate</td>
<td></td>
<td>78/122</td>
</tr>
<tr>
<td>N</td>
<td>25</td>
<td>228/401</td>
</tr>
<tr>
<td>Mean</td>
<td>80†</td>
<td>(57%)</td>
</tr>
<tr>
<td>SD</td>
<td>19</td>
<td>78/122</td>
</tr>
<tr>
<td>Teacher based estimate</td>
<td></td>
<td>(64%)</td>
</tr>
<tr>
<td>N</td>
<td>23</td>
<td>78/122</td>
</tr>
<tr>
<td>Mean</td>
<td>72</td>
<td>72/141</td>
</tr>
<tr>
<td>SD</td>
<td>25</td>
<td>78/122</td>
</tr>
</tbody>
</table>
questionnaire measures and to compare our sample with previous epidemiological samples of children with hemiplegia. IQ was derived from a full WISC-R assessment (Wechsler 1974) or from an independent assessment of mental age for those children below the floor of this test. Individually assessed subjects were said to have active epilepsy if they had had continuing seizures in the two years before the assessment or if they were still on anti-convulsant medication at the time of assessment. Hyperkinesis was defined according to the ICD-10 criteria (World Health Organization 1992).

Results
For individuals seen in both phases of the study, phase 1 measures derived from parent and teacher questionnaires agreed satisfactorily with the corresponding phase 2 measures based on individual assessment. Ratio IQs based on parent and teacher estimates of mental age correlated highly with IQs established by psychometric assessment ($r=0.76$ for psychometric IQ and parent-based IQ, $N=124$, $p<0.001$; $r=0.78$ for psychometric IQ and teacher-based IQ, $N=120$, $p<0.001$). Questionnaire measures of emotional and behavioural problems agreed well with the findings of individual psychiatric evaluations, as reported elsewhere (Goodman 1994b). The parents' four-point rating of manual disability (underlying the mild/severe dichotomy used in Table I) was correlated moderately well with a global rating of severity made after detailed neurological examination ($N=148$, $r=0.55$, $p<0.001$).

Questionnaire-based measures were used in three sets of planned comparisons of groups of subjects (Table II; and see Fig 1). First, the 57 subjects from the intensive recruitment area (group C) were compared with the 401 subjects from the routine recruitment area (group D). The prevalence of hemiplegia in the intensive recruitment area was 0.57 cases per thousand children under 16 years — in line with previous epidemiological studies (Table III). Though the ascertained prevalence in the routine recruitment area was only 0.32 cases per thousand children, suggesting that almost half of all
cases had been missed, there were strikingly few differences in the characteristics of the intensively and routinely recruited groups. For 10 of the 12 characteristics listed in Table I, the differences were non-significant. Only two differences just reached statistical significance: acquired hemiplegia was more common in the intensive recruitment area (continuity-adjusted $\chi^2 = 5.1, p = 0.03$), and the mean teacher-derived IQ was lower in the intensive recruitment area ($t = 2.04, df = 260, p = 0.04$).

In a second set of comparisons, the 35 'easy-to-recruit' subjects in the intensive recruitment area (group A) were compared with the 22 'hard-to-recruit' subjects from the same area who only agreed to take part after a home visit (group B). Once again there were strikingly few differences in the characteristics of the two groups, with 11 non-significant comparisons and just one barely significant result, namely that the mean parent-derived IQ was higher in the 'hard-to-recruit' group ($t = 2.06, df = 38, p = 0.047$).

The third set of comparisons examined the characteristics of routinely recruited children from low-ascertainment, medium-ascertainment and high-ascertainment areas (groups E, F and G). These three areas differed markedly in their apparent prevalence of hemiplegia, with respective rates of 0.22, 0.35 and 0.59 cases per thousand children. These differences in prevalence did not reflect area differences in social disadvantage: using the Townsend index as a measure of deprivation (Townsend et al. 1988), the apparent prevalence of childhood hemiplegia in each HA was not related to the degree of deprivation in the HA's catchment area ($r = 0.05, NS$). Regardless of whether they came from low-, medium- or high-ascertainment areas, the children had very similar characteristics. There was no evidence for systematic variation across the three groups (with all comparisons across tertiles being non-significant, examining $\chi^2$ for trend for categorical variables and correlations for continuous variables).

Only 148 of the 204 six- to 10-year-old children in the sample were assessed individually in phase 2 of the study (see Fig. 2). The 148 children who had been included were compared with the 56 excluded children on the 12 variables listed in Table I. The mean level of teacher-rated behavioural deviance was significantly higher for the excluded than the included children (10.6 vs 8.2, $t = 2.4, df = 188, p = 0.02$), but the two groups of children did not differ significantly on the other 11 variables.

Using measures from phases 1 and 2, the LHR sample as a whole was compared with previous population-based samples of children with hemiplegia. These comparisons involved relatively unambiguous variables measured both in this study and in at least one previous study. As shown in Table IV, the characteristics of the present sample closely resemble those of previous epidemiological samples of children with hemiplegia.

**Discussion**

The representativeness of the LHR sample could easily have been undermined either by geographical variations in the effectiveness of ascertainment or by some families choosing not to participate in the research. There were marked variations in the effectiveness of ascertainment between different parts of London, with apparent prevalences varying almost three-fold between the upper and lower tertiles — a variation that could not be attributed to neighbourhood differences in social deprivation. It was our impression that the number of children with hemiplegia recruited from each HA was closely related to local administrative efficiency and research-mindedness, rather than to the actual characteristics of the area. The problems with case-finding were potentially compounded by problems with recruitment. A substantial proportion of parents did not respond to a recruitment package involving introductory letters from a professional who was already known to the family and the offer of free newsletters and parents' conferences. Thus, in the intensively searched areas, only 59 per cent of families responded to the initial letter or a reminder. Despite these potential sources of bias, the findings of this study strongly suggest that the sample was representative. The characteristics of LHR subjects did not vary according to whether they...
TABLE III
Prevalence of childhood hemiplegia

<table>
<thead>
<tr>
<th>Area</th>
<th>Birth years</th>
<th>Total (per thousand)</th>
<th>Congenital</th>
<th>Acquired</th>
</tr>
</thead>
<tbody>
<tr>
<td>South-East England</td>
<td>1970–74</td>
<td>0.41</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Western Australia</td>
<td>1966–75</td>
<td>0.47</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>North-West England</td>
<td>1966–77</td>
<td>0.54</td>
<td>0.41</td>
<td>0.13</td>
</tr>
<tr>
<td>Eastern Ireland</td>
<td>1976–81</td>
<td>–</td>
<td>0.43</td>
<td>–</td>
</tr>
<tr>
<td>Present study</td>
<td>1974–88</td>
<td>0.57</td>
<td>0.43</td>
<td>0.14</td>
</tr>
<tr>
<td>(intensive recruitment area)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eastern Denmark</td>
<td>1965–74</td>
<td>–</td>
<td>0.46</td>
<td>–</td>
</tr>
<tr>
<td>North-West England</td>
<td>1960–75</td>
<td>–</td>
<td>0.49</td>
<td>–</td>
</tr>
<tr>
<td>South-West Sweden</td>
<td>1969–82</td>
<td>0.69</td>
<td>0.62</td>
<td>0.07</td>
</tr>
<tr>
<td>Western Australia</td>
<td>1975–85</td>
<td>–</td>
<td>0.71</td>
<td>–</td>
</tr>
</tbody>
</table>

Data from:

TABLE IV
Characteristics of population-based samples of children with hemiplegia

<table>
<thead>
<tr>
<th>Proportion of children with hemiplegia (N=denominator)</th>
<th>Present study</th>
<th>Previous studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>61% (458)</td>
<td>58% (197)</td>
</tr>
<tr>
<td>Right-sided hemiplegia</td>
<td>57% (458)</td>
<td>53% (169)</td>
</tr>
<tr>
<td>Preterm (&lt;37 wks)</td>
<td>23% (398)</td>
<td>21% (228)</td>
</tr>
<tr>
<td>Low birthweight (≤2500g)</td>
<td>26% (400)</td>
<td>23% (196)</td>
</tr>
<tr>
<td>Very low birthweight (≤1500g)</td>
<td>10% (400)</td>
<td>3% (196)</td>
</tr>
<tr>
<td>Light for gestational age (&lt;10th centile)</td>
<td>15% (387)</td>
<td>24% (197)</td>
</tr>
<tr>
<td>Active epilepsy</td>
<td>22% (148)</td>
<td>23% (152)</td>
</tr>
<tr>
<td>Microcephaly (&lt;3rd centile)</td>
<td>15% (146)</td>
<td>15% (152)</td>
</tr>
<tr>
<td>Bilateral neurological signs</td>
<td>29% (148)</td>
<td>44% (152)</td>
</tr>
<tr>
<td>IQ &lt; 70</td>
<td>35% (148)</td>
<td>18% (152)</td>
</tr>
<tr>
<td>Hyperkinetic (any IQ)</td>
<td>10% (148)</td>
<td>12% (75)</td>
</tr>
<tr>
<td>Hyperkinetic (IQ ≥ 70)</td>
<td>7% (96)</td>
<td>8% (125)</td>
</tr>
</tbody>
</table>

Data from:

came from high-ascertainment or low-ascertainment areas, or according to whether they came from families that were easy or hard to recruit. The LHR sample’s characteristics closely resembled those of previous epidemiological samples of children with hemiplegia. This is obviously a reassuring basis for further analyses of the LHR data.

We do not believe, however, that our findings justify a cavalier approach to ascertainment or recruitment on the grounds that incomplete case-finding and recruitment evidently do not matter. First, even the ‘routine recruitment’ techniques used in this study were far from cavalier, involving ascertainment from multiple sources, an attractive recruitment package, and the provision of clerical assistance where requested to help local
agencies search closed as well as current records. Second, although patchy ascertainment and parental non-response did not make the LHR sample unrepresentative, other studies do suggest that incomplete ascertainment can introduce bias (Cox et al. 1977, Wariyar and Richmond 1989). Further work is needed to delineate the circumstances in which incomplete ascertainment and recruitment undermine representativeness or otherwise. Until this is clearer, epidemiological researchers might be well advised to incorporate at least some of the checks on ascertainment and recruitment biases employed in this study.

SUMMARY

London children with hemiplegia were ascertained from multiple sources. The effectiveness of ascertainment varied markedly between different sectors of London, and many families did not respond to a written appeal to participate in the research (though most did respond to a personal appeal). Subjects from areas with high and low ascertainment rates had very similar demographic, medical, cognitive and behavioural variables, and so did easy- and hard-to-recruit subjects. The characteristics of the sample as a whole closely resembled those of previous epidemiological samples of hemiplegic children. It would be rash to assume that incomplete ascertainment and recruitment are innocuous, even though they did not make this sample unrepresentative.

RéSUMÉ

Les taux de recrutement et de réponse ont-ils une importance?

Les enfants londoniens avec hémiplegie ont été répertoriés par de multiples sources. L’efficience de l’enquête variait beaucoup entre les différents quartiers de Londres et beaucoup de familles ne répondaient pas à une demande écrite de participer à la recherche (bien que la plupart répondirent à un appel direct). Les sujets provenant de quartiers avec des taux de validité élevés ou bas correspondaient à des variables démographiques, médicales, cognitives et comportementales très comparables et la même constatation s’applique à la difficulté plus ou moins grande d’obtenir des réponses. Les caractéristiques de l’échantillon global ressemblent à celles d’échantillons épidémiologiques d’enfants hémiplégiques antérieurs. Il serait cependant téméraire d’affirmer qu’un recrutement et un taux de réponse incomplets sont sans effets, même s’ils n’altèrent pas la représentativité de l’échantillon.

ZUSAMMENFASSUNG

Welche Bedeutung hat eine unvollständige Erhebung und Rekrutierung


RESUMEN

Importan algo una indagación y un reclutamiento incompletos?

Niños londinenses con hemiplejia fueron indagados desde diversos puntos. La eficacia de la indagación varió marcadamente entre diferentes sectores de Londres y muchas familias no respondieron a una invitación escrita para colaborar en la experiencia, si bien muchas lo hicieron a una invitación oral. Los individuos de áreas con alto y bajo porcentaje de indagación tenían unas variables muy semejantes, demográficas, médicas y de comportamiento, lo mismo que los fáciles y difíciles de reclutar. En conjunto las características de la muestra eran muy semejantes a las muestras obtenidas previamente de niños hemipléjicos. Sería aventurado asumir que una indagación y reclutamiento incompletos son inocuos, aunque hicieran que la muestra fuese no representativa.

Acknowledgements

We are very grateful to the many professionals who spared the time from their busy jobs to help us locate our sample, to the children, parents and teachers who participated in the study, to Bob Adak, Suzanne Pemberton and Ingrid King, who provided essential administrative support, and to Yoav Ben-Shlomo and Philip Graham, who gave invaluable advice and encouragement. The study was generously funded by the Wellcome Trust and Scope (formerly the Spastics Society).

Authors’ Appointments

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*Correspondence to first author.

Accepted for publication 2nd March 1995.

SUMMARY

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References


— — — (1987b) 'Effects of birthweight, gestational age, and maternal obstetric history on birth prevalence of cerebral palsy.' *Archives of Disease in Childhood*, 62, 1035-1040.

— (1989) 'Acquired cerebral palsy.' *Archives of Disease in Childhood*, 64, 1013-1016.


CASE REPORT

Congenital bilateral perisylvian syndrome is the name given by Kuzniecky et al. (1993) to developmental pseudobulbar palsy presenting on imaging bilateral malformations of the perisylvian cortex.

There are arguments suggesting that this syndrome results from injury of the perisylvian regions during the second trimester of gestation. Four-layered polymicrogyria has been found in a few patients at postmortem examination (Kuzniecky et al. 1993, Routon et al. 1994). This cytoarchitectonic pattern consists in ischaemic necrosis predominating in cortical layer 5, with normal disposition of the cortical layers above this necrotic band, and is considered to be a postmigratory event, occurring after 20 weeks of gestation (Barth 1987, Barkovich et al. 1992). Unlayered polymicrogyria and subventricular heterotopia were found in another patient (Becker et al. 1989), suggesting an insult during the period of neuronal migration (Barth 1987). However, the causes of the syndrome remain speculative, because the prenatal history of the affected patients is usually unremarkable (Kuzniecky et al. 1993).

We report a case of congenital bilateral perisylvian syndrome affecting the surviving twin after intra-uterine death of the monozygotic co-twin between 16 and 18 weeks of gestation. The physiopathological mechanisms leading to brain injury in this exceptional situation are discussed.

Case report
The patient, a two-year-old boy, was referred for delayed motor skills. His mother had been a 37-year-old gravida 3, para 2 at this child's gestation, and had had her first sonographic examination at 12 weeks gestation, when a monochorionic, bi-amniotic twin pregnancy was diagnosed. At 16 weeks, sonography revealed hydramnios in twin 1 and oligohydramnios in twin 2, and a twin-twin transfusion syndrome was suspected. The morphology of the brain was normal in both fetuses. In view of the mother's age, bilateral amniocentesis for chromosomal analysis was performed. The karyotype was 46,XY for both twins. Fetal death of twin 2 (the suspected donor twin) was diagnosed at 18 weeks gestation. At 20 weeks, sonography revealed enlargement of the cerebral ventricles in the surviving twin by comparison with the previous examination (Fig. 1a), and periventricular hyperechogenicity. Two weeks later, hepatic hyperechogenic areas were seen (Fig. 1b). Cerebral structures appeared normal on sonographic follow-up.

Birth was at 39 weeks gestation. The Apgar score was 9 at one minute and 10 at five minutes. Weight was 3500g, length 51cm and head circumference 33cm. Findings on