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Does the type of care matter?
A study of the effect of early substitute care

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Acknowledgements and Declaration

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Abstract

Background ‘Looked after’ children have high rates of emotional/behavioural disturbance, but it remains uncertain whether this derives from genetic risk, adverse experiences before reception into care, or from risks associated with substitute care experiences. **Methods:** The study was a ‘natural experiment’ comparing two different patterns of rearing after breakdown in early parenting, using teacher and parent questionnaires, interviews, systematic observations and standardised cognitive testing. 19 primary school children raised in institutional care from before the age of 1 year were compared with 19 children, matched for age and gender and comparable in biological background, who had experienced uninterrupted family foster care from that age. Both groups were compared with classroom controls. **Results:** The combined group of ‘looked after’ children differed from their classroom controls in showing a high level of inattention/overactivity¹. The teacher questionnaire and observational measures showed, however, that the increased rate was substantially higher in the institutional group than the family foster group. This difference was not explained by cognitive deficits. Also, the heightened level of inattention/overactivity was associated with a marked lack of selectivity in social relationships. This profile was found only in the institutional group, characterising about a third of them, all boys. At school, this elevated level of inattention was a specific response to cognitively demanding tasks, and partially accounted for the lower reading attainment of the institutional group compared with the family foster care group, whereas variation in IQ accounted for the lower reading scores of the family foster care group compared with their matched classroom controls. Out of school, the children in institutional care were rated by carers as having more emotional and unsociable difficulties; help with homework was associated with higher reading attainment in the family foster care group only.

Conclusions: Against a background of genetic and early environmental risk, the type of care *does* matter. Institutional rearing was associated with a pattern of inattention/overactivity that for a significant minority included a marked lack of selectivity in social relationships. Further institutional upbringing was related to poorer reading attainment both directly and indirectly through this heightened inattention. Possible reasons, and implications for social policy and future research are discussed.

¹The term inattention/overactivity was adopted to denote the possibility that these behaviours may constitute a different type of hyperactivity to that described as Attention-Deficit/Hyperactivity Behaviour (ADHD) in the *DSM-IV* (American Psychiatric Association, 1994); not least because of its association with impaired selective attachments and social disinhibition.

Introduction

Societies have always had some system, be it informal or formal, of caring for children, when, for whatever reason, their own biological parents are unable to do so (Rushton & Minnis, 2002; Werner, 1984). Although the balance of provision has varied across time, the two main forms of formal state provision in such circumstances have been, and remain, residential / institutional² care and placement in family foster care (Kahan, 1995a,b; Rushton & Minnis, 2002). Reasons for parenting breakdown and admission into care, the nature of provision, the historical context of substitute care and some of the key influences on social policy in the UK during the latter half of the last century will be considered in Chapter 1.

Once the state becomes the provider of care in 'loco parentis', questions arise about the adequacy of this substitute care (Rushton & Minnis, 2002; Rutter, 2000): the expectation is that the parenting provided by the state should offer a better alternative for the children's optimal psychological development. It has been a matter of some concern therefore, that studies across time have consistently indicated relatively high rates of emotional and behavioural disturbance and poor scholastic achievement in children placed in either long term foster care or residential care. More recent evidence has corroborated earlier findings from less systematic studies (Department for Education and Skills (DfES), 2004; Dinnage & Pringle, 1967; Lambert, Essen & Head 1977; Meltzer, Corbin, Gatward, Goodman & Ford, 2003; Parker, 1966; Richardson & Lelliott, 2003; Rowe, Cain, Hundleby & Kean, 1984; Rushton & Minnis, 2002; Triseliotis, Sellick & Short, 1995).

There has also been increasing recognition of the long established belief that a loving and continuous relationship with an adult is important for the well being of a child (Rushton & Minnis, 2002; Spitz, 1945), and for their long term development (Bowlby, 1951; and see chapter 3). There was general agreement that this need was poorly met by residential care, and long term residential nurseries and homes for young children have been phased out across the last decades. Nevertheless current evidence on the development of 'looked after' children suggests there is no cause for complacency (Meltzer et al., 2003; Richardson & Lelliott, 2003). The advantages and disadvantages of long term residential care and family foster care have not been well delineated. Moreover the two types of care represent very different approximations to the ideal of a continuous, loving relationship. Hence comparisons of the two forms of substitute care can be informative for both typical and atypical development.

The high rate of psychosocial problems shown by children in substitute care was the starting point of my study. The reasons for this are controversial; but to understand it is crucial in terms of the implications for social policy and the ultimate well being of this vulnerable group of children. Recently Richardson & Lelliott (2003) argued that the reason why the evaluation of the outcomes of substitute care is such a complex process is due to the difficulty in disentangling the effects of family, social and environmental factors. My aim was to disentangle these factors.

Children who are admitted into state care come from the most disadvantaged families in our society, who suffer from multiple psychosocial adversities (Bebbington & Miles, 1989; St Claire & Osborn, 1987; Thorpe & Swart, 1992). Hence the high rate of emotional and behavioural problems could result from biosocial factors extraneous to care: some combination of genetic or prenatal factors (e.g. maternal heavy smoking and alcohol/drug abuse), and seriously adverse experiences in early life (more likely when the child is older or admission follows abuse or neglect). Alternatively, disturbance could derive, at least in part, from rearing experiences in atypical circumstances in either institutional care and/or foster families. **My aim in designing the study was to determine the degree to which the psychopathological risks of children in care were a function of their patterns of rearing rather than of their adverse family backgrounds.**

Testing alternatives such as these requires a design that offers the possibility of ‘pulling apart’ variables that normally co-occur. An example of such a design and the one adopted in my study is the ‘natural experiment’ (O’Connor, 2003; Rutter, Pickles, Murray & Eaves, 2001; Rutter, in press; Skuse, 1984). The natural event in my study was the early placement in substitute care following a breakdown in parenting. Two groups of children, either raised in institutional care or reared in foster families were selected. The implicit and testable assumptions were that the groups differed systematically in terms of the key variable of continuous personalised substitute parenting, but yet were comparable in terms of their biological background (where ‘biological ‘ refers to their family of origin). A full description of the design and fuller articulation of these assumptions along with threats to the internal validity of the design, are discussed in Chapter 2

The following chapter (3) considers the kinds of problems that have been associated with an early institutional upbringing subsumed into three broad areas including attentional difficulties, hyperactivity and Attention-Deficit/ Hyperactivity Disorder (ADHD) in *DSM-IV* (American Psychiatric Association, 1994); ‘indiscriminate friendliness’ and selectivity

in social relationship; and intellectual functioning and educational achievement. Despite criticisms of early studies and the use of very different methodologies, these kinds of problems have been reported consistently in studies of early institutional care. The majority of these studies, starting with Goldfarb's research in the 40s, have looked at the subsequent development of children who were adopted or fostered following varying periods of their infancy and early childhood spent in institutions (Goldfarb, 1945, 1955; Gunnar, Bruce & Grotevant, 2000; Maclean, 2003; Morison, Ames & Chisholm, 1995; Rutter, O'Connor & the English Romanian Adoptees (ERA) study team, 2004; Tizard, 1977). A few studies, like my own, took place during the time when the children were placed in institutional care (Kaler & Freeman, 1994; Smyke, Dumitrescu & Zeanah, 2002; Vorria, Rutter, Pickles, Wolkind & Hobsbaum, 1998; Zeanah, Nelson, Smyke, Marshall, Parker & Koga, 2003). This *profile* of problems seems to typify such care, irrespective of its quality. The one feature the institutions shared in common was a relatively impersonalised form of group care, provided by a large number of often changing caregivers. Bowlby saw this kind of care as detrimental to the establishment of enduring selective attachments. As discussed in this chapter and again in the later chapter(6) on policy, Bowlby's recognition of infants' and young children's needs for continuity in caregiving relationships, as formalised in his attachment theory, has been highly influential in understanding the needs of 'looked after' children (Bowlby, 1951, 1979, 1982).

The manifestation of these problems by a sample of 38 primary school aged 'looked after' children, and how the problems related to the two different kinds of rearing the children had experienced, is the focus of the three papers that make up chapter 4. The main questions that were addressed in each paper are presented prior to each paper. The details of methods used and sampling, and discussion of findings are the subject matter of the three papers that follow in chronological order.

The concluding section draws together the findings from the papers in the light of current understanding and empirical evidence (Chapter 5), discusses the implications of these findings for social policy (Chapter 6) and finally evaluates the study and considers questions for future research (Chapter 7).

²The terms 'residential' and 'institutional' are used interchangeably throughout.

Chapter 1: Background and historical context

Throughout history and in all societies there have been instances in which for a variety of reasons biological parents have been unable to bring up their children. Parents may die, or be incapacitated through mental or physical illness, or severe poverty; cases of neglect, abuse, infanticide and parents abandoning or selling their children go back to antiquity. Fortunately, alongside these human tragedies, there have always been acts of human generosity. The needs of abandoned, destitute or neglected children have been addressed informally by what Boswell (1991) called 'the kindness of strangers', who would rescue such children and bring them up as their own.

Different systems of caring for abandoned and separated children have evolved across time and in different countries. There has been a general trend however, for these informal arrangements to be replaced by more formalised systems of care (Triseliotis et al., 1995). In the UK today following the Children Act, 1989, children received into care of the local authority are described as 'looked after' children. The majority of 'looked after' children are placed in family foster care or residential care. The remaining children are either placed for adoption, at home with a 'care order', or are young people who have been remanded or detained. Care may be provided by voluntary organisations and the private sector in addition to local authorities. Many factors may be influential in the choice of placement for children beyond the immediate needs of the child, at both local and national level, not least the political and ideological vagaries at any one point in time (Colton, 1988; Wolkind & Rushton, 1994). The following discussion considers the nature of provision offered by family foster care and residential care, a brief look at their historical roots and the changing nature of provision across recent years.

Fostering can be defined as 'the undertaking by a family to look after someone else's child for a few days, weeks, months, even sometimes many years, for an allowance or fee' (Triseliotis et al., 1995, p.1). The main differences between foster care and residential care hinge around the assumption that foster care offers family based care where continuous, personalised care is provided by the foster parent(s), which may be supplemented in various ways by extended family and community involvement. One of the main benefits of foster care, despite its temporary nature, is the opportunities it offers for the child to establish new attachments.

In comparison large numbers of staff are often involved in the care of children in institutional settings, and high staff turnover is typical. Hence, although most children in residential care in the UK receive at least adequate nourishment and learning

opportunities, they are much less likely than children in foster families to experience individualised care from highly familiar adults. As Gunnar et al. (2000) noted in their review of international adoption of institutionally reared children, opportunities to develop attachment with consistent caregivers, the norm for most families, are difficult to achieve within institutions. This was strikingly illustrated by the high turnover of staff found by Tizard and colleagues (1971, 1974, 1975, 1978) in their longitudinal study of children reared in residential care in their early years. An average of 24 different nurses were reported to have worked with the children for at least a week in their first year of life, and by the time the children were 4 ½, the figure had increased to 50 (Tizard & Rees, 1974)

Further differences between the two forms of care have been summarised by Rushton & Minnis (2002), many of which stem from the family as opposed to group based care. Care in family foster homes tends to be more child orientated, individualised and supportive. Care in residential homes, in contrast, is seen to be more institution/group orientated and controlling, and provided by a sequence of professional carers. Typically foster family units are smaller and less isolated from the community; although at the same time, unlike residential care, children may outnumber the adults. The composition of the child group is seen as less permanent in residential care, although the degree of peer group consistency in foster families may be variable. Physical amenities have been found to be better in foster families, and the child is much more likely to have their own personal space. Finally issues of control and boundaries cannot be divorced from the typical age of carers. Residential care staff may be little older than the teenagers in their care, whereas foster parents tend to be somewhat older than parents of similar aged children in the general population. (Colton, 1988; Rushton & Minnis, 2002; Triseliotis, Borland & Hill, 2000).

On the basis of this evidence systematic differences between the rearing experiences of children in residential care and foster care in my sample of 'looked after' children would be predicted. Nevertheless, the assumption of differences was fundamental to the design of my study (see Chapter 2), and hence one that required testing.

The provision of care may be short term, intermediate or long term depending on the needs of parent(s) and/or child. "Short term" care typically lasts for a period of a few days up to about 12 weeks. It is used mainly for pre-adoption care of babies or where no other alternative support is available in the community. "Intermediate" or medium length care applies to the majority of placements and lasts for periods of months up to about two

years. Such placements are used either for parents facing practical or relationship difficulties, or as a means of helping children overcome their own difficulties, or to protect the child. Finally “long term” placements, which extend from two years up to adulthood, and are seen as a form of substitute parenting. These categories are not mutually exclusive; planned short and medium term placements, may turn into long term arrangements (Triseliotis et al., 1995). All the children in my study were in long term placements.

Long term fostering and adoption share many common features. In fact, prior to the 1926 Adoption Act, the terms ‘foster’ and ‘adoptive’ were interchangeable. The main differences are the legal aspect and the degree of permanency associated with adoption, both of which play a part in making adoption the most desirable option for most professionals involved in various ways in the provision of substitute care (Rushton & Minnis, 2002; Triseliotis, 2002). A lack of permanency may create uncertainties and anxieties for children in foster care (Tizard, 1977; Triseliotis et al., 1995). Triseliotis (2002) in a recent review of these two forms of substitute parenting, concluded that the main difference was the higher levels of emotional security, sense of belonging and general well-being expressed by those growing up in adoptive homes compared with those fostered long-term. At the same time he concluded that long term fostering still has a definite place for a range of children who require long term plans.

Despite the priority given to permanency in the wake of the Children Act 1989, the rate of adoption to unrelated individuals remains relatively low (Hersov, 1985). Adoption was at its peak in 1968, but by 1973 the numbers had halved, and with some fluctuations the rate of adoption continued to decline during the 80s and 90s, with some rise again in recent years (Triseliotis, 2002). During the 1970’s the number of babies available for adoption in the UK was affected by a fall in birth rate due to the increased use of contraception and legal abortion. In addition changes in social attitude and financial support meant that more unmarried mothers kept their babies and brought them up themselves (Leete, 1978).

Historical roots and the development of the state child welfare system

The development of child welfare law partly mirrors changing attitudes towards childhood throughout history. The history of family foster care, in an informal sense, has had a much longer history than residential care. In terms of more formalised systems the roots of residential care and foster care as we know it today can be traced to the period of industrialisation in the 19th century; a time when some historians suggest ‘childhood’ emerged as a separate and definable state (Aries, 1962; Hendrick, 1994).

Historically the development of the welfare system was not exclusively altruistic. The stigma attached to residential care today may have its roots in the workhouse system of the early 19th century for the destitute. Workhouses were as much about control of the 'dangerous classes' and deterrence as they were about care. Intervention was not life enhancing, nor was it intended to be (Parker, 1988; Pinchbeck & Hewitt, 1973). In many ways this early stigma attached to institutional care remains as far as public perceptions of care and attitudes are concerned. The young in care today are very aware of the negative stereotypes associated with residential care; its capacity to identify and separate out less fortunate individuals as different from their peers, persists (Fletcher, 1993).

A somewhat later development with a more philanthropic underpinning was the establishment of orphanages and child care organisations such as Dr Barnado's (1870), National Children's Homes (1869), and the National Society for the Prevention of Cruelty to Children (NSPCC) (1884) (Haydon, Goddard, Gorin & van der Spek, 1999). Rushton & Minnis (2002) suggested that the competition for status and resources that exists between residential care and foster care today has its roots in 19th century practice. However for a significant part of the 20th century the proportion of children in residential care far outweighed those in foster care (Hendrick, 1994). This residential care was mainly provided through Public Assistance residential homes or voluntary organisations. The homes were often of poor quality and institutional in character.

After World War II the number of homeless evacuees heightened public's awareness of the needs of children in the UK, and 1948 saw the passing of the Children Act that established modern child service practices. Major improvements in both residential and fostering services followed: staff training was instigated, large institutions were replaced by small group homes, and priority was given to foster care. Local authority Children's Departments were set up with Child Care Officers responsible for the 'boarding out' of children that brought about the rapid development of fostering during the 1950's. However by 1960 there was increasing concern about the number of foster placements that broke down (Parker, 1966; Trasler, 1960), the number of residential placements increased and the balance of care provision was redressed. By 1970 almost equal proportions of children and young people were placed in foster care and residential care (42.5% and 39.7% respectively, Home Office Child Care Statistics, 1970).

A number of conflicting factors had a see saw effect on the balance of residential and foster care provision in the early 70's. The adoption of the generic approach recommended by the Seebohm Report 1969 meant a loss of much specialised knowledge

and skill in the child care service. Shortly after this there was a major upheaval of services following the 1974 local government reorganisation. Many additional homes were opened to accommodate 'difficult' young people, responding to demands from anxious generic practitioners not accustomed to dealing with 'hard to place' youngsters (Kahan, 1995,b). By the mid 70's residential care was at its peak and accounted for 75% of all placements. However, residential care, particularly for pre adolescents, came under fire following the findings of Rowe & Lambert's (1973) study 'Children Who Wait'. They found large numbers of children spending their lives in residential care for whom no clear future plans had been made. The conclusion was that public care was not achieving stable long-term placements for many children who were deemed to need them. From the late 70's onwards there has been a steady decline in the number of children in residential care.

My study was conducted during this period when the appropriateness of residential care as a provision for 'looked after' children was being questioned. Moreover child care professionals were becoming increasingly concerned about the effect of residential care on the development of infants and young children. Research had identified short and long term effects of early institutional care and influential models of attachment and maternal deprivation had been developed (Bowlby, 1951, 1969; Rutter, 1972; Tizard, 1977; Tizard & Hodges, 1978; Tizard & Joseph, 1970; Tizard & Rees, 1974; and see Chapter 3). Moreover Bowlby's work, in conjunction with the evocative films by James and Joyce Robertson of the distress of young infants separated from their parents had been unusually influential in changing social policy and practice (Rutter & O'Connor, 1999). Findings from Tizard and colleagues seminal studies of 2 and 4 year olds in institutional care added to the existing pressure and momentum to close down residential nurseries. The importance ascribed to early attachments by developmental psychologists and the emphasis on 'permanency' in the field of social policy shared much in common despite coming from somewhat different starting points.

Permanency was one of two factors that according to Kahan (1995a) affected social policy around this time, which was translated in practice into a preference for fostering; the other being a political call for retrenchment in welfare resources in the UK. The 'permanency' movement originated in the US and advocated the establishment of a 'permanent' home base for every child, which went with the belief that children can only relate to one set of psychological parents. 'Permanency' was defined in terms of the *continuity* of relationships with nurturing carers and the opportunity to establish life time relationships (Goldstein, Freud & Solnit, 1973; Maluccio, Fein & Olmstead, 1986).

Breakdowns in fostering are, however, the anathema of permanency. They have been, and remain, one of the major concerns about foster care. Not only can breakdowns have a profound effect on the children, they may jeopardise any subsequent chance of achieving stable placements, and reasons for their occurrence have been investigated extensively (Berridge & Cleaver, 1987; Fanshel & Shinn, 1978; George, 1970; Parker, 1966; Rowe et al, 1984; Rowe, Hundleby & Garnett, 1989; Trasler, 1960). It could be argued that the sample of children in long term foster care in my study, who had remained with the same family from the age of one or younger, was not representative. Critical comparisons with children admitted at the same age, but for whatever reason did not remain in the same family are lacking. However a very early study found that single, stable placements were associated with very early placement: an association confirmed by later studies. (Theis, 1924). Breakdowns have also been found to be highest in children more than 4 years who already had behaviour problems (Bailey, Thoburn & Wakeham, 2002; Minty, 1999; Thoburn, 2002).

More recently Triseliotis (2002) suggested however, that the breakdown rates between long term fostering and adoption did not differ markedly, although the findings in this respect are not unequivocal (Minty, 1999). This may be due partly to the marked differences in breakdown rates found in different local authorities. Berridge (2000) for example reported percentages ranging from 3-44% amongst local authorities, with three or more placements (the Government's target cut off for instability was 16% for 2001). The Multiple Placement Project in Northern Ireland reported just under a third (31%) of the under fives had two or more moves over a two year period of their study (Cousins, Monteith, Larkin & Percy, 2003). For Triseliotis (2002) the crucial variables that underpin outcomes of foster care were those related to the insecurity around the inherent lack of permanence associated with fostering, whether or not it actually leads to breakdown and discontinuity of placements.

Despite falling short of the permanency ideal, foster care has increased proportionately in terms of the total care provision from the early 80's on and currently accounts for two thirds of all local authority placements (Kelly & Gilligan, 2000). Whilst the overall number of children in care has fallen dramatically in the last 20 years (with some rise again in recent years), the number of children fostered has remained remarkably constant. There has been a corresponding fall in residential placements for children and young people, now accounting for just over 10% of 'looked after' youngsters.

Residential care remains a significant part of provision in the UK for short term stays, for older children and for children for whom the potential for forming new attachment relationships is not considered to be of paramount importance, but it is a rarity for under 5's. However in some societies, often as a result of natural or man made disasters, institutional care continues as a provision for very young children (Rushton & Minnis, 2002). Conditions in these institutions ranges from profoundly depriving in all respects including malnutrition, as typified by many orphanages in Romania (Kaler & Freeman, 1994; Morison et al., 1995; Rutter et al., 2004; Smyke et al., 2002; Zeanah et al.,2003) to adequate in terms of basic provision but where the amount of individualised care may be minimal such as that found in the Greek institutions (Vorria et al., 1998a,b; Vorria, Papaligoura, Dunn, van IJzendoorn, Steele, Kontopoulou,& Sarafidou, 2003) .

My sample of young 'looked after' children offered a unique opportunity to study the effects of an institutional upbringing. Shortly after the study, in the early 80's, the provision of care in residential nurseries in the UK ceased, in response to cumulative negative evidence and changes in social policy outlined above. The crucial questions were whether the experience of substitute care in general and institutional upbringing in particular was associated with a specific profile of problems, and if so was this attributable to their rearing experiences. The validity of any answers to these questions required careful sample selection and depended on the design of the study. The following chapter outlines the rationale behind and the key features of the design adopted.

Chapter 2: Design

The aim of the study was to determine the degree to which psychopathological risks for children received into care were a function of their adverse family background or their pattern of rearing. For many years environmentally mediated risks were considered to be of major clinical importance, but more recently the role of psychosocial factors in the aetiology of disorders has been questioned (Rutter et al., 2001; Rutter, in press). For clinicians, as agents of change, environmental factors remain significant and knowledge of the specificity of the effects of different environmental influences is important. Yet there have been an increasing number of criticisms levelled against studies of environmental mediating factors, which have questioned the validity of findings.

One of the major challenges has come from behaviour genetics that suggest many of the purportedly environmentally mediated risks are actually genetically mediated (Plomin, 1994a; Rowe, 1994). In somewhat similar vein is the argument that children affect, rather than are affected by their environments (Bell, 1968). Such positions polarise the nature/nurture debate, fail to take into account the interplay of factors and thereby underestimate the role of psychosocial factors. Rutter (in press) in a review of recent research concluded that the evidence for environmentally mediated risks for psychopathology is robust and such risks are reliant on nature-nurture interplay. The studies cited in the review used designs that can differentiate between genetic and environmental mediation, as well as determine the direction of causal effect. 'Natural experiments', the design adopted in the study, is one of a number of such designs that help to 'pull apart' variables that normally intercorrelate highly.

McCall & Green (2004) argued that different methods contribute different kinds of information, but no one method is necessarily more valuable than others. They suggested that the choice of research methods depends on a number of factors including the stage of knowledge in a particular area, the type of research questions being asked and the context of the research.

At the time the study was conducted there was ample evidence to show that children in substitute care manifested high rates of psychological problems (Bowlby, 1951, 1969; Dinnage & Pringle, 1967; Prosser, 1978; Rutter, 1972/ 1976/1981). However, 'looked after' children constitute a very heterogeneous group who tend to come from high risk backgrounds (Bebbington & Miles, 1989; St Claire & Osborn, 1987). Children are admitted to care at different ages, for differing time periods: some may have multiple admissions and placements, others may not. Admissions can be interspersed with periods

at home where parent(s) are struggling to cope. Hence, it was unclear if heightened problems reported amongst children in care were a function of the children's experiences in substitute care and/ or their high risk backgrounds, and often chaotic life experiences.

'Natural experiments' are designs well suited to testing alternative hypotheses such as these. They provide opportunities to examine processes that for ethical or practical reasons would not have been possible otherwise (O'Connor, 2003; Skuse, 1984). Rutter et al (2001) concluded that they are most effective when environmental risks involve a major life change that occurs at a specific time and that is known to be associated with some psychopathological outcome. Natural experiments are quasi experimental in design. As a result, unlike experimental designs that use random assignment of subjects, the between group comparisons are based on groups that differ from each other in many other ways than the treatment under investigation (Cook & Campbell, 1979). Hence validation of findings from quasi experiments demands the diligent testing of alternative, non-treatment factors that could be responsible for any differences found. Rutter et al. (2001) identified a number of key factors that need to be considered in the validation process of 'natural experiments, which include:

- Appropriate sample selection
- Explicit articulation of underlying assumptions and threats to validity
- Careful pitting of alternative hypotheses
- The availability of the measures that allow these to be put to the test.

The specifics of how the design of my study dealt with each of these factors is outlined below.

Appropriate sample selection

'The major life event at a specific time' for my sample of children was admission into care in infancy because of a breakdown in parenting. Careful sample selection was essential to deal with the inherent problems of quasi experiments and the heterogeneous experiences of 'looked after' children'. To ensure comparability in experience prior to and following admission, all children in substitute care had to be placed by the age of one and to have experienced the same type of rearing experience from then on to the time of the study. For the children in long term foster care this meant remaining with the same family for that period, to ensure they had received continuity of substitute parenting. Children in institutional care were individually matched with children in foster care in terms of age and gender, and the groups matched for ethnicity.

[For full details of sample selection and sampling see paper 1. A number of constraints, including the reduction in the overall number of young infants received into care as

discussed in Chapter 1, meant that the final sample sizes were smaller than intended or was desirable]

Underlying assumptions

A basic assumption of the design, and crucial for the test of environmental mediation, was that the two 'in care' groups were closely comparable in terms of their risk background characteristics, yet had experienced very different rearing experiences (see Chapter 1). Comparability of backgrounds was tested by blind ratings of parental psychopathology and social malfunctioning by MR based on details taken from social work records. Information from interviews with carers and social work case files was used to assess the rearing experiences of the children (see paper 1 for details).

The second assumption, based on findings from previous research, was that psychopathology of the combined 'in care' group was higher than that of children who had not been admitted to care. This assumption was tested, by comparing rates of problems in the 'in care' children with rates of problems in classroom controls, using a combination of teachers' ratings and direct observations. The control groups were children matched in age and sex, and were in the same classroom as the 'in care' children, but who, as far as the school were aware, had never been admitted to care.(see paper 1). Teacher and carer ratings and direct observations of children in the classroom were used to test a final assumption that children reared in institutional care had higher rates of psychopathology than children in foster care.

Threats to validity

A number of factors were identified as possible threats to validity of the research design. Firstly there were third factor issues (Cook & Campbell, 1979), in other words the possibility that factors other than differences in rearing experiences were responsible for the higher rates of psychopathology. Bias in raters, the effect of school differences, and cognitive differences amongst children were identified as potential threats, based on previous research findings, and their effects on psychopathology were tested (see paper 1). Despite extensive testing, the possibility remains that further, as yet unidentified, factors were influential. Finally the selection of the long term foster children also remained a source of potential bias, as discussed in chapter 1.

Careful pitting of alternative hypotheses

Two alternative hypotheses were tested simultaneously. These were that the increased rate of psychopathology found in institutional children was due to:

1. the high risk backgrounds from which the children come or
2. some aspect of their rearing experiences in institutional care.

The availability of the measures that allow these to be put to the test.

Psychosocial research has been criticised for using inappropriate and inadequate measures, but as Rutter (in press) pointed out, multimodal methods have become common practice in good quality research (Dishion et al., 1995). A range of measures were used in the study, including standardised psychometric measures, interviews, questionnaires of known reliability and validity (Elander & Rutter, 1996) and direct classroom observations of behaviour. Teachers' ratings of children were validated by direct observations of behaviour using a pre-established coding system, with an acceptable level of reliability that was developed for the purposes of this study. Concerns about the validity of retrospective recall have also been raised (Rutter et al., 2001; Rutter, in press). In the study, information on aspects of the child's past history including details on the children's natural parents and their pre admission experiences were drawn from social work case files. Although the quality and amount of material was variable, it was gathered contemporaneously.

Consequently, the four key factors identified by Rutter et al. (2001) as crucial to the validation of natural experiments were addressed by the design of my study.

Control groups

Selection of control groups can have a significant effect on the interpretation of outcomes in any area of research. This study involved two sets of controls.

Selection of long term foster children as the matched comparison group for children reared in institutional care was based on a number of factors. Children in both groups shared the common experiences associated with being 'looked after' children, including highly disadvantaged origins, uncertainty surrounding a lack of permanency in their placements and preconceptions and biased judgements of others due to their 'looked after' status. Whereas their experiences of substitute caring, the equivalent of an 'experimental' independent variable, differed: children in residential care, even very young children, were typically cared for by a large number of carers. The foster children, on the other hand, had experienced an unusually high continuity of substitute parenting care.

Selection of the control group for the 'in care' group as a whole was motivated by the need to test for school and specifically classroom effects, however it did not control for the type of background, nor could it. Questions about appropriate comparison groups for 'looked after' children will be considered under methodological issues in Chapter 7 in the concluding section.

Chapter 3: Outcomes measures

As noted, the starting point of my study was the high rates of emotional and behavioural problems reported amongst children in care (Dinnage & Pringle, 1967; Prosser, 1978; Wolkind & Rutter, 1973). The early studies, primarily on the effects of institutional care, were of variable quality, and subject to methodological criticism (Longstreth, 1981; Pinneau, 1955). Yet despite this, there was a marked degree of convergence in findings: typically a pattern of restlessness, inability to concentrate, poor peer relationships, disruptive behaviour, low academic achievement and indiscriminate friendliness was described in children who had experienced early institutional upbringing; evident even a number of years after placement in adoptive homes. (e.g. Goldfarb, 1945, 1947).

Subsequent studies, with sounder methodology, have reported similar profiles (Gunnar et al., 2000; Tizard & Hodges, 1978; Rutter, Kreppner & O'Connor, 2001). This chapter will consider relevant research and theoretical frameworks relating to these outcomes by subsuming these behaviours into three broad sections, namely:

- Attentional difficulties, hyperactivity and ADHD
- 'Indiscriminate friendliness' and selectivity in social relationships
- Intellectual functioning and educational underachievement

Attentional difficulties, hyperactivity and ADHD

Attentional difficulties have been found frequently in children who spent varying amounts of time in institutional care in early life (Ames, 1997; Haddad & Garralda, 1992; Kreppner, O'Connor & Rutter, 2001; Tizard & Hodges, 1978; Vorria et al, 1998).

Restlessness, inability to concentrate and inattention are amongst the behaviours that typify what we would now describe collectively as 'hyperactive'. Hence we might conclude that these children were manifesting the symptoms of attention deficit hyperactivity disorder (ADHD). However, it would be premature to come to this conclusion before looking at current understanding of hyperactivity and ADHD, and the issues surrounding its definition, classification and aetiology. These will be considered, before returning to look in more depth at the evidence on the significance of early disruptive parenting for the development of ADHD.

Following Schachar & Tannock (2002) the term 'hyperactivity' will be used to refer to cardinal symptoms that define the syndrome, and in keeping with Sandberg (2002) ADHD will be used to refer to the many acronyms that exist around hyperkinetic disorder and attention deficit hyperactivity disorder as understood within the ICD-10 (World Health Organisation, 1992), and the *DSM-IV* (American Psychiatric Association, 1994), classification systems. 'Hyperactivity' has been referred to as an 'ambiguous' term (Hill

& Cameron, 1999) and ADHD as a 'controversial' disorder (Schachar & Tannock, 2002). Such labels are equally applicable to the diagnostic issues around ADHD, as they are to understanding its causal mechanisms. Most agree that ADHD is a multifaceted, multidimensional disorder that is aetiologically heterogeneous. Clinically more boys are affected than girls in a ratio of about 3:1 (Szatmari, Offord & Boyle, 1989), and hyperactivity is at its height in the primary school years between about 6 – 9 years (Sandberg, 1996). The age range of the children in my study was very similar, if somewhat younger.

Hyperactivity involves deficits in attention and concentration, along with age inappropriate impulsivity and overactivity; some or all of these behaviours may be evident. Diagnostic clarity is not helped by the fact these features may describe most children (and adults) at least some of the time. These symptoms can be non-specific indicators of a number of other disorders, and parallels can be drawn with fever or fatigue in somatic disorders (Rutter, Roy & Kreppner, 2002). Schachar & Tannock (2002) argued that clinical recognition rests on frequency, duration and severity of these associated behaviours; but there are qualitative differences too (Olson, 2002). There is a difference between the overactivity associated with ADHD that is disorganised and socially inappropriate, and high levels of goal directed activity shown by their non diagnosed peers. Likewise impulsivity can be intrusive, inappropriate and at times may even be dangerous to self or others. Teachers describe the children as 'off task' and having difficulty finishing assignments and following directions. Other diagnostic signs for ADHD include early onset, at least before 7; and pervasive in the sense of being evident in at least two different situations.

Although generally agreed that pervasive hyperactivity is more disabling and has greater educational significance, Goodman & Stevenson (1989) argued that children who are hyperactive in school only, are very similar to pervasively hyperactive children. Classroom settings are considered to make ideal venues to observe the children, as some suggest that hyperactive children are more likely to manifest problems in highly structured situations (Hill & Cameron, 1999); although studies using systematic observations of variability in symptomatology in relation to task demands are lacking. In addition to carers' and teachers' ratings of the children in my study (Elander & Rutter, 1996); systematic, direct, classroom observations were conducted using a reliable schedule, specifically developed for the purpose.

ADHD has a changing profile across time. In the preschool years overactivity is more evident (Richman, Stevenson & Goodman, 1982). By school years, the age of the children in my study, fidgetiness, squirmy restlessness and inattentiveness are more evident. Hill & Cameron (1999) concluded, that despite ambiguity the pervasive, persistent and impairing pattern of the hyperactive behaviour seen in ADHD is reliably recognisable and has predictive powers (Taylor et al., 1996). Whilst there is general agreement that the primary characteristics are well established (Barkley, 1996; Hinshaw, 1996), there is somewhat less consensus about causal mechanisms.

Although accepted that ADHD is aetiologically heterogeneous, there is general agreement that hereditary or acquired biological factors are highly significant. Support of genetic susceptibility to ADHD comes primarily from family twin studies (Goodman & Stevenson, 1989; Thapar, Holmes, Poulton & Harrington, 1999; Waldman, Rowe, Abramowitz et al., 1998). Overall the genetic influence in ADHD is thought to be probably greater than in any other childhood psychiatric disorder other than autism (Rutter, Silberg, O'Connor, & Simonoff, 1998; Tannock, 1998; Thapar et al., 1999). Similarly, supportive, if not conclusive, evidence for the biological aspects can be found in the reported beneficial effects of stimulant medication (Jensen & the MTA Cooperative Group, 2002)

On the other hand numerous clinical and epidemiological studies have shown substantial associations between a range of psychosocial adversities and ADHD (Biederman, Millberger, Faraone et al., 1995; Taylor, Sandberg, Thorley, & Giles, 1991; Woodward, Taylor, & Dowdney, 1998; and see Sandberg, 2002, for review); including for example family stability, marital discord, and parental psychopathology, and general child rearing conditions within the family. However the identification of psychosocial risk factors is not straightforward for a number of reasons.

Like other disorders, comorbidity is the rule not the exception in ADHD (Angold, Costello, & Erkanli, 1999; Rutter, 1997): more than half the children with ADHD meet criteria for two comorbid conditions (Szatmari, Boyle & Offord, 1989). Hence there is the problem of demonstrating that significance of psychosocial factors is due to their unique association with ADHD rather than with one of the many comorbid disorders. For example comorbid conduct disorders frequently co-occur with hyperactivity (Barkley, 1997a; Hinshaw, 1987; Leung & Connolly, 1996; Szatmari et al., 1989); as do academic problems and underachievement (Hinshaw, 1992), and problems in social relationships (Whalen, Henker, & Granger, 1990); language impairments both identified and

unidentified are also common (Cohen, 2000, Richman et al., 1982). Similarly there is evidence for comorbidity with internalising disorders (depression and anxiety) (Biederman et al., 1991; Taylor et al., 1991).

An additional problem is that the effects may be due to the child's behaviour rather than environmentally mediated factors. Child effects include, for example, the negative effect of their behaviour on teachers (Hinshaw & McHale, 1991), and on adoptive parents (Ge, Conger, Cadoret et al., 1996; O'Connor et al., 1998). Children's poor expressive language may also affect their capacity to interact effectively with others (Sandberg, 2002). Finally there are passive gene effects: a parent with disorder is more likely to provide an adverse rearing environment (Rutter et al., 1997).

An alternative strategy, that has the potential to deal with these problems, is to take a postulated psychosocial risk factor as a starting point and determine whether or not this leads to ADHD (Rutter, Roy & Kreppner, 2002). In this respect severely disrupted early attachments as a risk factor make an obvious choice; particularly as some have argued that disruptions in early parenting may be the exception regarding the specificity of psychosocial risk for hyperactivity (Sandberg, 2002).

Evidence for the role of disrupted attachments as a specific risk factor for hyperactivity comes from a number of sources. Verhulst, Althaus & Versluis-Den Bieman (1990a,b) for example found that boys from a variety of countries adopted by Dutch adoptive parents were twice as likely as non-adopted boys to show behavioural problems, particularly hyperactivity. Schachar & Wachsuth (1991) found repeated parent-child separation associated with ADHD. Taylor (1986) identified prolonged institutional care as one psychosocial adversity that seemed to have a specific association with ADHD. Carlson, Jacobvitz & Sroufe (1995) longitudinal study of socially disadvantaged families showed that early marital disruption along with intrusive caregiving was the best indicator of ADHD in middle childhood. Tizard & Hodges (1978) group of formerly institutionalised children with disrupted early care and parenting breakdown were overactive and had attentional problems in school at 8 and this was still a distinctive feature of their behaviour in adolescence (Hodges & Tizard, 1989). Haddad & Garralda (1992) found severe disruption of early care (3 were in residential care, 2 in family foster care) was a common feature in case studies of five children with hyperkinetic syndrome; despite living for years in stable adoptive families and in the absence of biological risk factors. The children showed behaviours frequently associated with early disruptive care including indiscriminate friendliness, attention seeking behaviour and poorly modulated

peer interactions, and were very similar to the adolescents described by Goldfarb above (Goldfarb, 1945, 1947). Finally studies of Romanian adoptees in the UK and Canada, and studies of children in Greek orphanages have shown patterns of inattention/overactivity (I/O) associated with early institutional rearing (Morison et al., 1995; Rutter et al., 2004; Smyke et al., 2002; Vorria et al., 1998; Zeanah et al., 2003). These findings will be considered in the concluding section and not discussed here (see Gunnar et al., 2000; Maclean, 2003 for reviews).

Together, the findings from these studies provide a strong argument for the role of early disruptive parenting in the subsequent development of inattention / overactivity. However they do not provide conclusive evidence, but raise a number of questions, specifically (Rutter, Roy & Kreppner, 2002):

1. Does institutional care just serve as an index of multiple psychosocial adversity? /
2. Does the experience of rearing in residential care itself, constitute a specific risk factor?
3. Does institutional care serve as a direct contemporaneous situational influence on I/O? /
4. Does the pattern of rearing have some kind of developmental programming effect that persists even if later rearing occurs within a stable, harmonious family environment? And finally
5. Is I/O associated with institutional care different in kind from 'ordinary' types of ADHD as clinically observed?

My study was designed primarily to address the first two questions, posed as alternative hypotheses. Longitudinal studies, such as those by Tizard and colleagues' follow up studies of children who had spent their early years in residential nurseries in the UK (Hodges & Tizard, 1989a,b; Tizard & Hodges, 1978) , and studies of Romanian orphans adopted into families in UK and Canada (Morison et al., 1995; Rutter et al., Rutter et al., 2004; Smyke et al., 2002; Zeanah et al., 2003), are required to consider the persistence of effects following early institutional care, once it has ceased. My study was exceptional in the sense that institutional care was ongoing and the observed effects were an amalgam of early, continuing and contemporaneous effects of an institutional upbringing for a vulnerable group of children. A comparison of my findings, along with evidence from longitudinal studies, goes some way towards addressing questions 3 and 4, and will be considered in the conclusion. The findings also cast some light on the final question, but probably raise more questions than are answered. Moreover, as this section has tried to show, what is 'ordinary' as far as ADHD is concerned is itself a matter of debate.

'Indiscriminate friendliness' and selectivity in social relationships

As noted in the previous section, along with a lack of concentration and restlessness, Goldfarb (1945, 1947) also highlighted high rates of indiscriminate behaviour towards unfamiliar people in his sample of children who had spent their early years in institutional care. This 'indiscriminate friendliness' (Chisholm et al., 1995; Chisholm, 1998; Provence & Lipton, 1962; Zeanah, 2000; Zeanah et al., 2002) has been frequently observed in children reared in institutional care in their early years. Typically this cluster of behaviours includes a lack of appropriate wariness towards unfamiliar adults, and a lack of selectivity in social relationships: relating in an indiscriminating manner towards strangers and attachment figures alike (Tizard, 1977). Wolkind (1974) found this disinhibition towards strangers was specifically associated with very early placement in institutional care *before 2 years*.

O'Connor (2002), O'Connor et al. (2003) however, argued that this characteristic variously described as 'superficially affectionate' (Levy, 1937) and 'indiscriminate exhibition' (Freud & Burlingham, 1946/1973) is neither 'indiscriminate' nor 'overfriendly' in a conventional sense. Rather observations suggest behaviour may be clingy, shallow and rarely reciprocal, and not totally indiscriminate, although children may fail to discriminate consistently attachment behaviour toward their primary caregiver. Moreover, the children's behaviour was described as poorly regulated. They had 'difficulty regulating or containing their excitement' to a degree that 'interfered with the establishment of reciprocal interaction' (O'Connor et al., 2003, p.21). O'Connor et al. adopted the term 'disinhibited' behaviour.

Whatever term is adopted these behaviours have been widely reported in more recent and better controlled studies of children who spent their early life in institutional care, notably the research on the outcomes of Romanian orphans adopted into families in the UK and Canada (Chisholm, 1998; O'Connor et al., 1995; O'Connor et al., 2003) Haddad & Garralda (1992) also reported indiscriminate friendliness as one of the distinctive features of the five clinic cases with an early history of disrupted parenting referred to earlier. Similarly a minority of 4 ½ year olds in Tizard and colleagues' longitudinal study of institutional and ex institutional children was described as attention seeking, over friendly to strangers, and indiscriminately affectionate (Tizard, 1975). By 8 years the disinhibited behaviour was less apparent at home, but attention seeking behaviour towards strangers at school remained marked. By adolescence there was no relationship between 'overfriendly' behaviour at 8 (Tizard & Hodges, 1978), and how friendly they were towards strangers at 16 (Hodges & Tizard, 1989b). However, according to parents, the

earlier pattern was related to indiscriminate friendship patterns in adolescence. Likewise, children who were described as closely attached to their adoptive parents at 8, had better peer relationships than those who had not been attached at the earlier age. Finally, a study of adults adopted in early infancy, found that men, but not women had difficulties in two specific domains (employment and social support). They were described as significantly less likely to turn to friends and family for support for personal or emotional problems. Interestingly the majority of adoptees had been placed within a few weeks after birth, but perceived level of social support was particularly marked for a small group of men placed somewhat later in their first year of life (Collishaw, Maughan & Pickles, 1998).

Studies of the Romanian adoptees to date have found a considerable degree of persistence in disinhibited behaviour across time, several years after placement in the adoptive families (O'Connor et al., 2003; Rutter et al., 2004). Strikingly, whilst the pattern is common amongst the adoptees as a whole, particularly those who spent longer in institutional care before adoption in the UK, it was not found in a small subset of Romanian orphans adopted directly from their families of origin (O'Connor et al., 2003). Various mechanisms that might underlie disinhibition have been suggested. Goldfarb (1945), for example, observed that the children had an 'excessive need for adult attention' that persisted long after they were placed in foster families. Freud & Burlingham (1946/1973) observed that the behaviour was only found in children who 'are emotionally starved and unattached' (p.616). Tizard & Hodges (1978) similarly concluded that the cluster of behaviours associated with early institutional upbringing was underpinned by an 'almost insatiable appetite for adult attention' (p.114). However, the most fully articulated framework to date is Bowlby's attachment theory; a theory that revolutionised understanding of children's attachment relationships. As Rutter and O'Connor (1999) pointed out it was a theory that derived from social policy, and itself had an enormous impact on the provision of child care in the second half of the 20th century.

The term 'hunger' and 'appetite' are evocative of a notion of primary basic drives that demand gratification. One of Bowlby's many insights was to see attachment as a separable biologically driven system with roots in an evolutionary context. Infants are 'pre-wired' to behave in ways that maintain and enhance proximity to caregivers and elicit their care. Similarly caregivers are biased to engage in the protective behaviour of their young; to act as providers of safety and the psychological concomitant of security. This conceptualisation was revolutionary at the time and contrasted with existing explanations that saw attachment either as a form of learning (learning theories) or as stemming from the reduction of physiological drives (psychoanalytic theories).

Attachment theory developed in a context of concern about the long term psychological outcome associated with early deprivation arising from institutional care, and loss of or separation from main carers, and hence is of particular relevance here (Bowlby , 1969/1982, 1979; Minde, 2003; O'Connor, 2002).

Bowlby recognised that understanding of the sequelae of institutional care rested on explication of the normative development of selective attachment and their developmental significance. His attachment theory addressed these issues. More recently rather more attention has been directed towards wide ranging investigations of individual differences in the security of attachments, following the development of the Strange Situation paradigm (Ainsworth, Blehar, Waters & Wall, 1978; Cassidy & Shaver, 1999; Goldberg, 2000). These studies have dominated the area in recent years, but are based on the assumption that children have had opportunities to form selective attachments in early infancy (O'Connor, 2002); an assumption that may be questionable for children reared in institutional care. As will be discussed, their caregiving environment is in many ways the antithesis of the one envisaged by Bowlby as essential for the development of discriminating attachment relationships. Hence, for the purposes of this discussion, Bowlby's original attachment theory is the most informative.

Whilst the biological function of attachment is protection of the young, the psychological function is to provide security. Hence attachment theory dealt with the duality of infants both seeking proximity with carers and leaving them to explore independently their physical and social worlds. This is made possible by an attachment system that comprises a number of different but interconnected behaviours, including those responsible for gaining proximity to and maintaining contact with attachment figures, fear / wariness, exploration and sociability. These disparate behaviours are coordinated through a system of biological feedback. It is the balance of fear and exploration that is evidenced in the 'secure base' effect. Important in understanding the apparently paradoxical behaviours seen in 'indiscriminate friendliness' is the fact that the presence of attachment behaviours are not in themselves evidence of the existence of selective attachment relationships, but simply of the operation of the attachment system.

Moreover selective attachments behaviours are only one part, albeit a significant, one in human social relationships. Attachment behaviours are most apparent under sub optimal conditions, whether they originate from within individuals or from their immediate environments. Fear, anxiety, tiredness, and illness typically intensify attachment behaviours, whereas play inhibits it. Sadly, such conditions may be common place for

infants and children in the most depriving institutions, where paradoxically their attachment needs are least adequately met. Dunn (1993) however highlighted the multidimensional nature and diversity of human relationships. She drew attention to the fact that attachment relationships are only one aspect of these.

Bowlby saw selectivity as all important in the development of attachments in normal development. However, selectivity is not a given, but a developmental achievement. Given the immaturity and dependence of the very young infant, both continuity and sensitive responsiveness on the part of carers were seen to be important in the establishment of early attachments. An appreciation of the development of selectivity is crucial in attempts to understand its apparent lack as seen in 'disinhibited' behaviour. Bowlby described the gradual development of this discriminating relationship across the first year of life

He proposed four stages in the development of attachment, culminating in reciprocal 'goal direct partnerships' established around the age of 2. It is the first three stages that occur mainly in the first year of life, that are particularly relevant here. These stages describe development from the infant's initial lack of discrimination to the establishment of 'clear-cut' attachments by about 6 months of age. At this point caregivers are no longer interchangeable and 'separation protest' is evident, evoked by the absence of the attachment figure. Establishment of selective attachments, which initially are limited to one or possibly two individuals, precedes the development of fear, or more typically, wariness of strangers. As Schaffer (1996) noted the capacity *not* to approach strangers is itself a developmental achievement. Wariness of unfamiliar people in normal development provides further evidence of the infant's increasing self regulation and discrimination in their social relationships. Sroufe (1997) distinguished wariness involving a gradual build up of tension and cognitive appraisal from fear, an immediate categorical negative reaction. Interestingly in Tizard's study, the toddlers combined a lack of selectivity in their relationships with carers in the residential nursery with fearful reactions to strangers (Tizard, 1977).

The infant, however, has little or no control over the availability of potential attachment figures, irrespective of how powerful the drive to maintain proximity is, and the associated fear or distress that failure to achieve this may evoke. Indeed, Bowlby stated that an assumption for the development of normal attachments was that this development occurred within an environment of 'evolutionary adaptiveness' that promotes the formation of one or more discriminating relationships.

For children reared in institutional care this key assumption may be violated in varying degrees. In the most depriving institutions, the infants' most basic need for food may not be met. In the more benign homes, basic care and opportunities for interactions with carers are available, but the number of carers involved in the provision of care is often large and changing, exacerbated by roster systems (Gunnar et al., 2000). Moreover, whilst institutions may recognise the value for infants to have a 'special' nurse allocated to them, close personal relationships may be actively discouraged. Levels of staff turnover may vary, but can be very high (Tizard & Rees, 1975; Tizard, 1977). Carers themselves may choose not to become overinvolved in the infants' care. For such infants unavailable and inconsistently responsive care by a large number of individuals can be the norm. The question then becomes what happens to the attachment system when normative conditions are violated to this degree? From attachment theory the need to maintain proximity persists. Superficial and for the most part serial relationships may be established that offer temporary comfort, but not long term security. The degree of superficiality /depth may depend on the interplay between the infant and the degree of consistent and responsive care available in the institutional/caring environment. Failure to develop selective attachments and the concomitant effect on the individual's cognitive and emotional self regulation may also be evident in the children's reactions to unfamiliar people. Accordingly, in my study, measures of social relationships and attachments were taken, and the association of these measures with the children's level of functioning as rated and observed was investigated.

Intellectual development and educational underachievement

Research interest in the intellectual development of children in institutions began in the 1940s and 1950s (Bowlby, 1951; Goldfarb, 1945, 1947; Spitz, 1945a,b) part of a more general interest in the developmental consequences of extreme deprivation in early infancy. Rutter (1972/1981; 1995) discussed both the heterogeneity and the specificity of effects of such deprivation. Cognitive deficits, he argued, resulted from a lack of active learning experiences rather than from the absence of a parent figure per se, as Bowlby (1951) had originally suggested. The general conclusion from early studies was that the effects of early institutional care on intellectual development were severe and long lasting. However, the methodology of these early studies was subjected to wide ranging criticisms (Longstreth, 1981; Pinneau, 1955). What has become clear from subsequent studies is that the level of cognitive deficit depended on a number of factors. Age entered, the quality of the institution and duration of stay, level of nutrition, and the nature of experiences both before and after are some of the many variables that have been found to be significant in the long term effects of early institutional care on children's cognitive

development (Ames, 1997; Hodges & Tizard, 1989a; Kaler & Freeman, 1994; Morison et al., 1995, 2000; Rutter et al., 1998, 2001; Tizard & Hodges, 1978; Tizard & Rees, 1975). The studies by Tizard and colleagues were particularly revealing in terms of the specificity of effects referred to above. The quality of early institutional care in their study, where the children received at least adequate levels of stimulation if not personalised care, was associated with normal intellectual functioning as measured by IQ. Many of the relevant studies were 'natural experiments' involving adoptions from institutions offering varying standards of care into high quality homes. These adoptions brought about dramatic changes in the rearing patterns of these young infants. Follow up studies of Romanian adoptees from profoundly depriving institutions, for example, have found an extraordinary degree of recovery in their level of cognitive functioning following adoption. Yet individual differences in the extent of this recovery and dose related responses were also evident; cognitive recovery was negatively related to duration in institutions (Rutter et al., 2001, 2004).

The children in institutional care in my study differed from the Romanian adoptees in two respects. First, like the homes in Tizard and colleagues' studies, the institutions involved provided at least adequate levels of care, nutrition and stimulation. Secondly, and unlike the Tizard's samples at the same age, the placements were ongoing: the children in the institutional group had remained in the same type of care from an early age. My prediction, based on Tizard's findings, was that all children in substitute care, including those reared in residential homes, would be of normal ability; what was less certain was how the children would perform at school. The evidence from Vorria et al.'s (1998) study of children in Greek institutions was of underachievement, although, in the absence of IQ scores, the reasons for this remain uncertain. Stevenson & Fredman (1990) argued that research on the psychosocial correlates of reading often failed to take IQ into account. Likewise there are relatively few studies of the educational outcome of 'looked after' children that have taken cognitive skills into consideration.

'Looked after children' constitute a tiny minority of the school population (less than half a percent). Yet arguably for this vulnerable group of young people more than most, education is a 'passport to better chances in life' (Cheung & Heath, 1994; Quinton & Rutter, 1988). Although the early studies found an association between early institutional care and subsequent poor academic achievement (Goldfarb, 1945), it was not until the late 80's that any real attention was paid to the education of 'looked after' children (Jackson, 1987). The 90's saw a growth in research and government interest, and more recently national monitoring of the educational achievements of 'looked after' children has been introduced (DfES., 2004; Meltzer et al., 2003).

The evidence is worrying in at least two respects. Firstly their achievement is markedly lower than children who have not been admitted to care. Secondly this discrepancy gets greater across time (Fletcher-Campbell, 1997; Meltzer et al., 2003; DfES, 2004). 75% of 'looked after' children leave school without any qualifications at all (Department for Education and Employment (DfEE), 1999). Although more recent evidence suggests some improvement with just over a third (37%) gaining at least one GCSE/GNVQ. This still compares poorly though with the general population, where almost all children (94%) achieve this level (DoH, 2001). They are much more likely to have a statement of special educational needs (SEN), and their non attendance and exclusion rates are substantially higher than their 'non looked after' peers (Berridge, 1985; Berridge & Brodie, 1998; Social Exclusion Unit, 1998). These heightened rates are probably exacerbated by more frequent and possibly unplanned changes of school, occurring at inconvenient times, and associated with instability and placement moves.

A number of factors have found to be associated with this chronic level of underachievement. Instability in placement has frequently been found to be significant (Goddard, 2000); yet not insurmountable. Jackson & Martin (1998) for example found that the number of moves did not discriminate groups of 'high' and 'low' achievers'. Lack of support at all levels plays a part. Availability of materials, books, study areas and crucially, adults who are interested in and value education have all been found to be important. Such interest, if it is available, has been found to be associated with achievement. Supportive foster parents often play a key role and their significance is both recognised and appreciated by the young people concerned (Jackson & Martin, 1998).

Notably the 'high achievers' in Jackson & Martin's study were generally early readers and differed in this respect from the 'low' achievers. Yet the reason for this remains uncertain. The 'high' group may have been cognitively more able, and without controlling for IQ the significance of the psychosocial factors cannot be established (Stevenson & Fredman, 1990). As Rutter (2001) argued we need to move beyond the identification of risk indicators to understand the nature of risk mechanisms.

Identification of risk indicators is an important step in understanding why 'looked after' children underachieve. But knowledge of underlying mechanisms and mediating factors is crucial in understanding 'what works for whom'. A further aim of my study was to consider the educational attainment of the 'in care' children, as measured by their performance on a standardised reading test, taking IQ into account if necessary. The role of inattention and overactivity as a potential mediator in underachievement was also

investigated. This kind of approach rests on sensitive measures (see chapter 2) and the appropriate analysis of mediation (Baron & Kenny, 1988).

Standardised assessments allow comparisons to be made across situations, and hence were important in the comparison of the achievement levels of children in institutional and foster care in my study; none of whom were in the same class at school. However, they are unlikely to be measures of choice for large-scale studies. Government monitoring measures of school achievement of looked after children for example, rely on teachers' estimate of performance (Meltzer et al., 2003). Such measures are broadly useful for comparative purposes and considering the association between outcome measures, but cannot add to our understanding of underlying mechanisms.

Finally studies of the general population, rather than specifically 'looked after' children have shown the significance of individual schools in children's school adjustment and performance (Mortimore, 1995; Rutter, Maughan, Mortimore, & Ouston, 1979; Smith & Tomlinson, 1989). As an assumption of my design was that the children's schooling was comparable, this factor was investigated by comparing the adjustment levels of the matched control children from intact families.

In summary, this chapter considered relevant research and theoretical frameworks in relation to: attention difficulties, hyperactivity and ADHD; 'indiscriminate friendliness' and selectivity in social relationships; and intellectual functioning and educational achievement. These areas were the main focus of papers 1, 2 and 3 respectively that comprise the following chapter. A brief summary of aims and hypotheses addressed in each paper precedes each article.

Chapter 4: Papers

Paper 1:

Roy, P., Rutter, M., & Pickles, A. (2000) Institutional care: risk from family background of pattern of rearing? *Journal of Child Psychology and Psychiatry*, 41. 139-149

Aim: to determine the degree to which the psychopathological risks of children in care were a function of their adverse family back grounds or their patterns of rearing.

Hypotheses:

- Children in substitute care will have significantly higher rates of emotional/ behavioural problems compared with family reared peers who have never been admitted into care
- The rate of psychopathology will be related to the degree to which substitute care approximates 'normal' parenting in family situations
 - Children in institutional care will have higher rates of psychopathology than children in family foster care, who in turn will have higher rates of emotional /behavioural difficulties than children raised in their biological families.

In addition for the environmental mediation hypothesis the following assumptions are tested:

- Comparability of risk backgrounds
- Different rearing experiences

The validity of findings is assessed by testing for the following:

- Bias in raters
- Effect of school differences
- Cognitive differences / deficits

Institutional Care: Risk from Family Background or Pattern of Rearing?

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Previous research has shown that children receiving substitute parental care tend to have high rates of emotional/behavioural disturbance, but uncertainty remains on the extent to which this derives from genetic risk, adverse experiences before receiving substitute care, or from risks associated with substitute care experiences. In order to examine the effects of institutional rearing (as a specific form of substitute care), two groups of primary school children reared in substitute care from before the age of 12 months were compared: 19 children in residential group (institutional) care and 19 in continuous stable foster family care (matched for age and gender). The two groups were similar in coming from biological families with high rates of psychopathology and social malfunctioning, but differed with respect to pattern of rearing. Both groups were compared with classroom controls, using teacher questionnaires, systematic classroom observations, and standardised cognitive testing. Parental questionnaires were also obtained for the two substitute care groups. As found previously, the combined substitute care groups differed from controls in showing a high level of hyperactivity/inattention. The observational measures showed a similar effect, indicating that the elevated rate was not attributable to rater bias. The teacher questionnaire and observational measures showed, however, that the increased level of hyperactivity/inattention was substantially higher in the institutional group than the foster family group. Parental questionnaire ratings showed the same contrast between the groups, except that the main difference was on unsociability and emotional disturbance rather than hyperactivity/inattention. It is concluded that, against a background of genetic and early environmental risk, institutional rearing predisposes to a pattern of hyperactivity/inattention.

Keywords: Environmental influences, family factors, fostering, high-risk studies, hyperactivity, residential care, school children.

Societies have always had to have a means of caring for children when, for some reason, their own biological parents could not look after them (Rosenfeld, Pilowski, Fine, & Thorpe, 1997; Wolkind & Rushton, 1994). Traditionally, two main forms of substitute care have been employed (Kahan, 1995a, b). First, the children could be placed in residential nurseries, Group Homes, or orphanages in which care is provided by professional caregivers. Second, the children may be placed in private families in which the parents provide family foster care, usually with the recompense of a small direct payment to cover the costs of child care. Children in both these groups may subsequently be placed for adoption, and in an earlier era this might happen at a very early stage, although that would be rare now. Studies during the 1940s highlighted the high rates of emotional and behavioural disturbance, together with cognitive impairment, shown by many of the children being reared in institutions. Such findings led Bowlby (1951) in his World Health Organisation monograph, to conclude that children were seriously adversely affected by the absence of a close and continuous relationship with a caregiving adult. The research evidence available at that time was of rather

mixed quality, but the high rate of psychological problems shown by children in substitute care was clear. That finding has been amply confirmed by research of a higher quality undertaken over the last half century (Dinnage & Pringle, 1967; Murray, 1984; Prosser, 1978; Rosenfeld et al., 1977; Rutter, 1981; Triseliotis, 1989; Triseliotis & Russell, 1984; Wolkind & Rushton, 1994).

There has also been consistency in the types of difficulties most frequently found. Thus, Goldfarb (1945, p. 19) observed that the children in institutions: "more frequently showed problems such as restlessness, hyperactivity, inability to concentrate, lack of popularity with children, poor school achievement, fearfulness and excessive craving for affection". Similarly, Tizard and Hodges (1978) found that attention-seeking behaviour, restlessness, poor peer relationships, and disciplinary problems were the most frequently reported difficulties among children who had spent their early years in group residential care.

What has been more controversial, throughout the whole of the time since Bowlby's (1951) report, is the reason for this raised rate of psychological disturbance. On the one hand, it is clear that children who are taken into care tend to come from very troubled families with multiple psychosocial adversities (Schaffer & Schaffer, 1968; St Claire & Osborn, 1987; Wolkind & Rutter, 1973). Because of this, the high rate of emotional and behaviour problems shown later may be a consequence of vulnerability deriving from a combination of genetic risks

and seriously adverse experiences in early life. Thus, Vorria, Rutter, Pickles, Wolkind, and Hobsbaum (1998a, b) found that the rates of disturbance among institution-reared children were lower when the children had not experienced early family disruption, having been admitted to residential care primarily as a result of family poverty and difficult living conditions.

On the other hand, the psychopathological risks could derive, at least in part, from being reared in atypical circumstances that might carry risks and disadvantages. If so, it might be expected that the rates of emotional/behavioural difficulties would be higher among children being cared for in institutions rather than individual foster families. Long-term family fostering is designed to offer children continuity of substitute parent figures and an opportunity for deeper relationships within a family environment, whereas long-term institutional care tends to be associated with discontinuity of caregivers and shared care among many staff, none of whom has an exclusive caregiving relationship with individual children (Tizard & Hodges, 1978; Tizard & Rees, 1975). There is some evidence to suggest that children in family foster care may fare somewhat better than those in group residential care (Rowe, Cain, Hundleby, & Keane, 1984; St Claire & Osborn, 1987); nevertheless, children in long-term family foster care have been found to have more emotional/behavioural problems than the general population and more than adopted children (Bohman, 1971, 1990; Rowe et al., 1984). Long-term fostering differs from adoption in terms of its temporary nature and it is possible that, as a result, the children may have uncertainties and anxieties about their future (Triseliotis, Sellick, & Short, 1995). It is difficult, however, to draw firm conclusions because the backgrounds of the children have not been directly comparable and because many of the children in family foster care have had previous experience of group residential care. A further limitation is that almost all studies (with the exception of Vorria et al., 1998a, b) have relied on ratings by either teachers or caregivers rather than direct observations. Accordingly there must be some uncertainty on the extent to which the findings have been influenced by the expectation of raters.

The present study was planned to determine the degree to which the psychopathological risks for children received into care were a function of their adverse family background or their pattern of rearing. To answer this question, it was necessary to compare children receiving group residential care in institutions and children receiving substitute care in individual foster families. Both groups were compared with children reared in their biological families. Five key considerations shaped the design of the study. First, it was necessary to eliminate the possibility that the children had been taken into substitute care as a result of their own emotional and behavioural difficulties that pre-existed before being taken into care. This was achieved by restricting both substitute care groups to children who had been taken into care during the first year of life. The same design feature also meant that the duration of adverse experiences in the biological families prior to substitute care was necessarily relatively short. Second, it was necessary to check that the biological backgrounds of the children in the two groups were comparable.

Third, in order to focus on the contrast between group residential care and family foster care, it was necessary to ensure that both groups remained in this situation from at least the first year onwards. Thus, both groups of

children in substitute care had remained in the same type of care from under the age of one year. Fourth, in order to check on possible rater biases, standardised observations at school were undertaken in addition to the use of ratings from standardised questionnaires and interviews. Finally, individual cognitive assessments were undertaken in order to check the extent to which any developmental differences found might be a consequence of cognitive deficits.

Methods

Sample Selection

Nineteen primary school children who had been placed in one of 14 Group Homes under the age of 12 months constituted the "institutional care" group. There were two target children in five of the homes, with one child only in each of the other nine homes. Four of the homes were in inner London, ten in parts of the South-East, and five in other counties in England. The only restriction placed on sampling was that the children were in mainstream schooling rather than in some form of special school or class.

The same number of children (stratified for ethnicity and individually matched for age and gender) were selected from those placed on a long-term basis with foster families. The children had to have been placed with that foster family from under the age of 1 year, and have remained there since that time. All the children were in different foster families. Ten institutional children and two foster family children attended the same primary school as one other child in their group, but in no case were the children in the same class. Eight of the foster families lived in inner London, 10 in south-east England and 1 in the Midlands. In each of the two groups, eight children were Caucasian, six were Afro-Caribbean, and five were of mixed ethnicity. Each group had 12 boys and 7 girls. The mean age in the institutional group was 80.4 months and in the foster family group it was 80.6 months.

Control children of the same gender were selected from the school classes attended by the institution and foster family children, taking the child in the class who was nearest in age. The only restriction was that, to the best knowledge of the school, the control children had not been received into substitute care during their lives. The mean age of the institutional control group children was 79.8 months; for the foster family children it was 81.3 months. One child chosen as a control for the institutional group left unexpectedly at the end of term and he was replaced by the child nearest in age in the same class. Because the choice of children in the control groups was constrained by their being in the same school classes as the institution and foster family children, it was not possible to equate for ethnicity. Only one control child was other than Caucasian. Accordingly, when comparing the combined institution or foster family groups with their controls, it was necessary to examine possible ethnicity effects.

Because both of the substitute care groups were deliberately chosen on the basis that the children had received continuity of placement, neither was representative of children in substitute care, where it is very common for there to be multiple changes in care. Two out of the three voluntary societies who were approached agreed to participate and three quarters of the Social Service departments contacted agreed to participate. Because of the requirement for both early placement and continuity in care, the number of children available was rapidly diminishing, not least because of the closure of residential nurseries and active discouragement of placement of infants in institutional care. Hence sampling done at that time offered a unique opportunity to study the effects of both early and continuous substitute care. Exhaustive searches produced a sample of 22 institutional children and 21 matched foster family children. Data were obtained on 19 in each group (1 child was excluded because of placement in a remedial class, 1 because of an imminent change in placement and three because either

teachers or social workers were unwilling for the children to participate).

Teacher questionnaires were completed for all children in the samples and, similarly, observational data were available for all children. Resource limitations meant that although psychological testing was undertaken with both of the substitute care groups, it was possible to undertake testing only for the controls for the foster family sample. All control parents but one agreed to the psychometric testing. A substitute child was selected in that case.

Social Casework Files

The complete social work case files were available for all children in substitute care. This included descriptions of the parents, of family features, and of children's experiences that had been taken into account in deciding if the children should be taken into care. There was inevitable variation, however, in both the amount of detail available and in the quality of the information available. This ranged from relatively sparse information to as many as four or five files on children from families with multiple problems, particularly where other children in the family had also been taken into care. Details about the qualities of the parents and the children's early experiences, were abstracted, with deletion of all identifying descriptions about the children's current placements. Blind ratings of these case histories were undertaken by MR with respect to criminality, psychotic disorder, and pervasive/persistent social malfunction. Most of the criminal convictions recorded in the case notes were severe and of the 22 parents with convictions, 12 had received a prison sentence. The psychiatric details in the case notes were insufficient for firm diagnoses but most of the psychotic disorders appeared to be either schizophrenic or schizoaffective in form. Pervasive/persistent social malfunction was rated on the basis of a combination of chronic childhood neglect or abuse, a failure to maintain employment as a result of the parent's own behaviour (i.e. being dismissed or walking out after arguments), seriously impulsive behaviour over a range of settings, an inability to cope with day-to-day responsibilities, and chronic abuse of alcohol or drugs. Finally, a three-category composite measure was derived according to whether either of the parents showed criminality, psychotic disorder, or pervasive/persistent social malfunction. Information in the case notes was also abstracted on the children's experiences during the period before placement, as well as the amount of contact with natural parents after placement. Details of the number and type of placements was also recorded.

Psychometric Testing

The institutional, foster family, and matched foster family control groups were administered the Wechsler Intelligence Scale for Children (Wechsler, 1949) and the Neale Analysis of Reading Ability (Neale, 1966).

Behavioural Questionnaires

Rutter B2 teacher questionnaires (Elander & Rutter, 1996; Rutter, Tizard, & Whitmore, 1970) were forwarded to schools for completion by teachers before the first school visit and classroom observation. The parallel parental A2 scale was forwarded to the group care homes and foster families for completion by caregivers at the same time. Teacher questionnaires were available on all groups of children but parental questionnaires were not obtained for the control children. The cutoff score of 9 or more was used for the teacher questionnaire and of 13 or more for the parent questionnaire. Conduct disturbance and emotional disturbance subscores were calculated using the standard procedures (Elander & Rutter, 1996). A hyperactivity score (Schachar, Rutter, & Smith, 1981) was

assessed on the basis of three items: (1) very restless, has difficulty staying seated for long; (2) squirmy, fidgety child; (3) cannot settle to anything for more than a few moments. Hyperactivity was regarded as present if the score was 3 or more. An "unsociability" score was assessed on the basis of three items: frequently fights with other children, not much liked by other children, and tends to do things on own, rather solitary. The same items made up the "hyperactivity" and "unsociability" subscores on the teacher and parent scales.

Interviews (Home/School)

Interviews were conducted with both caregivers and teachers to gain information either about areas that could not be assessed by other measures (i.e. questionnaires/direct observation) or as an internal validity check. A range of topics was covered but so far as the present paper is concerned data on the following areas were analysed: early placement history, family/home size, continuity of institutional staff, parental contact, and control children's family background and parental occupation.

Direct Classroom Observations

Nonparticipant classroom observations of the children were made to assess their behaviour at school and were used as an independent measure to validate teachers' ratings. Completed teacher behavioural questionnaires (B2 scales) were not examined until after the first observation period. The institutional sample and their control groups were observed for 2 days initially, and for 1 day during follow-up in the summer term of the year of study. The foster family group and their matched control were observed for one day only. Systematic observation of the task and social behaviour of both target and matched control children were made using a schedule developed for the purpose. (Task: 5 second observe/record; Social: 10 second observe/record). The data analysed spanned an hour of the first day's observation of time spent in the classroom involved in formal activities (i.e. excluding such activities as assembly and PE). The observations were restricted to times when the children were working either without any direct supervision on formal tasks or the teacher was instructing a group/class as a whole. They exclude periods such as preparatory activities, waiting, or activities involved in general classroom management.

One of the main purposes of this paper was validation of teachers' ratings. Behavioural categories were required that not only met the criteria for direct observation—i.e. have observable characteristics that can be objectively, unambiguously and completely defined (Hawkins & Dobes, 1977)—but also tapped comparable items on the teacher questionnaire. This precluded a number of items where judgements were based on incidents occurring more frequently outside the classroom (e.g. bullying and fighting) or those dealing with emotional problems (e.g. frequently worries). The "hyperactivity" subscore had the dual advantage of being composed of items that were both amenable to direct observation and that previous research have found to be characteristic of children who had spent periods in long-term institutional care.

Previous studies have shown that the three items that constitute the hyperactivity factor have predictive and concurrent validity. Schachar et al. (1981) found that this factor predicted later developmental outcome and Taylor, Sandberg, Thorley, and Giles (1991) found agreement with independent clinical assessment, using measures from both parent and teacher ratings. The two composite measures, "inattention" and "hyperactivity" were composed of separate observational categories including attention off main task, gazing around or into space, self-vocalisations, and nonproductive play with objects unrelated to main activity, with the additional category of gross bodily movement as a measure of fidgetiness and

Table 1
Characteristics of Biological Parents

	Group (%)		<i>p</i> value
	Institution <i>N</i> = 19	Foster <i>N</i> = 19	
Natural parent(s)			
Criminality			
One/both parent(s)	58	37	.2
Psychotic disorder			
One/both parent(s)	21	11	.66
Social malfunctioning			
One/both parent(s)	32	68	.02
Composite measure			
No abnormality	37	16	.11
One index only	21	53	
Two or more indices	42	32	

Institution = children in Group Homes; Foster = children in individual foster families.

restlessness for "hyperactivity". Measures were restricted to those more under the children's control than the teachers'. Hence moving around the room, for example, was affected by teachers' management style. In some classrooms the expectation was that children would go to the teacher either for help or on task completion, whereas other teachers encouraged the children to remain seated until they went to them. Some teachers would limit the number of children in a queue at any one time and in other classes children might wait relatively long periods before being seen.

Inter-rater reliability of the direct observation categories, based on 300 observation periods for 5 children, was determined. The Kappa reliability of the individual categories used in the composite measures ranged from .79 to .98.

Statistical Analyses

Analyses were undertaken using STATA Version 5 (StataCorp, 1997) and SPSSv7.5 (SPSS, 1996). Where necessary, prior to analysis, all outcome variables were square-root transformed to approximate normality. The matching of institutional care and foster children, together with their respective controls, resulted in sets of correlated measurements. To account for the within-set correlation in the analysis we made use of methods for correlated data, primarily the generalised estimating equations (GEE) approach (Liang & Zeger, 1986), as implemented in XTGEE (StataCorp, 1997, Volumes P-Z). Models were specified with unstructured working correlation matrices to allow measurements within each matched set to be arbitrarily correlated, and robust standard errors were used to allow for differences in variance for the different types of child. For normally distributed data this specification is equivalent to the more traditional multiple analysis of variance (Hand & Taylor, 1987), but the GEE approach is more flexible.

For comparisons across cases and controls, the measurements were treated as correlated sets of four (institutional, control, foster, control). Where the focus was on comparing institutional and foster children within the case group, the measurements were treated as correlated pairs (institutional, foster) and, when required, the score corresponding to the control child for each member of a pair was introduced as a covariate. Chi-squared tests or Fisher's exact test were used for categorical comparisons in Table 1 and matched pairs *t*-tests were used for direct within-group comparisons of controls in Table 3. All other tests are Wald tests with 1 *df* unless otherwise specified. All *p*-values are two-tailed.

Results

Comparability of Groups on Biological/Social Background

Comparisons of ratings of disorder and deviance of the "in care" children's natural parent(s) were made to determine whether or not biological disadvantage and risk was more prevalent in either the institutional or family foster group. None of the children, either institutional or foster, came from families free of stress and chronic disadvantage. The "no abnormality" category in Table 1 referred strictly to the three severe indices used (criminality, psychotic disorder, and pervasive/persistent social malfunction). It applied to only about one in six of the family foster group and one in three of the institutional group. There was little evidence of selective placement in terms of social workers' knowledge of parental deviance or psychopathology (see Table 1). The only significant group difference was for the measure of pervasive and persistent social malfunctioning, where parents of foster children were more likely to show pervasive/persistent problems. There was a nonsignificant tendency in the opposite direction for criminality and psychoses. Overall the between group differences in the children's backgrounds were both relatively small and inconsistent across indices.

Comparability of Groups on Experiences in the First Year of Life

Presumably because of the extremely disturbed family circumstances of most of the children in both substitute care groups, few of the children had spent much time with their biological parents during the first year of life. A quarter in both groups had never lived with their parents at all and about a further third (32% of the institutional group and 42% of the foster family group) had spent 3 months or less in the biological home. The mean duration of time with the biological parents in the first year was 3.2 months for the institutional group and 2.6 months for the foster family group.

The two groups also did not differ in terms of the number of placements in the first year of life, the differences being slight and statistically nonsignificant. About half the children had one placement only (58% of the institutional children and 42% of the foster family children) and about a quarter had had three or more placements (26% of the institutional group and 21% of the foster family group). There was some tendency for the biological parents of the children placed in foster care to have been more likely to have abandoned their babies or placed them with a view to adoption (7 vs. 2). Conversely, there was a slight tendency for more of the children placed in institutions to have siblings who had also been placed in some form of substitute care (10 vs. 6). Both differences fell well short of statistical significance. However, the two groups did differ with respect to the nature of the placements during that first year of life, which showed a strong continuity with their circumstances at the time of selection. Thus, two thirds of the institutional group (68%) had exclusively institutional placements and a quarter (26%) had a combination of institutional and short-term foster family placements. By contrast, most of the foster family group (84%) had only short-term foster placements and the remaining children had experienced a combination of institutional care and foster families. Although the reasons for the choice of initial

Table 2
Size of Rearing Group

Number of children in unit/family	Group (%)			
	Institution <i>N</i> = 19	Foster <i>N</i> = 19	Institution control <i>N</i> = 19	Foster control <i>N</i> = 19
1			5	11
2-3		26	58	68
4-5		37	37	21
6-7	26	37		
8-16	74			

placement by Social Services are not at all clear, it seems that that choice did tend to set the pattern.

Comparability of Groups on IQ

Because of associations between IQ and both conduct disturbance and, especially, hyperactivity (Rutter, Giller & Hagell, 1998), it was necessary to check whether the two substitute care groups differed in measured IQ. They did not; the mean score for the institutional group was 108.3 (*SD* = 13.3) and for the foster family group it was 105.9 (*SD* = 12.5). Nevertheless, the very small difference in IQ between the two groups was examined in relation to the behavioural findings to determine whether or not it made any difference.

Group Differences on Rearing Experiences

Having shown that the two groups were closely comparable in terms of biological background and the amount of contact with biological parents in the first year of life, it was necessary to go on to test the expectation that the two groups were markedly different in terms of their experiences after 12 months of age. The foster family children, by design, had had one placement only after this age, but this was true for only a third (32%) of the institutional group. Nearly half (47%) had had two institutional placements and a fifth (21%) had experienced three.

By research design, the children in the foster family group had remained with the same foster parents and had, therefore, received continuity in individualised caregiving. Institutional care differed with respect to both the pattern of care-giving and the degree of continuity. Thus, just over half the institutional group (53%) had been cared for by five or more members of staff on a roster basis. Only 2 of the 19 institutional children had had the same house mother throughout. All the institutions had at least one key staff change during the previous 2 years and nearly half had four or more staff who had left during the same time period. Nevertheless, there was some continuity, in that all the institutions had at least one staff member who had been there for 2 years or more.

As expected, group residential care was characterised by rearing in a relatively large unit (Table 2). In no case was this less than five children and in three quarters the unit involved at least eight children. In keeping with general population norms, in both the control groups most of the children were in family units of three children or less and there were no children in a sibship size greater than five. The foster family group was intermediate, with

over a third (37%) in a family with six or seven children, but none in a group exceeding that.

Although the children in foster families experienced much greater individualised care and much greater continuity in caregiving than the institutional group, there was nevertheless much more family change than would be ordinarily expectable in a biological family. Thus, in only 7 of the 19 foster families were there no entries into the families of new foster children during the time the target children were in the home. In 12 of the 19 families other children had been fostered or child-minded for short or long periods. In 6 families a very large number of children had been looked after for short periods (in 1 family this amounted to some 80 children) since the target child had been taken into their care. Also, in one case a 6-year-old girl had been returned to her natural parents, causing much heartbreak in the family. Thus, although caregiving showed substantial continuity, there was considerable discontinuity in the sib group. This was, nevertheless, much higher in the institutional group. All of the children in group care had experienced at least one child coming or going during the previous years and in two cases six or more children had come and gone over the course of the year.

All of the foster parents had natural children of their own. In the majority of cases (74%) the natural children were older than the target foster child. One family had fostered and adopted children (thinking they were infertile) but had since produced three children of their own, all less than 5 years of age. The age range of children in the foster families was large, with at least a 9-year age span between the oldest and youngest, in 14 out of the 19 families. In 7 of the 19 the span was at least 15 years. The age range of the children from the institutions was, however, comparable, although not quite so wide, spanning 5 to 13 years.

In neither of the substitute care groups was there much regular contact with the biological parents. Only two children in the institutional group and two in the family foster group saw their mothers at least monthly, and a further two institutional children saw their fathers at similar intervals. The two groups did differ, however, in the extent to which there was any contact with biological parents. More than half of the foster family children (58%), as compared with a quarter of the institutional children (26%), had *never* seen their fathers. During the preceding year, only 3 foster family children had had contact with their biological mother, as compared with 12 institutional children. This probably reflected the fact that the assumption in long-term foster arrangements was that the children were unlikely to return to the biological parents, whereas for those placed in institutions, there was sometimes a hope that they might return at some point. The contacts with the biological families were rather unsatisfactory, however, in that they were not only infrequent but they were inconsistent and sometimes associated with distress in the children.

It may be concluded that, as assumed in the research design, the institutional care and the family foster care groups did, indeed, differ markedly in their pattern of rearing. The institutional group were in much larger units, had less personalised caregiving, experienced more changes of caregivers, had more children coming in and out of the rearing setting, and were more likely to have some contact with their biological parents, although this was almost always infrequent, inconsistent, and sometimes upsetting.

Table 3
Observed Hyperactivity and Inattention in the Classroom Control Groups

Observation measures	Groups				
	Inst. control (N = 19)		Fost. control (N = 19)		Inst. control/ Fost. control <i>p</i> value
	Mean	(SD)	Mean	(SD)	
Inattention	36.6	(15.8)	37.0	(21.2)	.94
Hyperactivity	38.5	(16.1)	45.9	(25)	.24

Inst. control = institutional control group; Fost. control = foster family control group.

Comparability of the Two Control Groups

Inevitably, the two substitute care groups did not live in precisely the same geographical areas, and did not attend the same schools. Accordingly, before comparing the two groups, it was necessary to check whether, by chance, these variations might have introduced a bias. This could be checked by comparing the two control groups, because these were selected on the basis of the children being in the same school class. If the two substitute care groups happened to be in schools that differed in their overall degree of disruptiveness or if they differed in terms of teachers' styles of ratings, this should be evident in the comparison between the two control groups. The teachers only had limited information on the family backgrounds of the control children but, on the information provided, the two seemed generally comparable. Thus, 6 of the 19 control children for the institutional group and 4 of the 19 controls for the family foster group were thought to have experienced some family instability.

The observational measures of both inattention and hyperactivity showed the two control groups to be closely comparable (see Table 3). The teacher questionnaire scores also showed no significant differences between the two control groups. Thus the mean hyperactivity and unsociability subscores of the institution and foster family control groups were 0.89 and 0.53, and 0.47 and 0.53 respectively, with differences falling far short of statistical significance.

The findings show close comparability between the two control groups. Thus, there is no reason to suppose that the two substitute care groups differed with respect to the overall level of disruptiveness in the schools that children attended. Findings also indicate that the two control

groups could be pooled for comparison purposes when dealing with the substitute care sample as a whole (as in Table 5).

Emotional/Behavioural Disturbance in Children Experiencing Substitute Care

Before proceeding to compare the two substitute care groups, it was necessary to check whether, in line with previous research, our sample of children receiving substitute care showed elevated levels of emotional or behavioural difficulties. Most studies have relied heavily on teacher ratings and those for our own sample are provided in Table 4. As expected, the level of emotional/behavioural difficulties was substantially higher in the substitute care groups as compared with controls. Again, in keeping with previous research, the main difference applied to hyperactivity and unsociability, with a possible difference on conduct problems but no difference on emotional difficulties. In order to check whether the findings might have been affected by the difference between the groups in ethnic composition, the effects of ethnicity on psychopathology were examined within the pooled institutional care and foster family care group. The Caucasian children and children from ethnic minorities did not differ significantly with respect to the mean total teacher scale score (7.81 vs. 7.77), hyperactivity score (2.44 vs. 2.05), or unsociability score (1.00 vs. 1.18), or the two observational measures of inattention/hyperactivity (mean scores of 58.45 vs. 48.46 and 68.06 vs. 55.93). Although the observational means appear rather different, the standard deviations within the "in care" group are very large (see Tables 5 and 8). A comparison within ethnic minorities of those from an Afro-Caribbean background and from other backgrounds similarly showed no substantial or statistically significant differences. The case-control differences for Caucasian children only were essentially the same as those for the total groups. It was concluded that the findings were not a function of the ethnic differences between the groups.

The validity of these ratings was checked through comparisons with the observational measures. Both inattention and hyperactivity were observed more frequently in the substitute care groups than in controls (Table 5).

Validity could also be checked by looking at the correlations within the substitute care groups, between the observational measures of inattention and hyperactivity and the teacher questionnaire ratings for both hyperactivity and overall levels of emotional/behavioural disturbance. The Spearman rho correlations ranged

Table 4
Teacher Questionnaire Scores for Combined Groups

B scores and subscores	Combined "in care" (N = 38)		Controls (N = 38)		Case vs. control <i>p</i> value
	Mean	(SD)	Mean	(SD)	
Total B score	7.8	(7.4)	3.8	(4.8)	.06
Conduct score	1.7	(2.5)	0.9	(1.8)	.13
Emotional score	1.0	(1.4)	1.0	(1.3)	.83
Hyperactivity score	2.2	(2.4)	0.7	(1.4)	.003
Unsociability score	1.1	(1.4)	0.5	(1.1)	.07

Table 5
Observation Measures for Combined "In Care" Groups and Controls

Observation measure	Groups				
	"In care" (N = 38)		Control (N = 38)		"In care"/Control
	Mean	(SD)	Mean	(SD)	p value
Inattention	52.7	(31.9)	36.8	(18.5)	.001
Hyperactivity	61.0	(34.6)	42.1	(21.1)	.001

Table 6
Observational Measures for Children with High and Low Hyperactivity on Teacher Questionnaires

Observation measure	Low hyperactivity ^a (N = 57)		High hyperactivity ^b (N = 19)		p value
	Mean	(SD)	Mean	(SD)	
Inattention	35.6	(19.0)	72.1	(29.7)	.001
Hyperactivity	41.2	(21.2)	82.8	(31.4)	.001

^a Score of 0-2.
^b Score of 3+.

between .60 and .65, with statistical significance at the .001 level or better. The question of validity of teacher ratings could also be examined categorically by determining whether the children with hyperactivity scores of 3 or greater differed on observational measures from those with lower scores.

Highly significant differences were found with respect to both inattention and hyperactivity (see Table 6). A similar degree of differentiation was found for the total teacher questionnaire score, as would be expected from the high intercorrelation (.81) between the total score and the hyperactivity subscore.

Comparison of Institutional and Foster Family Groups

The group of children in institutions showed levels of disruptive behaviour and hyperactivity on the teacher ratings that were both substantially greater than controls and also greater than those in the foster family group (see Table 7). The children in foster families tended to have slightly raised levels of hyperactivity and of general disturbance but to a much lesser degree than those seen in the institutional children, the differences from the control group being statistically nonsignificant. Comparison on categories provided a closely similar picture. Thus 58% of the institutional group but only 26% of the family foster group had hyperactivity scores of 3 or more, the comparable figure for the pooled control group being 8%. The rate of hyperactivity was significantly elevated in the institutional group ($p = .002$) but not in the foster family group ($p = .18$). The same pattern applied to total scores on the teacher questionnaire of 9 or more, with the proportion being 53%, 32%, and 8% in the institution, foster family, and control groups respectively.

The observation measures showed much the same (see Table 8). On both inattention and hyperactivity, the mean scores were significantly higher in the institutional group than in the foster family group.

A further check on the validity of the differences

Table 7
Comparison of Institutional and Foster Family Groups on Teacher Questionnaires (Before and After Adjustment for Control Groups and Measured IQ)

	Institutional (N = 19)		Foster (N = 19)		I vs. F ^a	I vs. F (adj. C) ^b	I vs. F (adj. C/IQ) ^c
	Mean	(SD)	Mean	(SD)	p value	p value	p value
Total score	9.9	(8.1)	5.7	(6.3)	.04	.07	.08
Conduct	2.4	(3.0)	1.1	(1.9)	.06	.05	.07
Emotional	1.0	(1.1)	1.0	(1.6)	.67	.84	.77
Hyperactivity	3.0	(2.3)	1.4	(2.3)	.003	.005	.002
Unsociability	1.3	(1.3)	0.9	(1.6)	.12	.10	.09

^a I: institutional group; F: foster family group.
^b Adj. C: adjusted for control groups.
^c Adj. C/IQ: adjusted for control groups and IQ.

Table 8
Comparison of Institutional and Foster Family Groups on Observational Measures (Before and After Adjustment for Control Groups and Measured IQ)

Observation measure	Institutional		Foster		I vs. F	I vs. F (adj. C)	I vs. F (adj. C/IQ)
	Mean	(SD)	Mean	(SD)	p value	p value	p value
Inattention	62.8	(33.8)	42.5	(27.1)	.01	.04	.02
Hyperactivity	68.1	(36.7)	54	(31.9)	.15	.11	.05

For abbreviations, see Table 7.

Table 9
*Comparison of Institutional and Foster Family Groups on Parental Questionnaires
 (Before and After Adjustment for Measured IQ)*

Parental questionnaire scores	Institutional		Foster		I vs. F	I vs. F
	Mean	(SD)	Mean	(SD)	<i>p</i> value	(adj. IQ) <i>p</i> value
Total score	15.1	(8.8)	7.7	(5.5)	.001	.001
Emotional subscore	3.2	(2.4)	0.9	(1.3)	.001	.001
Unsociability subscore	1.4	(1.5)	0.4	(0.6)	.006	.007
Conduct subscore	3.0	(3.1)	1.6	(1.6)	.3	.28
Hyperactivity subscore	2.0	(2.1)	1.3	(1.6)	.25	.26
Combined hyperactivity subscore across parent and teacher scales	5.0	(3.9)	2.7	(3.1)	.02	.01

For abbreviations, see Table 7.

Table 10
*Observational Scores for Situational and Pervasive Disturbance on Parent and Teacher
 Questionnaires*

Observation measures	No disturbance (<i>N</i> = 17)		Disturbance home only (<i>N</i> = 5)		Disturbance school only (<i>N</i> = 7)		Disturbance home & school (<i>N</i> = 9)		<i>p</i> value (3 <i>df</i>)
	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)	
Inattention	38.3	(30.5)	40.2	(17.9)	61.0	(25.4)	80.3	(27.4)	.007
Hyperactivity	43.4	(30.7)	47.6	(15.5)	75.8	(32.5)	90.4	(28.6)	.002

between the institution and foster family groups was provided by caregiver ratings on the Rutter parent questionnaire (Table 9). These were similar to the teacher questionnaire ratings in showing that emotional/behavioural problems were at a much higher level in the institutional group than in the foster family group. Findings differed, however, in the pattern of difficulties. The between-group differences were most evident with respect to emotional difficulties and unsociability. Those for conduct problems and hyperactivity were in the same direction, but fell well short of statistical significance. Categorical comparisons gave the same answer; thus more than half the children in the institutional group (58%) had total questionnaire scores above the cutoff of 13, compared with one in six (16%) of the foster family group. The difference between the two substitute care groups was most strikingly evident with respect to problems that were present at both home and school. Thus, 8 out of the 19 children in the institutional group (42%) had scores above the cutoff on both parent and teacher questionnaires, compared with only 1 (5%) in the foster family group ($p = .02$).

The observational measures showed that inattention and hyperactivity were most evident in the children showing disturbance both at home and at school. Hyperactivity and inattention were, however, no more frequent among the children showing disturbance only on the parental scale than they were in those who showed disturbance on neither scale.

Discussion

The starting point for our study was the finding from numerous previous studies that children receiving substitute care show a much increased level of emotional/

behavioural disturbance. We found the same. The differences from the control group were most striking, however, with respect to hyperactivity/inattention. There is a need, therefore, to focus on this particular pattern of difficulties. Most previous studies have had to rely on parent or teacher ratings, or a combination of the two, with uncertainty as to whether rater expectations might be playing a part in the findings. Our study showed, through the use of observational measures, that the findings were not an artefact of rater bias. Children in substitute care showed substantially increased rates of hyperactivity and inattention as observed in the classroom.

The key question for which the study was designed was whether the increased rate of disturbance, and especially hyperactivity/inattention, was a function of the children's biological background or experiences before being taken into substitute care, or rather their pattern of rearing whilst in care. In order to tackle that question, we compared children of primary school age who had received group care in institutions from at least the first year of life with children who had been placed at the same age in long-term foster family care and who had remained there. In order to contrast the possible effect of pattern of rearing and biological risk or experiences before entering substitute care, certain design features were essential. Thus, we checked whether the two groups differed in terms of biological background and family disruption in the first year of life. Both groups of children came from extremely troubled families, but they did not differ in this respect. None of the children came from homes that could remotely be described as normal and most of the parents showed pervasive/persistent social malfunctioning or criminality or psychosis or some mixture of the three. Accordingly, both the substitute care groups

must be regarded as having come from high-risk biological backgrounds. This is likely to have involved some degree of adverse experiences in the family prior to being received into substitute care. By design, the duration of adverse experiences prior to receiving substitute care was short. In no case did it last longer than a year; the mean age at which the children left the biological family was about 3 months and a quarter of the group had never lived with their biological parents, being placed directly from the maternity hospital. The substitute care children were therefore rather unusual in their short exposure to psychosocial adversities before entering substitute care. They did not differ, however, in that respect.

The design assumed that the patterns of child-rearing would be different in residential institutions from that in foster families. Findings showed that there were indeed major differences. Not only were the institutional group in much larger units, but they were less likely to have individualised caregiving, and they experienced more turnover of caregivers, and more changes in the group within which they were being reared (through other children coming and going from the unit). The institutional group were also more likely to have had some contact with parents but it seems unlikely that this was a protective feature in that the contact was almost invariably infrequent, inconsistent, and often associated with distress. It has rightly been argued that it is valuable for children in substitute care to maintain contact with their families if there is any realistic chance of their returning home (Berridge, 1997; Millham, Bullock, Hosei, & Haak, 1986; Wolkind & Rushton, 1994). On the other hand, it does not seem likely to have been helpful to have had an unpredictable contact with the parents at a frequency of less than twice a year. It may be concluded that the two patterns of rearing were sufficiently different to make the comparison between them worthwhile. On the other hand, although the foster family group were selected in a way that provided for continuity, it is noteworthy that a substantial number of the children experienced a degree of family discontinuity resulting, not from changes in parents, but from the number of other children coming in and out of the family as a result of short-term fostering. It is possible that it may not be desirable to combine long-term and short-term fostering.

Having shown that the two substitute care groups were closely similar in background but markedly different in pattern of rearing, it was possible to compare the two groups directly. Findings were consistent in showing that the children in the institutional group had much higher levels of hyperactivity/inattention (and a possible increase in unsociability) compared with both the children in foster families and the controls. The difference was as evident on observational measures as it was on teacher measures. Parental questionnaires showed a similar between-group difference but the differences were more likely to be evident on unsociability than on hyperactivity or disruptive behaviour.

We conclude that, to a very considerable extent, the high level of hyperactivity/inattention found in so many children being reared in institutions is likely to be a function of their pattern of rearing rather than their biological background or experiences in early infancy. Of course, it cannot be assumed that the same would apply in a group of children who were not also at high risk in terms of their biological background. The sample of children in substitute care must be regarded as being a highly vulnerable group. The findings of Vorria et al.

(1998a, b) suggest that although institutional rearing has adverse effects, it may have such effects only when combined with biological risk. The findings are important, we suggest, both because they point to the importance of patterns of rearing on psychopathology, but also because of the implications for the provision of substitute care. The large spread of scores within the "in care" groups (larger than in controls) emphasises, however, that the rearing experiences did not lead to a uniform pattern. The reasons for the individual differences remain to be explored.

None of the differences between the foster family group and their controls was statistically significant but there was a consistent tendency for these children to show slightly higher levels of the same sort of disturbance seen in the institutional group. A much larger sample would be required in order to determine whether this apparently increased level of difficulty is real. If real, it could derive from either biological (including genetic) risk, from adverse experiences in early infancy, or from aspects of rearing in foster families that were disadvantageous. Our findings cannot differentiate between these possibilities.

The present study provides an advance over previous research both in terms of the much better comparability of the groups being studied and the availability of observational measures. For the reasons given, confidence can be placed on the validity of the findings as obtained for the samples studied. There is the strong inference that patterns of rearing provided a decisive and important influence on psychopathology, with particular respect to hyperactivity and possibly unsociability. There are, nevertheless, some limitations that require emphasis. First, the sample selection criteria may have resulted in an underestimate of the level of disturbance among children reared by foster families. That is because if children who developed behavioural difficulties during early childhood were excluded from the foster family and moved to an alternative placement, they would not appear in this sample. The level of selective loss of such children would, however have to be very high to account for the differences between the 5% of children in the foster family group with pervasive disturbance and the 42% found in the institutional group. It seems likely that the rate of breakdown in long-term fostering for children placed as babies (a mean age of 2.6 months in our sample) would be lower than that for children placed as toddlers but, unfortunately, no U.K. data on this point are available. Also, previous research, although less well controlled, has been consistent in showing that rates of disturbance in institution-reared children tend to be substantially higher than those of children reared in foster families. Our estimate of level of disturbance in the foster family group may be slightly too low but it is implausible that the difference between the two groups is anything other than real.

Second, the findings apply to a group of pre-adolescent children and it is not known how far the differences found would persist as the children grow older. Third, the findings apply strictly to a group that came from extraordinarily disturbed families, with the implication that they are likely to be at genetic risk. As judged by other evidence (Rutter, Giller, & Hagell, 1998) it is quite likely that this will have made them much more susceptible to the ill-effects associated with adversities of rearing. It cannot be assumed that the same would apply to children reared in institutions but without such biological risk. Finally, further research is required in

order to establish the nature of the abnormalities associated with institutional rearing. It cannot necessarily be assumed that the pattern of hyperactivity/inattention found in these children has the same meaning as the diagnosis of hyperkinetic/attention deficit disorder found in other children. It is striking, for example, that although the rates of disturbance as assessed by parental questionnaire were equally high, the particular problems reported did not especially concern hyperactivity/inattention. It may well mean that the nature of the problems differs from that associated with the traditional diagnostic categories of attention deficit and hyperkinetic disorders.

Although there is much still to learn about the nature of the difficulties seen in this group of institution-reared children, it is important to recognise the challenges to policy as well as to theories of child development. Our findings are consistent with the conclusion of Triseliotis et al. (1995) that long-term fostering may provide substantial benefits for children when parenting by biological parents has broken down irretrievably. Nevertheless, our findings are also consistent with those of long-term follow-up studies (Quinton & Rutter, 1988; Triseliotis & Russell, 1984) that residential group care has many disadvantages for children who are placed there when very young. What is less clear is quite which aspects of residential care carry the benefits and which carry the risks. It seems highly likely that the major discontinuities in individualised caregiving constitute part of the risk (Rutter, 1981; Rutter & O'Connor, 1999) but it may also be that stigma and prejudicial attitudes towards children reared in institutions may play a significant role (Triseliotis & Russell, 1984; Vorria et al., 1998a, b). The mechanisms that mediate psychopathological risk require further study.

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Paper 2

Roy, P., Rutter, M., & Pickles, A. (2003) Institutional care: Associations between overactivity and lack of selectivity in social relationships. *Journal of Child Psychology and Psychiatry*, 44. 1-8.

Aim: To investigate the effect of pattern of rearing on difficulties in attachments and selective friendships and the relationship between these difficulties and inattention/overactivity as measured and observed.

Hypotheses:

- Children in institutional care will have more marked difficulties in their selective attachment relationships with their adults carers than children raised in family foster care
- Children in institutional care will have more marked difficulties in their selective friendships with their peers than children raised in family foster care
- More children in institutional care will have difficulties according to a composite measure of selective relationships than children placed in family foster care.
- There will a significant and specific association between selectivity in relationships and inattention/overactivity as observed and measured.

Additional investigation:

- Possible gender differences in effects.

Institutional care: associations between overactivity and lack of selectivity in social relationships

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Background: The behaviour of children raised in institutional care in their early years is typified by heightened levels of inattention and overactivity irrespective of the quality of the care. There is some evidence that this behaviour may be specifically associated with forms of attachment disorder behaviours, but to date studies have been restricted to institutions characterised by high levels of malnutrition and lack of active experiences. **Methods:** Nineteen primary school age children admitted to good quality residential group care before the age of 1 year were compared with 19 children of the same gender reared in a foster family from the same age. A combination of observational, questionnaire, interview and psychometric measures was employed. **Results:** A fifth of the institutional children but none of the foster-family children showed a marked lack of selective attachment relationships with their caregivers. The same proportions were found for a lack of selectivity in friendships with their peers but the children showing these features were not identical. A lack of selectivity in relationships was strongly associated with inattention/overactivity, both as observed and reported. The pattern of a marked lack of selectivity and inattention/overactivity was evident only in the boys in the institution-reared group. **Conclusions:** It is concluded that the pattern represents a relatively specific response to some feature of an institutional rearing; nevertheless, it occurred in only just over a third of the institutional children, so that it is a far from universal consequence. **Keywords:** Institutional care, inattention, overactivity, caregiver attachment, friendships.

In an earlier paper (Roy, Rutter, & Pickles, 2000), we concluded from a comparative study of 5–8-year-old children, reared in either long-term family-foster or residential group care from early infancy, that an institutional upbringing was associated with elevated rates of emotional and behavioural difficulties. These problems were pervasive and particularly characterised by inattention and overactivity at school. They were not explicable in terms of differences in biological background or early experiences prior to admission to care. The institutional and family-foster children did not differ in the amount of time spent in their families of origin (an average of 3 months), and high rates of parental psychopathology and social malfunctioning were common to both groups. Teachers' ratings were validated and confirmed by systematic classroom observations, and group differences were not explicable in terms of differential IQ levels, which were closely similar in the two groups, the mean in both being just above 100. Whereas this pattern of overactivity/inattention was consistent with earlier findings on children who had spent their early years in institutional care (Hodges & Tizard, 1989), it was not assumed that this was necessarily equivalent to attention deficit disorders with hyperactivity (ADHD) as found in other children (see Hill & Cameron, 1999). In this paper, we consider that issue by focusing on the extent to which overactivity/inattention in children reared in group care co-occurred with difficulties in their attachments and selective friendships.

The question here is not whether psychosocial influences play a role in the aetiology of ADHD, but rather whether there is a specific association between institutional care and overactivity/inattention and, if there is, whether it represents some form of attachment disorder. Twin study findings have been consistent in showing a high heritability for ADHD but, equally, they are agreed in suggesting a multifactorial aetiology that is likely to include effects from psychosocial influences (Sandberg, 2002; Thapar, Holmes, Poulton, & Harrington, 1999). Several clinical and epidemiological studies have noted the frequency with which ADHD is associated with the experiences of multiple caregivers or institutional care in childhood (Haddad & Garralda, 1992; Schachar & Wachsuth, 1991; Taylor, 1986). This could arise in several rather different ways. Thus, it might index environmental consequences of genetically influenced parental psychopathology (see Rutter et al., 1997), with the main effects representing genetic mediation. Alternatively, it could index a broader range of psychosocial adversities that play a role in multifactorial aetiology, with the specifics of institutional care of no particular significance. Or, it might represent a specific effect that applies to a form of overactivity/inattention that has a rather different meaning from that seen in 'ordinary' ADHD. Sroufe and colleagues (Carlson, Jacobvitz, & Sroufe, 1995; Sroufe, Carlson, Levy, & Egeland, 1999) have argued that there may be multiple routes to ADHD and that attention deficits may sometimes represent failures in self-regulation rather than deficits in

cognitive processing or motor control. Taylor (1994) similarly suggested that sometimes overactivity/inattention may reflect attachment problems.

This possibility was also indicated by findings from Rutter et al.'s (1998) follow-up study of Romanian children initially reared in severely depriving institutions but later adopted into well-functioning UK adoptive families. Not only was there an increased rate of hyperactivity relative to that found in a non-deprived comparison group, but there was substantial overlap with attachment disorder behaviours (Kreppner et al., 2001; Rutter et al., 2001). Moreover, this was not found for oppositional/defiant and conduct problems.

In this paper we consider the hypothesis that inattention/overactivity in institution-reared children is associated with difficulties in attachment relationships and selective friendships. Children reared from infancy in residential group homes are compared with those reared from infancy in foster families (Roy et al., 2000). First, the rates of difficulties in attachment/social relationships are compared between these two groups and, second, the co-occurrence of overactivity/inattention and attachment problems is examined. Finally, because on the one hand hyperactivity is typically much commoner in boys than girls (Gaub & Carlson, 1997; Heptinstall & Taylor, 1996), although on the other hand no such sex differences were found in the children adopted from the Romanian orphanages (Kreppner et al., 2001), the analyses examined possible gender differences in effects.

Methods

Sample selection

A sample of 19 primary school age children admitted to residential group care before the age of one year was compared with 19 primary school children reared in a foster family from before the age of one year. The rationale of the design involved a comparison between institutional rearing and family rearing of children for whom parenting by their biological parents had broken down in early infancy. These constituted a high-risk sample and the key question was whether the contrast in pattern of rearing had effects on their relationships with caregivers and peers. The two groups were matched for age and gender and stratified for ethnicity. All children had remained in the same type of care since admission and all were in mainstream education rather than some form of special school, class or unit. The details of sample selection are provided in Roy et al. (2000).

Family background

Details about the children's natural parents and their circumstances, and the children's early experiences and placements were abstracted from social casework files. Identifying descriptions of current placements

were removed and the histories were rated blindly by MR with respect to criminality, psychotic disorder and pervasive/persistent social malfunction to determine whether or not biological disadvantage or risk was more prevalent in either the institutional or family-foster group. A three-category composite measure was derived according to whether or not there was one, or more than one, of these indices present. Whilst *none* of the children in either institutional or foster care came from families that could remotely be described as normal and the majority of parents showed pervasive/persistent social malfunctioning or criminality or psychosis or some mixture of the three, the between-group differences were relatively small and were inconsistent across indices. Accordingly, we concluded that *both* the substitute care groups could be regarded as having come from high-risk biological backgrounds but did not differ in this respect (Roy et al., 2000).

Psychometric testing and IQ levels

The institutional and family-foster groups were administered the Wechsler Intelligence Scale for Children (Wechsler, 1949) and the Neale Analysis of Reading Ability (Neale, 1966). The mean full scale IQ score of the institutional group (108.3 SD = 13.3) did not differ significantly from the mean score of the foster family group (105.9 SD = 12.5).

Behavioural questionnaires

Rutter 'B2' teacher questionnaires (Elander & Rutter, 1996) were forwarded to schools for completion by teachers before the first school visit and classroom observation. The parallel parental 'A2' scale was forwarded to the group care homes and foster families for completion by caregivers prior to the home visit. Completed teacher questionnaires were available for both groups of children. Conduct disturbance and emotional disturbance sub-scores were calculated using the standard procedures (Elander & Rutter, 1996). A hyperactivity score (Schachar, Rutter, & Smith, 1981) was assessed on the basis of three items: i) very restless, has difficulty staying seated for long; ii) squirmy, fidgety child; iii) cannot settle to anything for more than a few moments. Hyperactivity was considered to be present if the score was 3 or more. The same items made up the 'hyperactivity' sub-scores on the teacher and parent scales.

Interviews (home/school)

Interviews were conducted with both caregivers and teachers to gain information about areas that could not be assessed by other measures (i.e., questionnaires/direct observation), or as an internal validity check. A range of topics was covered and items included in previous analyses included: early placement history, family/home size, continuity of institutional staff, parental contact and control children's family background and parental occupation. Two additional items included here are measures of selective relationships with adult carers and peers according to carers' ratings. These were composite measures derived from 7 items in the

home interview. Carers' responses to these items were blind-rated by a researcher trained in the coding system, and discrepancies resolved through discussion. Inter-rater reliability measures for the two composite scores based on intra-class correlations were .96 for adult carers and .95 for selective friendships.

Caregiver selective relationship composite measure

Four items relating to selective relationships were obtained from the carer interview and used to constitute a composite measure of selective attachment relationships to carers, including specificity of affection shown to others, the seeking of comfort when ill or hurt, selectivity of attachment to main carer and reaction to strangers. The first 2 items were rated on a 3-point scale. Attachment to main carer was scored 0 for believes 'closely attached' and 2 for either 'no deep attachment to anyone' or 'ready to attach to anyone who takes an interest'. Reaction to strangers was scored 2 for overfriendly in most situations, 1 for overfriendly in familiar surroundings and 0 for all other categories, including, e.g., shy, friendly, uninterested etc. This measure of excessive overfriendliness is somewhat comparable to Chisholm's (Chisholm, 1998) 2-item measure of more extreme indiscriminate friendliness. The derived composite score provided a continuous measure of attachment. A categorical measure was derived whereby composite scores of 'definite selective attachment' included scores of 0 and 1 (scores below the mean score for the combined groups), 'possible selective attachment' score of 2-4 (scores above the mean and less than 1 SD above), and 'little or no evidence of selective attachment' scores of 5 or more (more than 1 SD above the mean).

Selective friendships composite measure

Three items relating to selective friendships were obtained from the carer interview and used to constitute a composite measure. These included specificity of friendships, selective attachment to peers and indiscriminate relationships, all three being rated on 3-point scales. The derived composite score provided a continuous measure ranging from 0 to 6. A categorical measure was derived whereby definite selective friendships were defined by a score of 0 to 1 (scores below the mean score for the combined groups); possible by scores of 2 or 3 (scores above the mean and less than 1 SD above); and little or no evidence by scores of 4 or more (more than 1 SD above the mean).

Direct classroom observations

Systematic non-participant classroom observations of the task and social behaviour of both target and matched controls were made using a schedule developed for the purpose (Task: 5 second observe/record; Social: 10 second observe/record). The data analysed spanned an hour of the first day's observation of time spent in the classroom involved in formal activities (i.e., excluding such activities as assembly and physical education). The observations were restricted to times when the children were working either without any direct super-

vision on formal tasks or the teacher was instructing a group/class as a whole, and did not include periods spent in the classroom involved in extraneous activities such as waiting, preparation for tasks or those involved in general classroom management. The two composite measures 'inattention' and 'overactivity' were composed of separate observational categories including attention off task, gazing around or into space, self-vocalisations and non-productive play unrelated to main activity, with the additional category of gross bodily movement as a measure of fidgetiness and restlessness for 'overactivity'. Measures were restricted to those more under the children's control than the teacher's. Hence moving round the room, for example, was affected by the teacher's management style. In some classrooms the expectation was that children would go to the teacher either for help or on task completion, whereas other teachers encouraged the children to remain seated until they went to them. Some teachers would limit the number of children in a queue at any one time and in other classes children might wait relatively long periods before being seen.

Inter-rater reliability of the direct observation categories, based on 300 observation periods for 5 children, was determined. The Kappa reliability of the individual categories used in the composite measures ranged from .79 to .98.

Statistical analyses

Analyses were undertaken using SPSS v10.00 (SPSS, 1999). Where necessary, prior to analysis, outcome variables were square-root transformed to approximate normality. Categorical variables were analysed using the likelihood ratio test and exact probability values calculated. Groups were compared using univariate ANOVA (and paired *t*-tests for matched pair groups). The Pearson product-moment correlation coefficient was used to measure the association between continuous variables. All tests were two-tailed.

Results

Selective attachment relationships with adult carers

The difference between the two groups on the categorical measure of children's selective relationships with their adult carers approached statistical significance (likelihood ratio for 3×2 table = 6.82; $df = 2$; $p = .06$). A fifth (21%) of the institutional children showed little or no evidence of selective relationships with their carers, whereas this applied to none of the children in foster families. The two groups did not differ, however, in the proportion showing only possible selective relationships (37% and 32% respectively), and even in the institutional group, two-fifths (42%) were described as showing a definite selective relationship with a caregiver. When the continuous rather than the categorical measure was used, a similar, but in this case significant, group difference was found, with the institutional children as a group showing more evidence of a

lack of selectivity in their relationships with carers than the foster children as a group (Institutional group: mean = 2.47, SD = 2.29; Foster group: mean = 1.21, SD = 1.36; $F(1,36) = 4.27$; $p = .05$).

Selective Friendships

A closely comparable but significant difference between the groups was found with respect to the children's selective friendships, as evident on the caregivers' accounts according to the categorical measures. A fifth (21%) of the institutional children but none of the children in foster families was rated as showing little or no evidence of selective relationships with their peers (likelihood ratio for 3×2 table = 7.46: $df = 2$; $p = .04$). Again the groups differed significantly in terms of the continuous measure, with the institutional children rated by their carers as showing significantly less selectivity in their friendships than the foster children (Institutional group: mean = 2.37, SD = 1.26; Foster group mean = 1.37, SD = 1.12, $p = .01$).

Combination of selectivity of relationships with caregivers and peers

In the pooled institutional and foster groups, there was a modest, but statistically significant ($p < .05$), correlation (.35) between continuous measures of selective relationships with caregivers and selective friendships with peers. A combined categorical measure of selective relationships was derived from the two separate measures of children's selective relationships with caregivers and peers. Definite lack of selectivity on the combined measure included a definite lack of selectivity with adults with or without possible lack of selectivity with peers or a definite lack of selectivity with peer attachments with a possible lack of selectivity with adults. This procedure gives more weighting to carers' first-hand ratings of children's reactions to their carers. Of the six children in this category, one was rated as having a definite lack of selectivity with both adults and peers, two with adults only, and the remaining three children showed a definite lack of selectivity on one measure and possible on the other. This procedure, which acknowledges the significance of a lack of selectivity in friendships, reduces the likelihood of false negatives. Definite selectivity required ratings of little or no evidence of a lack of selectivity in relationships with either peers or adults, or possible on peer only. This approach of focusing on the extremes is in keeping with Hodges and Tizard's (1989) earlier findings on adolescents who had been reared in institutions for their first few years. On this composite, a third (32%) of institutional children but none of the foster-family children lacked selectivity (likelihood ratio for 3×2 table = 10.15; $df = 2$; $p = .01$).

In the analyses that follow on associations with overactivity/inattention, there is a focus on this

composite, because the associations were found to be similar in the case of both carer relationships and peer relationships. Thus, the intercorrelation between the continuous measure of caregiver relationships and teacher-rated hyperactivity was .48 ($p = <.002$) as compared with .56 ($p = <.001$) between the continuous measure of selective friendships and hyperactivity. The comparable figures for the correlations with observed inattention and observed overactivity were .60 versus .55 and .56 versus .57 respectively (all being statistically significant at the .001 level). However, as a check, analyses were also undertaken separately to determine if the overall pattern was the same; it was found that it was.

Association between selective relationships and inattention/overactivity

The 6 children showing a definite lack of selectivity in relationships with either caregivers or peers (or both) stood out as being markedly more inattentive and overactive than the 20 with definite selective attachments (a difference of nearly 3 standard deviations on the observational measure), those with possible selectivity being intermediate (see Table 1). The difference for the hyperactivity score on the teacher questionnaire was also substantial, and statistically highly significant, although not as great. The difference on conduct problems, by contrast, was less and fell short of statistical significance. This pattern of marked inattention/overactivity associated with a marked lack of selective relationships was restricted to children in the institutional group. The findings with respect to the intermediate category of possible selectivity in relationships were fairly similar across the two groups. The absence of an effect of a lack of selective relationships in the foster-family group was largely a consequence of the fact that there were no children with a definite lack of selectivity in that group. The analyses were repeated including control for IQ; the findings were closely similar.

Gender differences

Not surprisingly, inattention/overactivity was more frequent in boys than girls in both the institutional and foster-family groups, but these differences only reached significance in the institutional group. This was also the case after controlling for IQ, but in this case the gender differences in the foster group were close to significance ('B' hyperactivity $p = .053$; inattention $p = .06$; and overactivity $p = .06$) What was unexpected, however, was the finding that the difference between the two groups was evident only in boys. Thus, the mean score for observed inattention in boys in the institutional group was 78.1, as compared with 48.7 in the foster group ($F(1,22) = 5.75$; $p = .03$). For girls, the comparable figures were 36.7 and 32.0, the difference falling well

Table 1 Associations between selective relationships with carers and peers and inattention/overactivity as observed and reported

	Definite selectivity Mean (SD)	Possible in one/both Mean (SD)	Little/none in one/both Mean (SD)	F	p value
Total group	n = 20	n = 12	n = 6	df(2,35)	
Inattention	38.0 (21.1)	55.7 (31.0)	95.6 (25.1)	2.24	.001
Overactivity	44.4 (21.9)	69.0 (39.1)	100.5 (23.8)	9.5	.001
'B' hyperactivity	1.1 (1.7)	3.0 (2.6)	4.3 (2.0)	7.0	.003
'B' conduct	.9 (1.4)	2.6 (2.8)	3.0 (4.0)	2.04	.1
Institutional	n = 7	n = 6	n = 6	df(2,16)	
Inattention	38.4 (18.9)	58.5 (30.2)	95.6 (25.1)	8.73	.003
Overactivity	39.9 (19.1)	68.5 (38.3)	100.5 (23.8)	7.67	.005
'B' hyperactivity	1.7 (2.0)	3.2 (2.3)	4.3 (2.0)	3.29	.06
'B' conduct	1.4 (2.0)	3.0 (3.2)	3.0 (4.0)	.41	.7
Foster	n = 13	n = 6		df(1,17)	
Inattention	37.7 (22.9)	52.9 (34.5)		1.31	.3
Overactivity	46.8 (23.7)	69.5 (43.6)		2.2	.2
'B' hyperactivity	.8 (1.5)	2.8 (3.1)		2.36	.1
'B' conduct	.5 (1.0)	2.2 (2.5)		2.46	.1

short of significance ($F(1,12) = .19$; $p = .7$). The mean score for observed overactivity showed a trend in the same direction for boys in the institutional group (85.6 vs. 61.5; $F(1,22) = 2.97$; $p = .1$), but not for girls (38.0 vs. 41.0); neither difference was statistically significant. Teacher-rated hyperactivity showed a statistically significant group difference, a mean of 3.9 in boys as compared with 2.0 in girls ($F(1,22) = 7.32$; $p = .01$). The comparable figures for girls showed a trend in the same direction (1.4 vs. .4) but it fell well short of statistical significance ($F(1,12) = 2.1$; $p = .2$). The sample size lacked power for the detection of significant interactions and, not surprisingly, none of the group by gender interactions was close to statistical significance. Nevertheless, because of the suggestion of possible gender differences in effects, it seemed appropriate to go on to determine whether the association between a lack of selective relationships and inattention/overactivity was associated with gender.

Before answering the question, it was necessary to check whether a lack of selective relationships varied by gender. The findings showed that it did (see Table 2). Surprisingly, the 6 children with a definite lack of selective relationships were all boys.

Moreover, the association between a lack of selective relationships and inattention/overactivity was also largely confined to boys (see Table 3).

Necessarily, this was so for the extreme group without selective relationships because it occurred only in boys. However, it also applied to the intermediate group, which occurred in both sexes. Thus, the mean score of observed inattention and overactivity was 1 to 2 standard deviations higher in boys with only possible relationship selectivity, whereas there was no difference in girls. These differences remained when IQ was controlled.

Discussion

The study gave rise to three main findings: 1) a marked lack of selective relationships to both caregivers and peers was found only in institution-reared children; 2) this marked lack of selective relationships was associated with inattention and overactivity, both as observed and reported; 3) inattention/overactivity, a lack of selective relationships, and a combination of the two were all features shown by institution-reared boys, but not girls.

Most studies of attachment have focused on the construct of insecurity, usually assessed from the Strange Situation procedure in younger children (Cassidy & Shaver, 1999). Moreover, the focus has been almost exclusively on attachment to caregivers. Studies of institution-reared children, however, have

Table 2 Selective relationships by gender for total 'in care', institutional and foster groups

	Total 'in care' groups n = 38		Foster group n = 19		Institutional group n = 19	
	Boys n = 24 %	Girls n = 14 %	Boys n = 12 %	Girls n = 7 %	Boys n = 12 %	Girls n = 7 %
Selective attachment						
Definite	38	79	67	71	8	86
Possible	38	21	33	29	42	14
Little/none	25				50	
Likelihood ratio	9.0		.047		13.86	
p value (df)	.02 (2)		1.0 (1)		.002 (2)	

Table 3 Associations between a lack of selective relationships and inattention/overactivity by gender

	Definite selectivity		Possible in one/ both		Little/none in one/both		F	p value (df)
	Boys n = 9 Mean (SD)	Girls n = 11 Mean (SD)	Boys n = 9 Mean (SD)	Girls n = 3 Mean (SD)	Boys n = 6 Mean (SD)	Girls n = 0 Mean (SD)		
Total 'in care'								
Inattention	38.5 (22.6)	37.6 (20.8)	66.7 (27.1)	22.5 (12.6)	95.6 (25.1)		9.56 1.37	Bs: .001(2,21) Gs: .3 (1,12)
Overactivity	47.2 (24.6)	42.2 (20.4)	82.0 (35.9)	29.8 (13.8)	100.5 (23.8)		6.59 .96	Bs: .006 (2,21) Gs: .3 (1,12)
Teacher-rated hyperactivity	1.1 (1.8)	1.1 (1.8)	3.9 (2.4)	.3 (.6)	4.3 (2.0)		6.65 .25	Bs: .006(2,21) Gs: .6 (1.12)

brought out two important points. First, the most characteristic feature has been a relative lack of selectivity in social approaches and in comfort-seeking, rather than either anxiety or resistance (Chisholm, 1998; O'Connor et al., 1999, 2000, 2003). Usually this has been described as 'indiscriminate friendliness'; however, it seems likely that it represents a deficit in the perception of social cues and in the appreciation of social boundaries rather than 'indiscriminate friendliness' as such. The children seek social contact but do so in ways that are relatively unresponsive to social conventions and which are relatively non-differentiating with respect to the people to whom social overtures are made, and from whom social advances are accepted. Such 'indiscriminate friendliness' in Romanian adoptees has been found to be independent of attachment security. Accordingly, in planning this study, the measurement of attachment selectivity was based on detailed descriptions of the quality of the children's social interactions, rather than on tools designed to tap attachment insecurity as usually conceptualised.

Second, the Hodges and Tizard (1989) follow-up of children who spent their first few years in residential nurseries showed that in later childhood and adolescence, the main social quality was a relative lack of selectivity, confiding and commitment in peer relationships. Although it has been argued that such features should not be incorporated in the construct of attachment disorder (Zeanah, 1996, 2000), the limited available evidence suggests that these peer relationship features may well constitute a sequel to a failure to develop selective attachment relationships with caregivers in early childhood. Accordingly, we included a measure of selective friendships that was designed to be comparable to the approach used with selectivity in caregiver attachment relationships.

It was striking that a marked lack of selective attachment relationships with caregivers was evident only in institution-reared children. It is necessary to consider whether this could be a function of the difference between the two groups with respect to who provided the description, and to the

social context in which the relationships occurred. In the foster-family group, selective attachment relationships would be shown in relationships within the nuclear family (albeit not the biological family), whereas in the institutional group selectivity would have been shown in a setting involving multiple caregivers and the description would have been provided by someone who was only one of several carers for the child in question. It is difficult to rule out entirely the possibility of bias but it is noteworthy that, in both groups, there was a considerable range in the degree of selectivity. However, the main difference between the groups lay in the minority who showed a marked lack of selectivity, and not in terms of a general decrease in selectivity in the group as a whole. A bias in description does not appear to be the most plausible explanation. Rather, accounts provided a convincing picture of a different quality in caregiver relationships that applied to only a fifth of the children reared in institutions (namely group-organised children's homes).

A closely comparable difference between the groups was found for selectivity in friendships, again as reported by caregivers. The children showing an extreme lack of selective friendships were not necessarily the same individuals who showed a lack of selectivity in caregiver attachment but, again, they were found only in the institutional group. Altogether, a third of the institution-reared children showed a lack of selectivity in either caregiver or peer relationships or both. It remains an open question whether both sets of relationships are reflecting the same underlying construct and whether the features should be conceptualised as disturbances of attachment. We remain neutral on both points but we do emphasise that the lack of selectivity seemed to have similar qualities in relation to peers and to caregivers, and that this pattern occurred only in the institutional group. Why this pattern was *not* seen in other children in that group, and why two-fifths showed *definite* selectivity in both sets of relationships, remain questions for further study. Nevertheless, this heterogeneity does mean that it would be seriously misleading to see a marked lack of

selectivity as an inevitable, or even usual, consequence of an institutional rearing.

The second major finding was the marked degree to which a lack of selective relationships was associated with inattention and overactivity, both as observed and as reported. The association was strong, and was consistent across measures. It is noteworthy that the same finding emerged from a study of children from Romanian institutions adopted into UK families (Kreppner et al., 2001; Rutter et al., 2001). The parallel is particularly striking because of two marked differences between the groups. The Romanian adoptees suffered profound deprivation in terms of malnutrition and lack of active experiences whereas that was not the case for our sample despite experiencing marked discontinuity in care. Also, the Romanian adoptees had been reared in nuclear families for at least 2½ years at the time they were studied, whereas in our study they were still in group residential care. The first implication is that the origins of this pattern of behaviour are likely to lie in some commonly shared aspect of institutional rearing rather than in the extreme understimulation and malnutrition suffered by the Romanian adoptees. The second implication is that the pattern persists over a change of environment and, hence, cannot be viewed solely as a temporary contextual adaptation to the constraints of an institutional environment.

It is necessary to consider whether the inattention and overactivity seen in these institution-reared children constitutes the same feature as the attention deficit with hyperactivity (ADHD) syndrome seen in other children. Once more, that remains an open question requiring further research. On the one hand, the gender differences were very similar. On the other hand, it should not necessarily be assumed that the patterns are synonymous – if only because of the strong associations with a lack of selectivity in social relationships. We are not aware that this has been studied explicitly in relation to ADHD, nor has it been highlighted in clinical descriptions.

The finding that a lack of selective social relationships, together with its associated pattern of inattention/overactivity, was found only in institution-reared boys, not girls, was unexpected. That was not the case in the study of Romanian adoptees (Kreppner et al., 2001; Rutter et al., 2001); nor was the sex difference quite as marked in Vorria, Rutter, Pickles, Wolkind, and Hobsbaum's (1998a, b) study of children in Greek institutions. Although the greater biological vulnerability of males is well documented (Rutter, 1970; Earls, 1987), on the whole there has been a lack of evidence that boys are more vulnerable to psychosocial adversities (Zaslow, 1988, 1989), despite occasional findings suggesting that in some circumstances they may be so (Sinclair & Murray, 1998). The matter requires further study.

Conclusions

The main finding of the study is that a pattern involving inattention, overactivity and a lack of selective relationships to peers and/or caregivers was found only in institution-reared boys. It seems that the risk probably derives from some feature of an institutional upbringing. Curiously, the pattern was found only in boys (not girls) being brought up in group-run residential homes. This could have been a random consequence of the small sample studied or it might reflect some aspect of gender-related differences in response to an institutional rearing. The extent to which the inattention/overactivity found only in institution-reared children, and associated with a lack of selective attachments, is similar to that found in 'ordinary' varieties of ADHD remains to be determined.

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Paper 3:

Roy, P., & Rutter, M. (revised and re-submitted) Institutional care: Associations between inattention and early reading performance. *Journal of Child Psychology and Psychiatry*

Aims:

- ❖ To investigate the effect of pattern of rearing on early reading performance and the role of inattention as a mediator of group differences.
- ❖ To investigate the situational specificity of inattention in relation to task demands

Hypotheses:

- Children in institutional care will have lower levels of reading attainment than children in family foster care, who in turn will have poorer reading skills than their classroom matched controls.
- Differences in reading attainment between the two 'looked after' groups will be mediated by inattention
- Frequency of help from carers with homework will be significantly associated with the reading skills of 'looked after' children.
- Significant differences will exist between levels of inattention observed, according to the type of activities engaged in.

**Institutional care: associations between inattention and early reading
performance**

by

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Abstract

Background: Recent Government papers have expressed concern about the poor educational attainment of 'looked after' children. Early reading development has been found to be significant in their subsequent academic achievement. The possibility that biosocial factors extraneous to their experiences in public care may underpin their low attainment has not been investigated to date. **Methods:** The reading ability of 19 primary school children, who had been raised in institutional care from an early age, were compared with 19 children, matched for age and sex, who were comparable in biological background and who had experienced uninterrupted family foster care. Both groups were compared with classroom controls using teacher questionnaires, interviews, systematic observations and cognitive testing. **Results:** Reading delay was more prevalent in the institutional group and as a group they had lower reading scores than the children reared in family foster care. Variation in IQ accounted for the lower reading scores of the family foster care group compared with their matched classroom controls. Inattention, found in a previous study to be much more evident in the institutional group, partially accounted for the group difference in reading scores, and was situationally specific to formal teacher directed tasks. Differential effects of carers' interest in terms of help with homework were also found. **Conclusions:** Early reading performance *was* associated with the experience of being raised 'in care' but was not an inevitable outcome. It was concluded that the *type* of substitute parenting experienced affected reading performance. Institutional upbringing affected reading performance both directly and indirectly through the heightened levels of inattention associated with institutional care.

Keywords: institutional care, family foster care, inattention, underachievement, reading.

Introduction

There is relatively little research on the educational outcomes for 'looked after' children. In the UK, children cared for by the state are referred to as 'looked after' children (Children Act, 1989). Goddard (2000) expressed concern about the lack of systematic information on these children's educational experiences. Significant changes in policy for 'looked after' children have occurred in recent years (see Mental Health Foundation, 2002); but recent government statistics have highlighted their continuing poor educational outcomes (Department for Education and Skills, 2004; Meltzer, Corbin, Gatward, Goodman, & Ford, 2003). Compared with their age group, less than half achieve average levels of performance at Key Stage 1 (national achievement tests for 7 year olds) and this proportion worsens across time. The reasons for this underachievement are poorly understood. One possibility is that it reflects some combination of biological and environmental disadvantage of children received into care, who are known to be amongst the most disadvantaged in our society (St Claire & Osborn, 1987). On the other hand, frequent movement within the care system has been associated with educational underachievement (Goddard, 2000; Minty, 1999). Teasing apart associated factors is complicated by the heterogeneity of 'looked after' children as a group (Richardson & Lelliott, 2003; Roy, Rutter & Pickles 2000).

Our approach to this question has been to take two groups of 'looked after' children with different experiences of care. One group had experienced continuous institutional care from an early age, typified by high discontinuity of care. The other group had experienced high continuity of foster family care from a similar age. At the time of the study, the children were of primary school age and matched for age and sex. Both groups had adverse family histories, but they did not differ in this respect (Roy et al., 2000). In this paper we consider whether their educational attainment, as measured by their early reading skills, was related to their different rearing experiences.

High levels of inattention and overactivity (I/O) were found in the group reared in institutional care (Roy et al., 2000). A number of studies have confirmed the association between this behaviour and an early upbringing in institutional care, irrespective of the quality of care (Goldfarb, 1945; Kreppner, O'Connor, Rutter, & the English and Romanian Adoptees study team, 2001; Roy, et al., 2000, 2004; Tizard & Hodges, 1978). The term inattention/overactivity was adopted to denote the possibility that these behaviours may constitute a different type of hyperactivity to that described as Attention-Deficit/

Hyperactivity Behaviour (ADHD) in the *DSM-IV* (American Psychiatric Association, 1994); not least because of its association with impaired selective attachments and social disinhibition. Clinical and rated observations have suggested that inattentive behaviours tend to predominate in I/O (Roy et al., 2000, 2004; Rutter, Roy & Kreppner, 2002).

The association between hyperactivity and reading problems is well established (Fergusson, Lynskey & Horwood 1997; Rowe & Rowe, 1992; Smart, Sanson, & Prior, 1996; Stevenson 1996); and has been found in both referred and non-referred samples (Adams, Snowling, Hennessy & Kind 1999; Merrell & Tymms 2001) and in 'looked after' children (Meltzer et al., 2003). There is some evidence that inattention is more significant for reading attainment than hyperactivity or impulsivity (Hinshaw, 1992; Rabiner, Coie, & the Conduct Problems Prevention Research Group, 2000). Hence, we predict that the institutional care group will have reading skills affected by their attentional difficulties.

Hewison & Tizard (1980) found early reading attainment was strongly associated with parental help in learning to read. Likewise, early reading and having a carer who valued education were associated with later educational success in a study of family foster care (Jackson & Martin, 1998). Accordingly, we asked caregivers how often they helped the 'looked after' children with homework. Stevenson & Fredman (1990) however, pointed out that many psychosocial correlates of reading ability were accounted for by the child's intelligence. Hence, measures of IQ were taken in our study and used as a covariate.

Finally conclusions about the elevated levels of inattention in institutional children, reported in earlier papers, have been based on observations of children's responses to teacher directed activities. Here we consider the situational specificity of inattention as observed in our sample of 'looked after' children. Opinions on the pervasive nature of ADHD vary and are often reliant on reported behaviour only. There is some agreement, however, that inattention is worse when the task is taxing, not immediately rewarding and imposed (Hill and Cameron, 1999; Taylor, Sandberg, Thorley & Giles, 1991). In this paper we compare our findings to date, with measures of attention observed in response to less demanding, child centred classroom activities.

In summary the study addresses the following hypotheses:

- Children in institutional care will have lower levels of reading attainment than children in family foster care, who in turn will have poorer reading skills than their classroom matched controls.
- Differences in reading attainment between the two 'looked after' groups will be mediated by inattention
- Frequency of help from carers with homework will be significantly associated with the reading skills of 'looked after' children.
- Significant differences will exist between levels of inattention observed, according to the type of activities engaged in.

Methods

Sample selection

Two groups of 'looked after' children who had experienced consistent but different forms of care from less than one year of age were compared. The institutional group constituted 19 children placed in residential homes. The second group of 19 children matched for age and sex and stratified for ethnicity were placed in long term family foster care. All children had remained in the same type of care from age one year or under. The rationale of the design involved a comparison between institutional rearing and family foster rearing of children whom parenting by their biological parents had broken down in very early infancy. The institutional group had significantly less personalised and consistent care than the family foster group. They were in much larger units and had experienced more changes in caregivers, peer group and home settings (only a third had one placement only). They were more likely to have contact with their biological parents, although this was often sporadic and upsetting. Nevertheless, the majority of the family foster group, two thirds, experienced quite substantial changes in the family unit as a result of short term fostering. No systematic differences in factors associated with admission to care or experiences in their first year of life between the two groups were found, the only exception was choice of initial placement which tended to determine their final placement type (Roy et al., 2000). The key question here is whether their different patterns of rearing affected the children's reading performance at school.

There were 12 boys and 7 girls in each group; the mean age was 80.4 months for the institutional group (SD=12.4; range: 53-95 months) and 80.6 months for the family foster group (SD=9.7; range: 62-95 months). All children were in mainstream education rather than some form of special school, class or unit. 10 institutional children and 2 family foster care

children attended the same primary school as one other child in their group, but none of the children were in the same class. Tight selection criteria together with a diminishing population of young children placed in institutional care, due to the cessation of residential care for infants and young children at the time, led to a final size that was smaller than was planned.

Control children, the same sex and nearest in age to the target child were selected from the same classes attended by the institutional and family foster children; a fifth to a third had experienced some family instability but none of these children had received substitute care during their lives. The mean age of the institutional control children was 79.8 months (SD=12.0; range: 54-95); for the family foster children it was 81.3 months (SD=9.7; range: 62-95). The groups were closely comparable on all rated and observed measures of behaviour at school and were pooled for comparison purposes. Further details of the 'looked after' and the control samples, sample selection and the comparability of the control samples are provided in Roy et al., (2000).

Family background

Details about the children's natural parents and their circumstances, and the children's early experiences and placements were abstracted from social casework files. Identifying descriptions of current placements were removed and one of the authors (MR) blind rated the case histories with respect to criminality, psychotic disorders and pervasive/persistent social malfunction to determine whether or not biological disadvantage or risk was more prevalent in either the institutional or family foster group. A three category composite measure was derived according to whether or not there was one, or more than one, of these indices present, in one or both parents. None of the children, either institutional or family foster, came from families free of stress or chronic disadvantage, but the between group differences on the composite measure was non significant. Accordingly we concluded that *both* groups could be seen to have come from high-risk biological backgrounds, but did not differ in this respect (Roy et al.,2000).

Psychometric testing: IQ and reading levels

The institutional, family foster and family foster control groups were administered the Wechsler Intelligence Scale for Children (Wechsler, 1949) and the Neale Analysis of Reading Ability (Neale, 1966). Resource limitations meant that although psychological testing was undertaken with both of the 'looked after' groups, only the controls of the family

foster sample were tested. Accordingly analyses of between group differences were limited to comparisons of the two groups of 'looked after' children, and between the family foster care group and their matched classroom controls. Derived scores for reading accuracy ages were calculated by subtracting children's chronological ages (in months) from their accuracy ages (in months) based on their performance on the Neale Analysis of Reading Ability. Additionally a category of reading delay was derived on the basis of accuracy scores that were one or more standard deviations below chronological age, based on the standard deviation of the control group rounded up to the nearest month (11 months). The mean full scale, verbal and performance IQs of children in institutional care did not differ from the IQs of children in family foster care (mean full scale $IQ_{instit}=108.4$, $SD=13.3$; mean full scale $IQ_{foster}=106$, $SD=12.5$), but differed from the family foster care matched control group (mean full scale $IQ_{foscon}=116.2$, $SD=12.4$).

Interviews (Home / School)

Interviews were conducted with caregivers and teachers to gain information either about areas that could not be assessed by other measures (i.e. questionnaires / direct observation) or as an internal validity check. Teacher interviews were carried out for all children, including the control children, and carer interviews with foster parents and residential care staff only. Items included in previous analyses and relevant for this paper include early placement history, and control children's family background. (Roy et al., 2000). An additional item, frequency of carers' help with schoolwork at home (taken from the caregivers' interview), was included in the present analyses.

Carers' interest in the children's education

An item relating to frequency of carers' help at home with schoolwork was obtained from the interview with carers. Parents were asked how often they helped the children with their schoolwork. This item was rated on a 2 point scale (daily / almost daily: 0, weekly/ more than weekly: 1]. This scale was originally a 5 point scale, but the categories were collapsed, due to the low frequency of scores in individual categories.

Direct Classroom Observations

Non-participant classroom observations of the children were made to assess their behaviour at school. The institutional sample and their control group were observed for 2 days initially and for 1 day during follow up in the summer term of the year of the study. The family foster group and their matched control were observed for one day only. Systematic

observation of the task and social behaviour of both target and matched control children were made using a schedule developed for the purpose. (Task: 5 second observe/record; Social 10 second observe / record). The current analyses were limited to the 5 second task period. The data analysed spanned the first two hours of the first day's observation of time spent in the classroom involved in either formal or informal activities (i.e. excluding such activities as assembly and physical education). The first hour of observations was restricted to times when the children were involved in formal activities, when the children were working either without any direct supervision on formal tasks or the teacher was instructing a group/class as a whole. They excluded periods spent in *direct* interaction with teachers which, by definition were on task, and those spent on extraneous activities involved in general classroom management.

The second hour of observation analysed was restricted to times when the children were involved in informal, more self directed activities, when they were playing on their own or with a group of children. As was the case in formal activities the teacher may or not be present as part of the group at such times, but not directly interacting with the child. For a few children, particularly the older ones, no informal activities occurred during the observation period.

The composite inattention measure was composed of separate observational categories including attention off main task, gazing around or into space, self-vocalisations, and non-productive play with objects unrelated to the main activity. Development of direct observation categories and the inter-rater reliability were established prior to the collection of data and based on 300 observation periods for 5 children. The Kappa reliability of the individual categories used in the composite measure ranged from .79 to .98.

Statistical analysis

Analyses were undertaken using SPSS v 11.500 (SPSS, 2003). Categorical variables were analysed using the likelihood ratio. Groups were compared using univariate ANOVA. Pearson's product-moment correlation coefficient was used to measure the association between continuous variables, and regression analyses used to test for mediation, following the procedure adopted by Baron & Kenny (1986). IQ was taken as a covariate to control for the confounding effect of intelligence on performance, when necessary (Stevenson & Fredman, 1990). All tests were two-tailed.

Results

Reading levels in children reared in institutional care, family foster care and family foster matched control group.

Heterogeneity of performance typified reading skills in *all* groups (minimum_{inst}=-21, maximum_{inst}=18 ; minimum_{fos}=-23, maximum_{fos}=25 ; minimum_{foscon} = -4, maximum_{foscon} =35). However, the lowest score (-23) in the family foster group emerged as an outlier. This score was significantly below the next lowest score by more than 1 SD, (14 months) than the next lowest score of -9months. The main tables present results with the outlier excluded (n_{fos}=18); the corresponding results for the complete data set are given in italicised parentheses.

Table 1: Group differences in reading accuracy scores: with/out IQ as covariate Institutional and family foster groups

Group	<i>Without IQ covariate</i>			<i>With IQ covariate</i>		
	Mean	SD	I/F: <i>p</i> value	Mean _{adj}	SE	I/F: <i>p</i> value
Institutional n=19	-2.21	12.13	.07	-2.51	2.15	.02
Family foster n=18	4.56	9.79		4.87	2.2	

Children in institutional care had reading accuracy scores on average 6 months lower than children in family foster care (see table 1). The difference with unadjusted means approached significance ($F(1,35)=3.46$ $p=.07$), (*total sample: mean_{fos}=3.11, SD_{fos}=11.4, F(1,36)=1.93 p=.17*). Taking IQ as a covariate the overall group difference without /with the outlier was significant ($F(1,34)=5.73$, $p=.02$), (*total sample: adjusted mean_{inst} = -2.87, SE_{inst}=2.2; adjusted mean_{fos}=3.76, SE_{inst}=2.2, F(1,35)=4.49, p=.04*). Hence despite considerable heterogeneity in performance there was some evidence, at this early stage of reading, that children in institutional care had poorer levels of reading than their peers who had been raised in family foster care.

The difference in the reading accuracy scores between the unadjusted mean scores of children in family foster care and their matched controls was of a similar size (mean_{fos}= 4.56, SD_{fos}=9.8; mean_{foscon}=10.11 SD_{foscon}=10.6, $F(1,35)=2.74$, $p=.11$), (*total sample: mean_{fos}= 3.11, SD_{fos}=11.4 F(1,36)=3.85, p=.06*). Taking IQ as a covariate in this case reduced the group differences to nonsignificance (adjusted mean_{fos}= 6.5, SE_{fos}=2.2; adjusted mean_{foscon}=8.26, SE_{foscon}=2.1, $F(1,34)=.31$, $p=.58$), (*total sample: adjusted mean_{fos} = 5.6, SE_{fos}=2.2; adjusted mean_{foscon}=7.61, SE_{foscon}=2.2, F(1,35)=.38, p=.54*).

Proportion of children with a reading delay

The poorer performance was supported by the relative proportions of children in institutional and family foster care who had a reading delay. A third of children in institutional care (32%), but none of the children in family foster care were found to have a reading delay (likelihood ratio)=9.1 df=1, p(exact) =.02), (*Total sample, 5% family foster care had a reading delay likelihood ratio =4.8 df=1, p=.03*).

The relation between reading accuracy scores, IQ and levels of inattention

The correlations between full scale IQ scores and reading accuracy scores were significant for both groups taken separately or combined ($r_{inst\&fos} =.51, (.56) p=.001, r_{inst}=.6 p=.005, r_{fos}=.46, (.58) p=.05, (.01)$). A weaker association was found between inattention and reading accuracy scores; that reached significance in the combined group only ($r_{inst\&fos} =-.38, (-.38) p=.02, r_{inst}=-.36 p=.1, r_{fos}=-.23, (-.31) p=.4$). There was no evidence of an association between IQ and inattention ($r_{inst\&fos} =-.18, (-.2) p=.3$). There was a moderate but non significant relationship between IQ and inattention in the family foster group ($r_{fos}=-.37, (-.42) p=.1, (.08)$), but no evidence of a similar relationship in the institutional group ($r_{inst}=-.1 p=.7$). The difference between these correlations was not significant.

However the principal question here is whether inattention could explain the group difference in reading levels of children raised in institutional care and those in family foster care. The crucial test of mediation rests on the outcome of three regression equations: i) regressing the mediator (in this case, inattention) on the independent variable (group), ii) regressing the dependent variable (reading scores) on the independent variable and finally iii) regressing the dependent variable on both the independent variable and the mediator (Baron & Kenny, 1986). The results of these analyses showed that i) inattention was predictive of the group status variable ($standardised\beta_{group} =-.34 t= -2.14 p=.04$), ($standardised\beta_{group} =-.32 t= -2.1 p=.05$) ii) there was a trend towards reading performance predicting group status variable ($standardised\beta_{group} =.3 t= 1.86 p=.07$), ($standardised\beta_{group} =.23 t= 1.39 p=.17$) and lastly iii) reading performance continued to be predictive of inattention, when group was entered simultaneously ($standardised\beta_{inattention} =-.32 t= -1.91 p=.06, standardised\beta_{group} =.19 t= 1.16 p=.3$), ($standardised\beta_{inattention} =-.35 t= -2.12 p=.04, standardised\beta_{group} =.11 t= .7 p=.49$). Baron & Kenny argued that perfect mediation holds if the independent variable has no effect when the mediator is controlled, which was the case here. We may conclude that group difference in reading performance was partially accounted

for by the heightened levels of inattention found to typify the children raised in institutional care (Roy et al, 2000)

Carers' involvement in the children's education:

Regularity of help with homework and reading levels

The institutional and family foster children did not differ as a group in frequency of carers' help with homework (likelihood ratio=.35 df=1 p=.6). 7 children, about a third of the institutional group (37%) and 5 children, a quarter of the foster group (28%) had such help on a daily or almost daily basis. The remaining children were helped weekly or less than weekly on average. A significant interaction effect was found: whether or not help with homework affected reading performance was dependent on the type of placement ($F_{adj}(1,32)_{group.help}=5.4, p=.03$), ($F_{adj}(1,33)_{group.help}=6.05 p=.02$). The foster children who received help on a regular basis had significantly higher reading scores than those foster children who did not. In contrast regularity of support with homework made no difference to the reading scores of the institutional group (table 2).

Table 2: Reading scores and regularity of help with homework, taking IQ as covariate

	<i>weekly/less than weekly</i>			<i>Daily/almost daily</i>		
	<i>n</i>	<i>Mean_{adj}</i>	<i>SE</i>	<i>n</i>	<i>Mean_{adj}</i>	<i>SE</i>
Institutional n=19	12	-2.0	2.5	7	-3.4	3.3
Family foster n=18	13	1.3	2.4	5	14.1	3.9

$F(1,32)_{group}=11.52 \quad p=.002$
 $F(1,32)_{help}= 3.38 \quad p=.08$
 $F(1,32)_{group.help}=5.4 \quad p=.03$

Situational specificity of inattention and hyperactivity

Given the age range of the children and the increasing emphasis on formal teacher directed tasks with age, observations periods for some children in all groups had no recorded episodes of child directed, informal activities. However the differences between the mean inattention scores for formal tasks for total samples and for these subsamples of children with scores for both formal and informal activities were negligible.[Total sample : institutional group, mean = 62.8, SD=33.8; family foster group, mean = 42.5 , SD=27.1, combined control groups mean = 37.7, SD=18.5, and see table 3 for sub sample data].

A significant main effect for type of activity was found. A higher rate of inattention was evident when children were involved in formal teacher directed activities compared with

more self directed informal activities ($F(1,62)=45.86$ $p<.001$) (table 3). However this difference was reduced to non significance when IQ was taken as a covariate.

Table 3: Levels of inattention for formal and informal activities

		<i>Inattention scores</i>				Formal/informal p value
		Formal		Informal		
		Mean	SD	Mean	SD	
Institutional	n=17	63.1	34.2	19.0	11.7	<.001
Family foster	n=14	45.9	29.7	33.3	26.8	
Control	n=34	34.9	17.0	22.0	15.6	

In addition there was a significant interaction effect between type of activity and group ($F=9.27$ $df 2,62$ $p<.001$), which remained when IQ was taken as a covariate ($F(1,43)=8.35$ $p=.001$). The heightened levels of inattention found in children in institutional care when engaged in formal activities compared to the family foster care and combined control group were not observed when they were involved in more self directed tasks. In these informal situations all the children's levels of inattention were broadly comparable irrespective of their patterns of rearing.

Discussion

Five main findings emerged from the present study.

1. Despite considerable heterogeneity in reading levels, lower performance was associated with the *type* of care experienced: institutional care was associated with a higher rate of reading delay and a trend towards lower reading attainment compared with family foster care.
2. A similar trend towards lower reading performance was evident in the family foster care group compared with their matched controls, but the difference was accounted for by variation in IQ scores.
3. Differences in reading level between the children in institutional care and those in family foster care were partially mediated by inattention.
4. Caregivers' help with homework was associated with significantly higher levels of reading in children in family foster care, a pattern not found in children in institutional care.

5. The high levels of classroom-based inattention previously found in children in residential care were evident only when they were involved in teacher directed formal tasks.

Four caveats need to be considered before discussing the implications of these findings. First, the unavoidable small group sizes together with the high degree of variability in reading accuracy scores affected the power of the analyses. This meant that relatively large differences in overall performance emerged at the borderline of significance, and the concomitant risk of type II errors was high. Second, and again due to sampling constraints, the age range and the inclusion of children at an early stage of reading development was not ideal, but this applied equally to all groups. Third, major changes in government social and educational policy and practice have occurred since the time of the study (Mental Health Foundation, 2002) that directly impact on 'looked after' children's education, although currently this still remains at a worryingly low level. Lastly, our group of children in family foster care were unusual in the level of continuity in substitute parenting they had experienced. Control for continuity in caregiving was a crucial aspect of our quasi experimental design (Roy et al., 2000); but the high internal validity achieved was at the expense of lower external /ecological validity (McCall & Green,2004).

Nevertheless our findings showed that poor reading attainment was not an inevitable consequence for our sample of 'looked after' children. A number of children in both the institutional care and family foster care groups had average or above average reading accuracy scores. However, the likelihood of having a significant reading delay was associated with the type of care received: placement in institutional care, but not in family foster care carried an increased risk of lower reading attainment. This risk was not explicable in terms of lower IQ, nor in terms of biosocial disadvantage that preceded the children's admission into care, as our groups were comparable in these respects (Roy et al., 2000). Rather we need to consider what aspects of institutional care may be implicated in the relatively poor reading performance of these children as a group.

This lower reading attainment was at least partially accounted for by the inattention associated with early institutional rearing (Kreppner et al., 2002; Roy et al., 2000, 2004). These current findings showed that this inattention was most likely to be manifested when

faced with cognitively demanding tasks they have not chosen to do; but the question is why. Tizard et al. (1988) found the majority of teaching in primary schools was group based. Hence, their inattention might be seen as a learnt response to group rearing, or it may be a function of limited individualised tuition, or it could be the individual attention that is important (Tizard & Hodges, 1978). However this inattention was not found in less cognitively demanding tasks, even if instigated by teachers, and it was less evident in the 'home' environments (Roy et al., 2000). Yet, it has been found in adoptees several years after leaving institutional care (Tizard & Hodges, 1978, Kreppner et al., 2002). This suggests a more enduring effect on higher cognitive functioning may be implicated (Gunnar, Bruce, & Grotevant, 2000), possibly as a result of some programming effect (Rutter, O'Connor, & the English and Romanian Adoptees Study Team, 2004). If so, we might predict their academic achievement would worsen across time as the curriculum demands increase; with or without significant changes in their care environments.

Likewise we do not know if this profile of problems is specific to early institutional care or associated with other forms of early disrupted parenting. Poor educational outcomes have been found to be associated with neglect, but the reasons for this are not well delineated (Trickett & McBride-Chang, 1995). As Iwaniec & McSherry (2002) noted there has been a 'neglect of neglect'. However, clearly the relationship between inattention and reading is complex, and uncertainty about the nature of the relationship between reading delay and ADHD is not restricted to children raised in institutional care (Stevenson, 1996; Stevenson, 2001; Hagemann, Hay & Levy, 2002). These questions merit further investigation.

However our findings suggest that although continuity of personalised care is necessary it may not be sufficient to ensure children's academic progress. We found, like others (Hewison & Tizard, 1980; Jackson & Martin, 1998) that children placed in foster family care benefited from regular help with schoolwork. In contrast such additional input made no difference to the reading levels of children in institutional care. We can only speculate about the reasons for such a disparity; however the findings do suggest that raising attainment level in 'looked after' children may not simply be a question of providing more time. Rather the quality of that time, and the day-to-day context in which such support is offered may be crucial.

In the absence of a follow up study we cannot be certain of how these children progressed. The future educational attainments of the family foster care children may have depended at least in part on the stability of their placements and the continuity of their attachment relationships. As far as the institutional children were concerned, both early reading delay and inattention have been found to have long term implications for educational achievement (Fergusson et al., 1997; Sanson, Prior & Smart, 1996). Hodges & Tizard's (1989) follow up study of adopted ex-institutional adolescents found they performed significantly less well in national examinations for 16 year olds compared with control children reared in their biological families. At 8 years these children showed marked attentional problems, despite average reading skills and IQ within the normal range

Finally we are aware of the problems associated with drawing firm conclusions from findings of borderline significance based on small samples. However there are inherent tensions between types of measurements adopted and size of samples used. Hinshaw (1992) argued that there were few major epidemiological studies that used individualised tests of achievement or IQ: many epidemiologic investigators have to trade depth of assessment for breadth of coverage. Smaller samples on the other hand make a multimethod approach more feasible. In our study we adopted a range of measures, including individualised assessments of IQ and attainment, rating scales and more time consuming direct observations, all of which provided valuable and complementary data. Nevertheless we recognise the limitations of observation samples drawn from limited time periods.

Conclusions

Our study showed that institutional group rearing, typified by a lack of continuity and individualised care, was less likely to prepare young 'looked after' children for the cognitively challenging activities met at primary school than family foster care, where continuity of 'parenting' was high. IQ was related to reading performance in *all* groups; but there was some evidence that inattention was predictive of the group status variable, and appeared a *specific* response to more cognitively demanding, teacher imposed tasks. More research is required on how early disrupted parenting may affect attention and higher level cognitive functioning and, if present, how this might be recognised and remediated at an early stage in education.

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Chapter 5: Summary of findings

The aim of this chapter is to draw together the results of the three papers and consider the findings in the light of existing evidence and current theories. The emphasis here is on the strength of the design and its capacity to address some key questions; chapter 7 will consider the shortcomings of the study and its methodological weaknesses.

Ultimately the validity of the results rests on the degree to which the parameters set out for the design were fulfilled (see chapter 2). The four essential factors in the validation process of 'natural experiments' according to Rutter et al., (2001) were largely met. A key consideration in terms of **sample selection** was limiting the sampling to children who had been admitted to care before the age of one year. This served a dual purpose. First, it eliminated the possibility that the children's own emotional /behavioural problems were the prime reason for admission. Secondly, it reduced the period spent in adverse conditions in families of origin to a minimum; an average of 3 months in both 'in care' groups. A total of 76 children were included in the study: the 'in care' group comprised 38 children (19 continuously placed in residential care and 19 who had remained with same foster family) and the control groups comprised 38 children in the same classrooms living in their biological families, who had never been admitted to care. Children in all groups were matched individually in terms of age and sex; and the 'in care' groups but not the matched controls stratified by group for ethnicity. The groups were closely comparable: the average group age of 6;8 years differed by no more than a month across groups; there were 12 boys and 7 girls in each group.

Appropriate measures were detailed in the method sections and their relative strengths discussed in the design section.

Significant differences between the levels of functioning of the children raised in institutional care compared with those raised in foster families were found. This took the form of heightened levels of inattention/overactivity at school, lack of selectivity in social relationships and poorer academic achievement. The validity of this difference and subsequent between group differences found, however, rested on the **basic assumptions being met and alternative explanations discounted**. How these conditions were achieved was the main focus of paper 1. Justification was provided for accepting the basic assumptions of the design that the biological backgrounds and early experiences for children placed in either institutional care or foster care were comparable, but their rearing experiences differed. Likewise rater bias, school differences and cognitive deficits were investigated and dismissed as possible third factors that could explain the

group differences. Accordingly **alternative hypotheses** were made explicit, tested and the results reported in the papers, and summarised below.

A number of studies in this area have investigated the longer-term implications of early institutional care, where the children have subsequently been adopted or restored to their natural parents at varying ages in infancy or early childhood (Hodges & Tizard, 1989; Rutter et al., 2004; Tizard & Hodges, 1978). My study was unusual in this respect, as the children had remained in either residential care or the same foster family from early infancy. The study was designed to answer questions about the specificity of the effects of institutional care in childhood. It is impossible to determine on the basis of findings from my study alone, however, whether outcomes were due to direct contemporaneous influences of being 'looked after' in institutional care or to some kind of programming effect that was established at an earlier stage. Answers to these kinds of questions require comparison with studies of similar aged children, but whose institutional care was restricted to the very early years of life. Particularly useful in this respect is Tizard & Hodges (1978) follow up study of 8 year old ex -institutional UK children who had subsequently been adopted or restored to their families of origin.

This study was broadly comparable with mine in a number of respects: the children were of a similar age, both samples had been drawn from children of primary school age; although the children in my study were somewhat younger. In both studies children had been admitted to care before the age of a year, and in both samples the children had spent minimal time with their biological families, 3 –4 months at most on average. The same psychometric measures and parent and teacher rating scales were used, validated in my study by the systematic observations of children's behaviour in the classroom across the school settings; and in both studies the quality of residential care was at least adequate and learning opportunities were available. A further similarity was the large number of ever changing staff involved in the children's care. Additional reference will be made to findings from the English Romanian Adoption study (Kreppner et al., 2002; Rutter et al., 2004) and the Canadian studies of Romanian adoptees (Gunnar et al., 2000; Morison et al., 1995; Zeanah et al., 2003) The degree of deprivation and malnourishment suffered by the Romanian orphans, however, make the studies less comparable; nevertheless the similarity in findings in many, but not all, respects is striking.

Key findings from my study reported in the three papers:

- Combined substitute care groups differed from classroom controls in showing a high level of hyperactivity /inattention (paper 1).
- Cognitive abilities of the institutional and foster children were comparable and within the normal range; no significant between group differences in IQ scores were found (paper 1).
- Institutional upbringing was associated with elevated rates of emotional and behavioural difficulties (paper 1).
- At school these difficulties were characterised by increased levels of hyperactivity /inattention (paper 1).
- Foster care upbringing was also associated with somewhat elevated levels of hyperactivity/ inattention compared with matched classroom controls, but the groups did not differ in this respect (paper 1).
- Higher levels of emotionality and unsociability in the institutional group distinguished the children at home, from the children raised in foster families. (paper 1).
- Marked lack of selectivity in social relationships was found in a significant minority of children in institutional care but in none of the children in foster care (paper 2)
- A lack of selectivity in relationships was strongly associated with inattention/ overactivity both as reported and observed (paper 2).
- This pattern of a marked lack of selectivity and inattention/overactivity was evident only in the boys in the institution-reared group (paper 2).
- Despite considerable heterogeneity in reading levels, lower performance was associated with the *type* of care experienced: institutional care was associated with a higher rate of reading delay and a trend towards lower reading attainment compared with family foster care (paper 3).
- A similar trend towards lower reading performance was evident in the family foster care group compared with their matched controls, but the difference was accounted for by variation in IQ scores (paper 3).
- Differences in reading level between the children in institutional care and those in family foster care were partially mediated by inattention (paper 3).
- Parental help with homework was significant for reading achievement in the foster group but not the institutional group (paper 3).
- The high levels of classroom-based inattention previously found in children in residential care were evident only when they were involved in teacher directed formal tasks (paper 3).

[Re terminology (and see paper 3):

Teachers' ratings of hyperactivity were found to distinguish the groups most effectively. Hyperactivity is considered to be a multifaceted problem with a complex aetiology (see chapter 3). Systematic classroom observations validated this finding, particularly in relation to inattention. Hence the double-barrelled term hyperactivity/ inattention was adopted in the first paper. Evidence from papers 2 and 3, along with convergent findings from other studies raised questions about the specificity of this hyperactivity /inattention with respect to early institutional care. The behaviours are now referred to as 'inattention/ overactivity' (I/O) to signal the possibility that these behaviours constitute a different form of ADHD, with a specific and separable aetiology. The relation of I/O to ordinary ADHD is not yet established, and the subject of further investigations.]

The initial finding of a higher level of psychopathology in 'looked after' children was unsurprising, and in line with evidence from numerous studies both before and since (e.g; Gunnar et al., 2000; Maclean, 2003; Richardson & Lelliott, 2003; Wolkind & Rutter, 1973). However, to conclude this was due to an upbringing in care would be mistaken, some combination of genetic factors and early experiences associated with the high risk backgrounds of 'looked after' children might also have been responsible; although the possibility of damaging pre care experiences was reduced in my sample due to the unusually short time spent with their families of origin. Disentangling the effects of state provided substitute care from the effects of high-risk backgrounds for the heterogeneous group of 'looked after' children is problematic (Richardson & Elliott, 2003). As discussed earlier my study adopted a design, the 'natural experiment', that afforded the possibility of 'pulling apart' these psychosocial variables and biological variables that normally co-occur (Rutter et al., 2002, and see Chapter 2).

At the time of the study, the children were at primary school and the children 'in care' had spent the majority of their lives living away from their biological families. Unrelated carers, either residential staff or foster parents, from an average age of 3 months, had looked after them. The event of parenting breakdown in the children's first year of life had provided the conditions for the natural experiment. Systematic testing of alternative hypotheses gave credence to the conclusion, drawn from the findings, that 'the high level of hyperactivity/inattention found in so many children reared in institutions was likely to be a function of their patterns of rearing rather than their biological background or experiences in early infancy'.

In order to relate findings to relevant empirical evidence and theoretical frameworks, the discussion of findings will be drawn together under five main areas. These include:

- Cognitive abilities and IQ scores
- Inattention/overactivity, emotionality and unsociability and the specificity of their relationship to early disrupted parenting and institutional upbringing.
- Selectivity of attachments and social relationships
- Group differences in reading ability as a measure of educational underachievement.
- Inattention/overactivity and its relation to 'ordinary' ADHD as clinically observed. The following factors will be considered:
 - Relation to IQ
 - Relation to learning disorders and reading problems
 - Gender differences
 - Pervasiveness/ situational specificity
 - Relation to selectivity of attachments and social relationshipsSelf regulation and disinhibition

Cognitive abilities and IQ scores

Findings from my study substantiated earlier conclusions that cognitive abilities, as measured by IQ performance, are dependent on the quality of the learning opportunities within the rearing environment, and are largely independent of the development of selective attachment with carers (Rutter 1972/1981, 1995). In line with the measured abilities of the children studied by Tizard & Hodges (1978), group IQ scores of the children raised in institutional and foster care fell within the average range and did not differ from each other, despite a slight marginal advantage of the institutional group. In both studies, the quality of care was at least adequate, toys were available and learning opportunities were provided. Tizard & Hodges (1978, 1989) found that the potential of an adoptive placement to enhance IQ performance was evident only amongst children who were adopted early (before the age of 4).

These findings suggested that the poor prognosis for intellectual development following institutional care, reported in early studies, was probably a function of the amount of time spent in institutions where there was a high level of general deprivation (Goldfarb, 1945, 1947; Spitz, 1945a,b). Importantly, given the methodological weaknesses of these early studies, more recent studies of Romanian orphans adopted into families in the UK and Canada have largely corroborated this conclusion; duration of institutional care has been

found to be linearly related to IQ, in addition significant associations between IQ and both subnutrition and head circumference size have been found (Ames, 1997; Le Mare, Vaughan, Warford & Fernyhough, 2001; Morison, Ames & Chisholm, 1995; Morison & Ellwood, 2000; O'Connor et al., 2000; Rutter et al., 1998; Rutter et al., 2004).

Notwithstanding individual differences, substantial IQ gains overall have been found following adoption, but these are time framed, with little additional gains evident after the initial two years in the adoptive homes. O'Connor et al. (2000) suggested these findings are in keeping with the self righting tendencies associated with the notion of canalization (McCall, 1981; Wachs, 1996; Waddington, 1940). Canalization refers to the existence of inherent protective buffers that act against adversity experienced in early infancy whose effect decreases with development. On the other hand the association between IQ, subnutrition and head circumference suggested experience expectant programming effects (Greenough et al., 1987) or biological damage (Rutter et al., 2004). "Experience expectant developmental programming" refers to the notion that normal somatic development requires particular experiences during relevant sensitive phases for that development to occur. The suggestion is that the gross deprivation experienced by the children in Romanian orphanages, far greater and more pervasive than that experienced by the children in my study, fell outside that range of expectable environments required for normal development to take place (Rutter et al., 2004). Nevertheless the effects on IQ were found to be far from universal, evidence of remarkable resilience recovery was found along with persistent deficits; this creates a challenge for programming models, at least the models as specified to date (Rutter et al., 2004).

Inattention/overactivity, emotionality and unsociability and the specificity of their relation to early disrupted parenting and institutional upbringing.

As noted above, one of the most significant findings in my study was the high rate of inattention/overactivity found amongst institutional children as a group at school, substantially greater than the somewhat elevated levels found in the foster children. Moreover, these findings were strikingly similar to the ex institutional adopted and restored children, and children who had remained in institutional care reported by Tizard and Hodges (1978). With the possible exception of the restored children who had slightly higher scores, the mean overall problem rating scores according to teachers were virtually identical. Likewise significantly higher scores on all three items of the hyperactive subscore in their study discriminated the ex institutional children from their controls, despite the fact that many of these 8 year old children had spent up to 6 years in their adoptive homes. Together these findings suggest the behaviours were associated with some aspect of *early* institutional care. Moreover this prevalent pattern of behaviour was

not explicable in terms of nutritional deprivation or the lack of learning opportunities, as in both respects the institutions concerned were at least adequate.

This pattern of inattention and overactivity amongst children who spent their early years in institutional care had been reported consistently in earlier studies (Goldfarb, 1945,1947) , and confirmed in more recent studies of Romanian adoptees and associated, in one study specifically, with the duration of institutional care (Le Mare & Audet, 2002; Kreppner, O'Connor & Rutter, 2001). Like the ex institutional children reported above, the effects have not attenuated over time and remained evident several years after adoption (Kreppner et al., 2001).

Together these findings suggest the elevated levels of I/O found in my study amongst children in institutional care were unlikely to be simply a response to some contemporaneous aspect of their ongoing rearing environments, or the quality of basic care. Rather, they represent a specific response to some aspect of early institutional care, which remains for a protracted period of time afterwards, irrespective of the kind of parenting experienced subsequently. Possible reasons for this persistence in effects will be considered below in conjunction with aspects of social behaviour that show a similar profile. Finally the association between I/O and institutional care was not accounted for by low cognitive functioning. In my study, no significant relationship between IQ level and inattention/ overactivity both as observed and rated was found for the children raised in institutional care.

Rather different conclusions are reached in relation to carers' raters of children's disorders. The possibility of systematic differences in ratings between residential staff and foster parents cannot be dismissed totally, but specific rather than general differences were found, and when present these differences were substantial. The overall problem rating was higher according to residential staff, twice as high as ratings by foster parents. This was largely due to significantly higher ratings on emotional and unsociability subscores.

In contrast, the major differences between subsamples in Tizard & Hodges' (1978) study were found at school as discussed above. Very few differences were evident at home; none at all in terms of subscores. Interestingly the higher ratings of carers in my study correspond to one of the few studies of contemporaneous institutional care: the findings reported for the somewhat older sample of Greek children, where the picture of disorder

reported was more mixed than that typically found when institutional care is restricted to the early years only (Vorria et al., 1998).

This suggests that these problems of emotionality and unsociability were likely to represent reactions to ongoing aspects of care in group settings; and/ or the absence of enduring and secure attachments with significant adults such as adoptive or foster parents. Even when residential staff reported selective attachments, the extent to which they provide secure bases that were comparable to those afforded by ever-present parent figures is questionable.

Selectivity of attachments and social relationships

In my study, a definite lack of selectivity in social relationships in terms of poorly differentiated responses to specific preferred adults and/or peers and inappropriate overtures to strangers was found amongst boys in institutional care only. These behaviours characterised a small, but significant, minority of the sample of institutional children as a whole; although half of the boys in institutional care were described in this way. None of the children in foster care had extreme scores, but for just over a third of the sample there was some evidence of a lack of selectivity (see paper 2).

Despite somewhat different methodologies, this profile of poorly regulated social behaviour has been identified in almost every study of institutional care for young children. Whilst never a universal response, between a third and a half of children in any one sample have been described in this way, there is general agreement that this profile typifies children who have experienced institutional care (Chisholm et al., 1995, 1998; Fernyough, Audet & Le Marc, 2002; Goldfarb, 1945; O'Connor et al., 1999, 2000; Rutter et al., 2001, 2004; Tizard & Hodges, 1978). Moreover its occurrence in children who have subsequently been adopted, and the degree of persistence evident many years after the cessation of institutional care, suggests that this disinhibited behaviour is rooted in the *early* experience of institutional care, irrespective of the quality of the basic care provided (Chisholm et al., 1995, 1998; Fernyough, Audet & Le Marc, 2002; Goldfarb, 1945; O'Connor et al., 1999, 2000) This is further confirmed by Wolkind's finding that it was quite specific to institutional care experienced during infancy (Wolkind, 1974).

There is general agreement that this lack of selectivity in social relationships is likely to be associated with the lack of opportunities to form selective attachments in infancy (Chisholm, 1998; O'Connor et al., 2000, 2003; Rutter et al., 2004; Zeanah et al., 1996, 2000). Support for this comes from different sources. First, a marked lack of selectivity in

social relationships in my study was found only in children in institutional care; none of the children in foster families were described in this way. Second, these behaviours were not found in children who were adopted before 4 to 6 months of age (Chisholm et al., 1995, 1998; O'Connor et al., 1999, 2000), the period prior to the emergence of clear cut attachments (Bowlby, 1969/1982; Cassidy & Shaver, 1999). Third, these disinhibited attachment behaviours were not evident in the Romanian orphans adopted in the UK from their family homes (O'Connor et al., 2003). Fourth, the children who manifested this kind of behaviour have been classified almost invariably as having some form of insecure attachment with their adoptive parents. These attachments were described by O'Connor et al. (2003) as 'insecure/other', to denote that their undifferentiated responses towards carers and strangers fell outside the kinds of behaviours typically classified as secure/insecure using conventional classification strategies (O'Connor et al., 2003). Finally this lack of selectivity in social relationships in my study was specifically associated with inattention/ overactivity as discussed in paper 2; behaviours also found to be related to early institutional care as discussed above. The association between inattention/ overactivity and lack of selectivity in social relationships will be considered further below.

There is less agreement on the association between disinhibited attachment behaviours and both IQ and duration of institutional care (Chisholm et al., 1995, 1998; O'Connor et al., 1999, 2000). Rutter et al. (2004) found no associations between disinhibited attachment behaviours and head circumference or subnutrition amongst their sample of Romanian adoptees and concluded that unlike IQ, active neural damage was unlikely to be implicated. Rather it was argued that the evidence overall, particularly in terms of persistence of effects, supported some kind of programming effects (Rutter et al., 2004).

Group difference in reading ability as a measure of educational underachievement.

The full extent of 'looked after' children's low academic achievement and learning problems has only been realised relatively recently, following the government surveys of 'looked after' children (e.g. DfES, 2004; Meltzer et al., 2003). My study took place prior to the point when the educational outcomes of 'looked after' children were subjected to more systematic investigations in the late 80's (Jackson, 1987); although the earlier studies referred to the low academic achievement of children who spent their early years in institutional care (Goldfarb, 1945).

Scores from the standardised measure of reading ability were taken as an exemplar of academic achievement. The standardised assessment is a more objective measure than the

teachers' ratings of the children's performance. As discussed in the next chapter the problems associated with small group sizes, wide variability in scores and lack of statistical power were particularly acute in relation to these findings. Moreover the children were young, and many were in the very early stages of reading development where measured IQ and perceptual skills are thought to be key factors (Stuart & Coltheart, 1988). Accordingly high and significant correlations between IQ and reading accuracy were found for children in institutional care, those in foster families and their classroom controls.

Significant changes in education practice in general and in the approach to the teaching of reading specifically have occurred since the time of my study. A systematic approach to the teaching of reading was lacking at the time, and this period predated the subsequent emphasis on the early development of phonological skills (Snowling, 2000; Stanovitch, 1995) and the introduction of the literacy hour into the primary school curriculum. However despite these important changes in practice the reported academic achievement amongst 'looked after' children remains worryingly low. Further early reading skills emerged as a significant factor in subsequent academic achievement of 'looked after' children (Jackson & Martin, 1998). It therefore is of interest that the children in institutional care overall had poorer levels of reading performance and a higher incidence of reading delays than children in foster care, than could not be accounted for by differences in levels of cognitive functioning. Obviously given the association between academic achievement and stability of placement history (Goddard, 2000), the foster children in my study who had remained in the same family throughout their time 'in care' were at an advantage. Yet within my sample of foster children, at least some of the variance in performance was accounted for by the level of parental interest as measured by frequency of help given with homework. In contrast, this measure was unrelated to performance in the institutional group.

Whilst early reading skills may be necessary for later academic achievement, it is evident that they are not sufficient. The adopted children in Tizard & Hodges' study showed no evidence of reading delay at 8 years, with reading levels similar to, if somewhat higher than the foster children in my study (Tizard & Hodges, 1978). Their subsequent performance at GCSE however was lower than their matched controls despite IQ levels in at least the normal range and the significant part of their lives spent in supportive, adoptive families (Hodges & Tizard, 1989). The relation between the elevated levels of I/O and reading skills will be discussed below, but it is clear that more research into educational performance of looked after children is required.

Inattention/overactivity and its relation to 'ordinary' ADHD as clinically observed.

The problems related to the comparison between I/O and ADHD, due to the multifaceted nature of ADHD were discussed in the introduction. This section however draws on findings from my study to consider the extent to which profiles associated with I/O parallel those known to relate to ADHD. A further aim is to argue for an approach that starts from identifiable psychosocial factors acting as potential pathogens, rather than taking symptoms as a starting point.

Relation to IQ

As noted above, no significant association between IQ and I/O was found in my study for children in institutional care. Comparable analyses were not reported by Tizard & Hodges, although they found significant negative correlations between parent reported problems overall and IQ. On the other hand significant associations were reported between I/O and cognitive functioning in the ERA study, but the range of IQ scores was greater, in particular low scores were more extreme (Kreppner et al., 2001).

Overall no clear picture about the relationship between intellectual functioning and ADHD emerges from the evidence to date, Barkley (1995) for example questioned the utility of IQ tests in ADHD. On the other hand Tannock (1998) reported that ADHD is typically associated with lower full scale IQ, but measures of intellectual functioning fall well within the normal range. There is some evidence that intellectual profiles may be more correlated with inattention than with hyperactivity / impulsivity (e.g. Glaub & Carlson, 1997). However the evidence is far from conclusive; some studies reported no differences on IQ measures between subtypes (e.g. Morgan, Hynd, Riccio & Hall, 1996), others that differences were reduced to non significance once SES was taken into account (Eiraldi, Power & Nezu, 1997).

Hence whilst the level of cognitive functioning may influence the manifestation of ADHD, there is little evidence that it determines it, or that the relation between IQ and I/O is distinctive.

Relation to reading delay and learning disorders

As discussed in the introduction understanding causal factors in ADHD is complicated by the presence of a number of comorbid conditions, including learning disorders. Numerous studies have shown that children with ADHD are at increased risk for poor cognitive functioning, and school failure as measured by grade repetition, academic

underachievement, placement in special classes and need for remedial tutoring (Hinshaw, 1992; Tannock, 1998; Velting & Whitehurst, 1997). Of relevance to the present discussion is that reading delay represents the most common form of learning disorder, constituting the primary problem of about 80% of children with a diagnosed learning problem (Beitchman & Young, 1997; Plomin et al., 1997; Stevenson, 1996). In the recent survey of the mental health of 'looked after' children in the UK, children with a mental disorder were over twice as likely as children with no disorder to have marked difficulties with reading, mathematics and spelling according to teachers' ratings. The disorder, perhaps unsurprisingly, where this association was highest was hyperkinesis (Meltzer et al., 2003). Hence, in many respects the relation between I/O and reading delay found in my study parallels that of the more general relation between ADHD and reading delay. The question of causality and the relation between ADHD in general is complex, however (Hinshaw, 1992; Stevenson, 2001).

Likewise, Hagemann, Hay & Levy (2002) pointed out comorbidity can occur for a number of reasons not least methodological artefacts, but beyond these there are several rather different underlying processes that need to be considered including:

- Disorders share the same risk factor or factors
- One disorder creates an increased risk for another
- The comorbid pattern constitutes a meaningful syndrome, that is, comorbid cases are due to a separate third disorder.

Clearly these associations may vary according to particular populations studied, but it is important, not least in terms of developing effective remediation, to understand the mechanisms that underlie the low achievement in 'looked after' children. Hence there was some evidence in my study that differences in reading performance found between children in institutional care and those in foster families was at least partially mediated by attentional difficulties. These findings need to be confirmed in a larger sample, and whether or not similar processes apply more widely within subpopulations of 'looked after' children needs further investigation.

Gender differences

One of the most consistent findings in the study of ADHD has been the unequal representation of the sexes, with an overrepresentation of boys by about three boys to one girl found in both clinic and population samples amongst school aged children. (Gaub & Carlson, 1997; Heptinstall & Taylor, 2002; James & Taylor, 1990; Thorley, 1984).

Findings in my study were consistent with these reported ratios for ADHD; significant gender differences in I/O were found not only within groups, but also more surprisingly

between groups. The between group differences found between children in institutional care and those in foster families were largely driven by the higher rates of I/O found in the institutional boys, as discussed in paper 2. Analyses of gender differences were not undertaken in Tizard & Hodges' study (Hodges, personal communication), but similar gender differences were found in Vorria et al.'s study of children in Greek institutions (Vorria et al., 1998). On the other hand results from the English Romanian Adoptees study differed in this respect, the expected gender differences in I/O were not found. They suggested this may be due to the high levels of deprivation incurred, with institutionalisation effectively neutralising the general protective effect found for girls (Kreppner et al., 2001). Hence the conflicting results from the two studies may be due to small sample effects in my study and/or stem from some kind of threshold effect, with the breakdown of gender differences at the more extreme levels of deprivation, such as suffered by the sample of Romanian orphans. More generally, evidence on a greater vulnerability of boys to psychosocial adversities is not unequivocal (Werner, 1984; Zaslow, 1988, 1989), although there is evidence that in some circumstances boys may be more vulnerable (Sinclair & Murray, 1998). Sinclair & Murray's follow up study of primary school aged children whose mothers' suffered post natal depression found very similar profiles and gender differences to those reported in my study. Similarly the recent survey of the mental health of 'looked after' children found gender differences in hyperkinetic disorder in the younger age ranges (Meltzer et al., 2003). Likewise there is some evidence that infant boys have greater difficulty maintaining self regulation when confronted with the 'still face' paradigm and are more dependent on their mothers to help regulate their affective states than girls (Weinberg, Tronick, Cohn & Olson, 1999). Clearly there is a need for more research on gender differences in relation to different forms of disrupted parenting, and further investigations of the continuity of any effects across time.

Pervasiveness/ situational specificity

Evidence from systematic observations in my study found that the elevated levels of inattention/observation of the children in institutional care were limited to the more demanding, teacher directed formal activities. Their attention to child directed and personally selected tasks was comparable to the other groups, and if anything marginally better. The contrast between their engagement in the different kinds of task was striking, and found only in children in institutional care (paper 3).

Sandberg (2002) argued however, that variability in hyperactivity in ADHD is not uncommon. She suggested this situational specificity highlights the significant role that environmental factors play in determining the expression of the disorder (Plomin, 1994a,

1995; Sroufe, 1997b). Variation may stem from different aetiological mechanisms, and it may affect the severity and persistence of problems. Nevertheless, as Sandberg noted, consideration of such variability may facilitate understanding of the meaning of such behaviours in children.

Tizard & Hodges (1978) found that the ex-institutional children could apply themselves effectively and were not inattentive in the individual assessment sessions. They argued this supported a hypothesis that these behaviours were driven by the children's overwhelming desire for adult attention. However the association found with task demands in my study irrespective of adult presence and the marked persistence of such problems despite the formation of close attachment with adoptive parents (Kreppner et al., 2001) suggests some more fundamental effects on their level of functioning is likely to be involved.

From my own observations the children absented themselves in different ways from the more demanding formal activities imposed on them. For children in the early stages of education, concentration problems are not uncommon (Richman et al., 1982). The majority, however, do apply themselves in varying degrees, often with enthusiasm, to tasks that they themselves have not chosen to do, and take personal pride in their achievements.

An impression gained from the assessment sessions was that children from intact families and those in foster care would ask how they were doing in relation to some generalised others. These kinds of comments, that suggested a self awareness vis a vis others, were not found amongst the children in institutional care. On the other hand there were examples of children from both 'in care' groups of labile behaviour and particular susceptibility to their immediate environment. For example, one child in institutional care was highly disruptive when a student was left in charge during a brief absence of the permanent class teacher. Likewise a child in foster care had been transferred to a different class just prior to my visit. His behaviour was indistinguishable from his peers and his current teacher reported no problems. This contrasted with an exceptionally high problem rating on the teacher questionnaire completed by his previous teacher, before the transfer. The immediate classroom presented as a calm, quiet, highly organised setting. Expectations were clear and children responded accordingly. My impression overall was what is good practice for the majority of children could be particularly significant for the kind of behaviour manifested by the children 'in care'.

Relation to selectivity of attachments, social relationships and self regulation

Sandberg (2002) noted that early disrupted parenting is probably the only psychosocial factor where the evidence supports a *specific* association with hyperactivity. As detailed in paper 2, a quite *specific* relationship between inattention/ overactivity and marked problems in social selectivity was found in my study; both of which have been shown to be associated with an early lack of continuity in personalised caregiving (see sections above). Likewise associations between I/O and disinhibited attachment behaviour were evident in the UK sample of Romanian adoptees (O'Connor et al., 1999; O'Connor et al., 2000). Similarly LeMare & Audet (2002) found in the Canadian sample that children's scores on indiscriminate friendliness at 3 years positively correlated with attention problems more than 8 years after adoption. Nevertheless typically only about half the cases of elevated inattention/ overactivity found in my study and others showed this profile of co-occurrence with disinhibited attachment behaviour. This may be partly due to measurement issues, but also suggests some heterogeneity of I/O, even within samples of children who have shared the common experience of early institutional care. Nevertheless the association between I/O and a lack of selective attachments is probably, to date, one of the most distinctive features that set it apart from 'ordinary' ADHD as clinically observed.

Various possible explanations may exist for this relationship, but only one, the role of self regulation, will be considered here. As noted in chapter 3, O'Connor described the Romanian adoptees 'disinhibited' behaviour in terms of socially and emotionally poorly regulated behaviour (O'Connor et al., 2003). Likewise disorders of self regulation and disinhibition have figured recently as possible explanatory constructs of hyperactivity (Olson, 2002; Sandberg, 2002). According to Olson (2002) self regulation can be seen as a complex superordinate construct that includes many different component processes that serve to integrate cognitive, affective and motor functions in response to varying situational demands. These include affect regulation, involving the modulation of fear and anger, and cognitively mediated self control, that underpins the ability to act in a rule governed, socially approved manner in the absence of external controls (Barkley, 1997b; Kopp, 1987, 1989; Olson, 2002; Posner & Rothbart, 2000; Ruff & Rothbart, 1996; Schachar et al., 1993; Thompson, 1994). Eisenberg, Fabes, Nyman, Bernzweig & Pinnuelas (1994) argued that modulation of strong emotional arousal is an important part of social competence. These kinds of problems appear to characterise the nature of difficulties associated with a lack of continuity in early parenting and early institutional care, as shown above.

Importantly in this context, caregivers are thought to play a crucial role in the development of self regulation, through their social interactions with their infants and the way in which they structure their infants' physical environment (Sroufe, 1991, 1997). Typically there is a progression in early infancy from a reliance on a caregiver for regulation of arousal to a state of self regulation (Derryberry & Rothbart, 1997; Sroufe 1997a,b). More specifically Ruff & Rothbart (1996) argued that 'although children's ability to regulate their own states contribute to attentional control at all ages, young children would not acquire many of the skills necessary for self-regulation of attention without attachment to and interaction with more experienced members of the community.'(p. 134).

Failure to develop effective self regulatory capacities during infancy is hypothesised to be linked with poor attention and emotional regulation strategies (Rothbart & Bates, 1998). Hence it may be that multiple, inconsistent and impersonalised care is not conducive to the development of self regulation and the kind of higher order attention skills, associated with long term deficits in I/O and social engagement. Disregulation can then be seen as an adaptation to a suboptimal caring environment. Zeanah, Boris & Scheeringa (1997) found, for example, that infants with chronically poorly regulated interactions with primary caregivers had higher rates of emotional and behavioural adjustment problems in early childhood.

Bowlby proposed that the long term effects of early attachment relationships were mediated through 'internal working models'. This concept, whilst inherently appealing, has been criticised as being too general to be easily tested (Hinde, 1988; Rutter & O'Connor, 1999). An alternative explanation might be that it is not the *content* of early models per se that it is affected and affects subsequent attachment formation, but the development of higher order cognitive and affective functioning that underlie the establishment of such models. An initial lack of selective attachment relationships may affect children's capacities to *form* clearly differentiated 'internal working models'. Meerum Terwogt et al's. (1990) finding that institutionalised children were slower at developing a mature understanding of their own and others emotions, and were less attentive to their own, would seem to support this view. Further infants differ in their levels of arousability and their capacity to deal with arousal (Kagan et al., 1984), such individual differences have been found in turn, to interact with caregiver behaviours and varying levels of environmental stimulation (Wachs, 1987; Parrinello & Ruff, 1988). Hence the marked individual differences in I/O may arise from an interplay between caregiver(s) and infant characteristics.

In conclusion as Rutter et al., (2001) noted, one of the most striking findings is the specificity of problems associated with early institutional care. On all measures the foster children in my study occupied a middle position between children in institutional care and their matched classroom controls, although the *pattern* of problems was not dissimilar. Institutional care can be seen as an exemplar of an extreme form of disrupted parenting. The implication of these findings for social policy and for subsequent research will be considered in the following chapters.

Chapter 6: Implications for social policy

Significant changes in social policy have taken place since the time of my study, when the post Seebohm, generic approach dominated social work practice (see chapter 1); not least social work departments now include social workers specialised in the care of 'looked after' children. A series of government acts, White Papers and initiatives have made a number of recommendations and invoked many changes in practice in the interim period and recent years (e.g. Adoption and Children Act, 2002; Children Act, 1989; Guidance on the Education of Children and Young People in Public Care, 2000; Quality Protects, 1998; Utting report, 1997 and see Mental Health Foundation, 2002). Nevertheless some issues arising from my study remain, in particular those around continuity of care and the permanency of placements.

'Looked after' children constitute probably one of the most high risk populations in societies (Rosenfeld et al., 1997; St. Claire & Osborn, 1987; Thorpe & Swart, 1992). Hence, in terms of social policy, it is important to establish at the outset, the extent to which their problems are a function of their experiences in care. As discussed, my study confirmed that the deleterious effects associated with institutional care were not simply a function of their high risk backgrounds (see paper 1). On the other hand, further research would be necessary to establish whether the much lower rates of problems found in children raised from infancy in the same foster families, constituted significant differences that were attributable to their substitute parenting experiences (see paper 1 and following chapter).

As discussed in the introduction (see chapter 3), the impetus for Bowlby's WHO report (1951) was policy concerns about the clinical needs of vulnerable children. Most would agree that Bowlby's attachment theory now underpins social policy in relation to the treatment of young 'looked after' children; as seen for example in the recognition of children's need for continuity in caregiving relationships and 'permanency' (Cousins, Monteith, Larkin & Percy, 2003; Rutter & O'Connor, 1999). Similarly 'ideal' care plans are seen to be those that maximise the possibility of establishing and maintaining at least one secure attachment with carers, whilst minimising the degree of instability experienced (Monck, Reynolds & Wigfall, 2003; Rosenfeld, 1997; Rushton & Minnis, 2002).

Findings from my study supported Bowlby's contention that the damaging feature of institutional care for young children was the lack of personalised caregiving and hence the lack of opportunity to develop selective attachments. On the basis of my study, and

earlier and subsequent studies of early institutional care discussed in previous sections, no professional would question the appropriateness of the decision to discontinue residential care for the very young in need of substitute parenting in the UK; nor the continuing movement to reduce the number of infants and young children who are reared in institutional care internationally, particularly where the quality of such care is very poor (Gunnar et al., 2000).

Rutter & O'Connor (1999) noted the initial focus of attachment theory on the harmful effects of separation led to a discouragement of personal involvement of residential staff with children in their care. This policy was based on perhaps misplaced concerns about the dangers of losing relationships rather than on the failure to gain one in the first place. However until recently, there was no systematic study of the quality of infants' and young children's attachments to caregivers in institutional care (Vorria et al., 2003). The assumption has been that the discontinuity of care, along with the general lack of engagement by a large number of carers precluded the establishment of enduring selective attachments. In my study, a minority of children in institutional care were seen to have no problems in selective relationships. However whether their attachment relationships with carers were equivalent to those made with ever present parent figures and the long term sequelae of the loss of such carers were such attachments to be formed is not known.

The closure of residential nurseries for young 'looked after' children resulted in an increasing use of both short term and long term foster care (chapter 1). The rapidity of change from residential to foster care placed an enormous strain on the care system in general and found it ill prepared to deal with the increased demand for foster care. In the aftermath, long term planning for children entering care was felt to be inadequate and children were found to 'drift' in the care system (Cousins et al., 2003). High numbers of breakdowns in foster placements were reported and associated with problems in the children (see chapter 1 and Berridge, 2000; Rosenfeld et al., 1997; Rutter & O'Connor, 1999). There was some evidence that children with multiple placements had not dissimilar profiles to the kind associated with early institutional care (Howe, 1997). At worst it could be argued that discontinuity of residential carers had been replaced by discontinuity of foster carers, albeit provided by only one or two individuals at any one time.

This was not the case for the children in my study placed in long term foster families, who in many respects were not dissimilar to children adopted as infants. They differed

primarily with respect to the amount of permanency associated with their placements, and on the whole the evidence was that they were doing well. On the other hand, there may be close parallels between short term fostering, where foster parents look after a substantial number of children, and aspects of institutional care, albeit without the disadvantage of ever changing care givers (Rutter & O'Connor, 1999). To a lesser extent foster homes that combine long and short term placements, with a changing roster of children, also provide a less stable family unit. This was the case for a number of children in my study, and as argued, it may not be desirable to combine short and long term placements (paper 1). More generally, in practice, short term placements may develop by default into long term placements, and in the absence of long term plans this may incur a number of moves for the children (Rushton & Minnis, 2002).

A minority of children in foster care in my study had contact with their biological parents, and this tended to be fairly frequent and predictable, unlike the parental contact with children in institutional care (paper 1). Evidence on the implication of parental contact is mixed (Quinton, Rushton, Dance & Mayes, 1997; Rushton & Minnis, 2002), but more research in relation to the needs of children in different types of foster care is required. In some respects the concerns expressed by Tizard (1977) about decision making in the context of parental indecision are just as evident today as 20 years ago. Overall the effects associated with different forms of foster care are much less well delineated than those associated with institutional care or adoption, not least because they are a much more disparate group of children. However despite evidence of a significant increase in adoption (Cousins et al, 2003; McSherry, 2004, personal communication) and government initiative to encourage greater permanency in this way, the likelihood is that foster care will continue to play a significant role in the state provision of substitute care, and the need for more research is paramount.

The implications of my study apply to the developmental needs associated with the early years. Whilst there are strong arguments against institutional care for young children, residential care may remain the common placement option for the older child or adolescent (Rushton & Minnis, 2002). Such differences raise questions about treating the 'looked after' population as a homogenous group. A minority of children admitted into care in their early years will remain in the care system throughout their childhood (Rushton & Minnis, 2002), whereas others, with possibly very different needs and problems, will be admitted at a later stage. For example a recent report on the mental health of the population of 'looked after' children as a whole, referred only to studies of older 'looked after' children and young people, where the level of disorder was high and

types of disorder mixed (McCann, James, Wilson, et al., 1996; Richardson & Lelliott, 2003). Another study however, indicated that many of these problems may predate admission into care (Dimigen, Del Priore, Butler, et al., 1999). Thus it seems essential for social policy, as will be argued in the next section, that research be done that helps to clarify issues around the heterogeneity of the population of 'looked after' children, the nature of their problems, and the multiple risk factors that may affect outcomes.

Likewise a substantial proportion of research on the educational outcomes of 'looked after' children has focused on adolescents and the qualifications of care leavers (Hayden, Goddard, Gorin & Van Der Spek, 1999). My study looked at one index of educational achievement in a sample of children in the very early stages of education.

Without basic literacy skills, children are not in a position to access education effectively. Early reading emerged as a key variable associated with high educational achievers in a sample of 'looked after' young adults (Jackson & Martin, 1998). Reasons for high levels of reported underachievement in the 'looked after' population are likely to be complex and multifaceted; but early remediation of problems is essential. Recent changes in policy, the impetus towards more cooperative 'joined-up working' in the key services and the introduction of Personal Education Plans (PEPS), are all designed to raise the educational profiles of 'looked after' children. These approaches, if implemented, are likely to promote the development of active interest in the children's education: a potentially important factor in achievement as found in my study and others (Jackson & Martin, 1998). There was some evidence in my study of the potential impact of differences in children's processing skills/ cognitive functioning on early reading skills. As Gunnar et al. (2000) noted, little is known about the ways in which executive function impairments may affect the way post institutionalised children deal with the intellectual challenges encountered at school. More research in this area is needed.

The emphasis on more 'joined-up working' amongst different agencies involved in the care of 'looked after' children (Quality Protects, 1998) goes some way to meeting the concerns expressed 20 years ago by Werner and reiterated by many others since (but see Rushton & Dance, 2002). She urged the disparate groups of professionals involved in different aspects of the care of vulnerable children to communicate more and disseminate findings effectively for the good of the people directly concerned in the care of the children (Cicchetti & Toth, 2000; Rosenfeld et al., 1997; Werner, 1984). Rushton & Minnis (2002) concluded their recent review chapter by stating that for 'joined-up working' to be effective requires 'research, money and political will' (p.369). The implications for research will be considered in the next chapter.

Chapter 7: Critical evaluation of study and implications for future research

There are at least 4 main criticisms of the study, these include:

- Possible bias in sampling of children in long term foster care.
- Possible bias due to knowledge of children's placements, and limitations associated with data collection carried out primarily by one researcher only.
- Psychometric assessments of classroom controls on foster controls only, and carers' measures on 'in care' children only.
- Implications of small group size on effect size and power of tests.

In addition:

- Findings apply to matched controls selected and age of children when studied.

Bias in sampling of children in long term foster care

As discussed in paper 1, the sample selection criteria in excluding children who had moved placements because of behavioural difficulties, might have underestimated the level of disturbance among the children in foster families. There is no evidence to date that directly addresses this issue, but as was argued in paper 1, the numbers involved would have to have been substantial to account for the differences in pervasive disorder found between the children raised in institutional care and those placed in long term foster families. Moreover this runs counter to the evidence that suggests that breakdown rates are less prevalent with very young children placed at an early age (Minty, 1999).

Bias due to knowledge of children's placements, and limitations associated with data collection carried out primarily by one researcher only.

Blind data collection by teachers, carers or myself were not feasible, and the possibility of bias in ratings was an issue, particularly in relation to children 'in care' where preconceptions may affect judgements in different ways. In addition the children were very young, a number were in their first year of school, and teachers may have varied in the extent to which they perceived behaviours as a reflection of immaturity for example, rather than atypical and hence rated as problematic. Finally residential staff and foster parents may have adopted different yardsticks when judging the behaviour of children in their care. Some have expressed concern about levels of underreporting by foster parents (Halfon, Mendonca, & Berkowitz, 1995; Rosenfeld et al., 1997). Whilst none of these possibilities can be totally dismissed, a number of factors suggest they did not have a major impact on the results. These can broadly be divided into methodological controls and consideration of the results.

Methodological controls:

- As discussed earlier an advantage of the multimethod approach adopted was it provided measures of internal validity. Questionnaires were forwarded to schools and homes prior to the initial visit; teachers and carers were asked to complete these in time for the first visit. The teachers' ratings were not looked at until *after* the initial period of classroom observation to avoid bias in the systematic observations. Whilst the overall level of agreement was high (see paper 1), there were also occasions with individual children when there was lack of agreement between teachers' ratings and observational measures. Interrater reliability of the observational measure was established prior to data collection (see paper 1). Ideally random checks by an independent rater should have been conducted throughout the study to ensure consistent use of coding, but resources did not allow for this. However, the comparability of the control group scores collected a year apart suggested that an acceptable degree of internal consistency in observation ratings was achieved across time and settings.
- Blind rating of parental disorders and malfunctioning *was* carried out on the children's family background by MR. As described in paper 1, extracts from social work records that related to either parental functioning, the child's early history and reasons for placement, and parental contact were recorded from the social work case files. Information about parents was extracted, and any identifying descriptions removed prior to the independent assessment of parental psychopathology by MR. Any limitations in this measure were more likely to have derived from the mixed quality of social workers' written reports, an issue that was equally applicable to children placed in either residential or foster care, than to biased ratings of psychopathology.

Consideration of results:

- The degree of variability in all measures suggested that bias in rating and observation data if present, was unlikely to be systematic. Variability was particularly marked in the observation data and applied to all groups, both the 'in care' and their matched classroom controls. Moreover the mean inattention and hyperactivity observation scores for the control groups did not differ and were very similar, although there was a year's gap between the two data collection periods. This again suggests that any 'drift' in use of coding if present, was minimal, and insufficient to account for the between group differences found.
- With the exception of reading results (see below), where between group differences were found they were generally large and specific. Children 'in care'

and those placed in institutional care did not have significantly higher ratings on *all* aspects of behaviour according to their teachers and/or carers, which again argues against systematic bias in rating.

Psychometric assessments of classroom controls on foster controls only, and carers' measures on 'in care' children only.

Resource limitations imposed constraints on the extent of data collection; but both these measures, psychometric assessments of classroom controls for the institutional group and home measures on all control children, would have provided valuable information. There was some evidence that the two control groups were similar in terms of levels of academic achievement, according to teachers' subjective ratings (data for all groups), but such estimates were prey to the normative expectations of any one school and teacher. Standard scores, on the other hand, like the observation measures, afforded the possibility of applying the same baselines across the range of school settings. The lack of psychometric measures on the classroom controls for the institutional group limited between group comparisons that took account of the cognitive performance of their matched controls. In the case of at least one matched pair from the institutional group, for example, this went against the direction of the predicted hypothesis. The control child had substantially higher rates of observed inattention/hyperactivity than the target child placed in institutional care in the same class. The matched control was considered by the school to be a globally delayed child, although a full psychometric assessment had not been carried out at that point. Likewise home ratings would have provided useful comparators, not only in terms of parents' ratings of their children's emotional and behavioural problems, but also in terms of their selectivity of social relationships and attachments. Evidence from the control group in Tizard & Hodges' (1978) study provided some indications of normative expectations for this age group, as do the UK adoptee sample of the ERA study (see previous section). Nevertheless comparable data from the children in my study would have provided useful information, particularly with respect to the performance, adjustment and selective attachments of the foster children.

Implications of small group size on effect size and power of tests

As discussed in paper 1, a number of convergent factors restricted the size of the final sample of children in long term institutional care, including significant falls in the number of infants admitted into care, and the move against placements of very young children into residential nurseries. The final sample of 19 children placed in institutional care represented the *total* number of children that met the inclusion criteria drawn from all participating trusts and voluntary societies. Not all placement details on the children were centralised, but personal searches of records were no more successful, suggesting that

few, if any, children had been missed. Nevertheless the final sample sizes were smaller than anticipated or desirable. Inevitably implications of small group size were greatest where effect sizes were smaller, and this increased the likelihood of type II errors. Hence the children in foster care consistently occupied an intermediate position relative to the other samples of children; rated as significantly less problematic than the children in institutional care but with higher ratings compared with their matched classroom controls that, nevertheless, fell short of significance. Confidence in accepting the null hypothesis would have been increased were a similar result to have been found with larger samples of children. Again small sample sizes, the age range of the children, with the younger children in the very early stages of reading development, and the wide variability in reading scores reduced the power of the analysis of between group differences in reading ability, despite quite substantial differences in the mean level of performance of the children reared in institutional care, foster families or natural families.

Findings apply to matched controls selected and age of children when studied.

Finally, as noted in paper 1, the children in my study were young, and findings restricted to the age range studied; although evidence from other studies cited earlier suggest that the profile of problems found may be indicative of longer term difficulties (see previous section and paper 3). Likewise it could be argued that the matched control groups, drawn from the same classes as the 'in care' children, increased the likelihood of between group differences. Whilst classroom matched controls were the preferred choice in terms of the design of the study (see chapter 2) they were not well matched in relation to the risk factors of the biological family background of the 'in care' children. For example, a study reported that foster children had more than 14 of the risk factors identified by Werner & Smith (1992) in their prospective study of Hawaiian infants (Thorpe & Swart, 1992). This figure compared with four factors that were linked with poorer outcomes in the original study.

Implications for future research

A number of outstanding questions remain around the developmental outcomes of children who spend periods in substitute care, the degree to which problems are related specifically to their experiences of state provided care and the extent to which such difficulties are remediable.

As Triseliotis (2002) concluded from a review of the research literature that unlike adoption, there is a dearth of studies in long term fostering that go beyond the 'snapshot' approach. Similarly Rosenfeld et al. (1997) in the US referred to research on foster care

as 'spotty at best'. They expressed concern about the methodological weaknesses of existing research and the numerous confounding variables that made it hard to reach a single definitive conclusion on foster care's impact.

Whilst, as a group, 'looked after' children represent a minority of the population of children in our society, their indisputable vulnerability demands that these questions are addressed; both in terms of the quality of their contemporaneous childhood experiences and their long term development and functioning as adults in society. Moreover findings not only from children who have experienced institutional care, but more generally who have been subject to different forms of disruptive parenting in early infancy and childhood can provide invaluable information that informs theory, research and social policy (Maclean 2003).

Werner (1984) noted that more attention has been given to the exceptions, specifically the minority of children in institutional care. She cited Belsky (1980) who observed that 'we seem to know most about that we have least of, and conversely least about what we have most of' (p.84). Whilst this remains only partially true today, the study of minority groups has wider implications. Institutional care of infants and children, represents the antithesis of parental care as generally practised both in developing and industrialised societies. Care by a large number of people that tends to be discontinuous is the exception not the rule; the majority of infants and young children (and primates) are looked after by primarily one caregiver, most often the mother, or care is shared equally amongst a few additional individuals (Werner, 1984). Yet the study of the exceptions, as Bowlby recognised, can tell us a lot about normal development. The bedrock of attachment theory, as discussed earlier, was the study of atypical parenting, specifically discontinuities in care as exemplified by early institutional care, hospitalisations of young children and privation studies of infant primates. The theoretical understandings, however, based on evidence from these minority groups, have been widely influential in the field of social policy, as argued in the previous chapter.

Institutional care and foster care in my study were not just exemplars of particular kinds of placements, but also particular forms of early caregiving environments. In order to understand the impact of early care as distinct from the multitude of exogenous and endogenous factors that potentially affect the psychological development of 'looked after' children, it is essential to adopt designs that control for these confounding factors and deal with the heterogeneity of this population in various ways. The following discussion

considers four kinds of designs, and their potential to address some of the outstanding questions referred to above. These include:

- Epidemiological, cross-sectional
- Epidemiological, longitudinal
- Randomised control trials/treatments (RCTs)
- 'Natural experiments'

These designs are not mutually exclusive, but are taken to highlight some of the strengths and weaknesses of different approaches.

Different disciplines and professions including those in child development and psychology, psychiatry, social policy, and more recently education approach the study of the welfare of children 'in care' in somewhat different ways. Part of the disparity stems from the type of questions posed, how the heterogeneity of the population of 'looked after' children is dealt with and the level of analysis adopted. The enormous heterogeneity of the 'looked after' population of children is partially dealt with by considering identifiable subgroups. Typically more homogenous subgroups are defined by narrowing selection according to specific criteria for example: current age, placement type, number of placements, age of admission, duration in care, etc. Similarly studies of the effects of disrupted parenting, including my own, have dealt with the heterogeneity of the 'looked after' population by identifying samples according to particular rearing experiences and adopting constrained selection criteria. These studies may have high levels of internal validity, but arguably lower external or ecological validity. Such children cannot be described as 'typical' of the 'looked after' population; although heterogeneity and typicality are probably a contradiction in terms.

Subject attrition is a major methodological issue for longitudinal studies in general (McCall & Green, 2004). The risk of attrition is particularly great in studies of 'looked after' children where mobility is the norm. For example in the UK, 40% of children return home after 8 weeks, more than half will have gone home within 6 months and 70% within a year (DoH, 2000). Hence longitudinal studies need to take subject loss and mobility into consideration, along with the heterogeneity of the population of 'looked after' children as a whole.

Epidemiological, cross-sectional

Recent government sponsored surveys of 'looked after' children are examples of cross sectional, epidemiological studies (DfES, 2004; Meltzer et al., 2003). They provide important information at a more 'macro' level (Bronfenbrenner, 1979), about broad

trends in the population as a whole, in relation to the number of children in different age groups, their placements, mental health, welfare and educational outcome. These surveys play a crucial role in the overall monitoring of 'looked after' children and young people as a whole. This kind of evidence is well placed to assess the degree to which recent policies and government guidelines are implemented, the extent to which targets are met and generally to evaluate the impact of recommendations in broad terms. Nevertheless such data is cross sectional and principally addresses questions about the prevalence of problems and disorders, and their relative frequency in identifiable sub groups (for example by age, placement type, etc). Representativeness of samples depends partly on the adequacy of central records and/or recruitment of participants. These large scale studies are useful in identifying risk factors, but less helpful in developing either an understanding of risk mechanisms, or addressing questions about individual differences in resilience or vulnerability. Nor do these surveys identify the degree to which 'in care' experiences contribute to or remediate problems found in the 'looked after' children and young people. As argued above, answers to these kind of questions demand different kinds of methodologies and assessment techniques.

Epidemiological, longitudinal

An example of an epidemiological, longitudinal design with high ecological/external validity is the ongoing Multiple Placement Project in Northern Ireland where one of the main objectives was to examine the placement histories of younger children, and consider their developmental impact (Cousins & Monteith, 2002; Cousins et al., 2003; McSherry, personal communication, 2004). They have adopted the concept of a 'care career' and taken an epidemiological approach following Usher et al.'s recommendation. Usher et al. (1999) argued that the way to accurately depict children's experiences 'in care' is to include *all* children entering care during a specified period and then to follow them up over time (Usher, Randolph, & Gogan, 1999).

In line with the argument presented in the previous chapter the Multiple Placement Project has restricted their sample of 388 children to children under 5 years of age. These children represent all 'looked after' children in Northern Ireland, less than 5 on March 31st 2000. Extensive baseline data were gathered from casefiles on reasons for admission to care, and child and family background, including behavioural problems of the child. The sample was followed up two years later, and similar data gathered. Parental questionnaires were completed and interviews with parents and children were conducted at the follow up stage.

Hence, the Multiple Placement Study in addition to studying the effects of different placement histories offers the possibility of investigating the effects of different types of parenting, prior to and following admission to care. However, because of the problems incurred by subject attrition and the heterogeneity of the sample in terms of reasons for admission, age of admission and subsequent mobility, the number of children in relevant cells could be constrained in the final analyses. A much larger initial sample might increase the likelihood that sufficient numbers of children are represented that had experienced different forms of early disrupted parenting.

Randomised control trials/treatments (RCTs)

An alternative approach, and the one adopted in my study, is to take different forms of substitute parenting as the starting point, which more or less approximate the 'ideal' of continuity and sensitive responsiveness in caregiving. However the problem of selective bias in placement has dogged research in this area and is more difficult to control. Selective bias was one of the major criticisms voiced against the earlier studies; and refers to the notion that placement choices are not random but are affected by child based factors and differences.

Subsequent studies, sensitive to this issue have dealt with this source of potential bias in various ways. Most studies, including my own, are quasi experimental in design and do not rule out bias, but rather deal with it through imposing various controls, either methodological and/or statistical, and include the systematic testing of alternative hypotheses. Nevertheless, some would argue that even at best such methodologies fall short of the experimental ideal, the so called 'gold standard' design of randomised controlled treatment studies (RCTs) (McCall & Green, 2004), that involves the random allocation of subjects to 'treatment groups'. For children admitted to care in early infancy such a methodology would, for example, control for the unknown bias stemming from exposure to the many pre and perinatal risk factors known to be associated with this group, and any selective factors incurred in the process of early or later adoption.

However, as noted in the design section (chapter 2), McCall & Green (2004) argued that choice of method depends on a number of factors, not least the context of the research. In the UK random allocation might be ethically acceptable to evaluate different relatively short term interventions (particularly in cross over designs, where all participants may benefit ultimately). It would not be tenable, however, in relation to the initial placement of infants or children admitted to public care, nor would it have been at the time of my

study when institutional care for young children was still available in the UK as an option following a breakdown in parenting.

The RCT design has been adopted recently, however, in the Bucharest Early Intervention Project (BEIP). This is an ongoing study of infants and young children reared in Romanian orphanages where a main objective is to determine which effects of early institutional care are remediable and which are not (Zeanah et al., 2003). A sample of 136 children aged 5 to 31 months at the time of recruitment who had spent more than half their lives in institutional care have been randomly assigned to two groups: half of the sample remained in institutional care and the other half were placed in Romanian foster families. The study has adopted a wide range of measures, both of the children and their caregiving environments, including early measures of cognitive functioning, joint attention, social relatedness, social communication and early language development, attachment and neurobiological assessments. The study is well placed to address questions about why some domains of development appear to be more compromised than others and promises to provide unique information on the effects of specific types of early rearing environment on children's development. Nevertheless the study has not totally avoided the problem of subject attrition. To date the size of the institutionalised group has decreased by just over a third and the foster care group by a sixth, due mainly to adoption, return to biological families, or placement in government foster care in the case of children in institutional care.

'Natural experiments'

An alternative approach would be to adopt a similar design to the one taken in my study, the 'natural experiment', where the naturally occurring event would be admission into care and placement in family foster care. In contrast to my study the hypotheses would be based on the different forms of early disrupted parenting.

A number of specific questions remain unanswered from my study, many of which hinge around the specificity of problems that was found to be associated with early institutional care, in particular the extent to which the inattention/ overactivity is peculiar to impersonalised care provided by a number of carers, and distinct from 'ordinary' ADHD; and the association of I/O with selectivity in social relationships and educational underachievement. If the crucial variable in this profile were the lack of personalised, sensitive care then we would predict that similar outcomes amongst children who have experienced neglectful parenting. If it is the number of carers that is important then we might expect to find a similar profile of problems associated with multiple placements in

foster care. On the other hand, if the profile is associated with impersonalised care *only* if provided by a large number of adults, then we would not expect to find the same combination of problems associated with either neglectful parenting or multiple placements. Although it is possible that one or other problem may be present. In order to assess the persistence of any problems found, the children would be followed up after two years. A possible design might take the form of a mixed ANOVA, with two between factors, type of parenting (3 levels: neglect, abuse, inability to cope) and number of placements (1 / 3 / >), and two within factors: duration in biological family (2 levels), and times of data collection (2 levels), see below.

In contrast to my study, the independent variable would be the kind of care offered by biological parents, rather than the different types of substitute care that more or less approximate 'normal' parenting. Samples of children matched in terms of age and sex could be drawn from three contrasting groups who differ in terms of parental care received prior to admission into care. The different forms of parenting would include abusive, neglectful, and an inability to cope for other reasons in the absence of recorded abuse and/ neglect, but excluding the behaviour of the child (recorded reasons for admission to care following government guidelines). Whilst all three are forms of inadequate and adverse care they differ in that 'abuse' involves distorted and probably inconsistent care, 'neglect', an insufficiency of care and 'other reasons in the absence of abuse or neglect' is characterised primarily by inconsistent care. These categories are far from clear-cut, nevertheless they are now widely used and represent important differences in the types of aversive parenting (Richardson & Lelliott, 2003). There is some evidence to date that suggests the profiles associated with insidious neglect differ in kind to those associated with the kind of intermittent maltreatment associated with abuse (Coster & Cicchetti, 1993; Trickett & McBride-Chang, 1995). Neglectful parenting in the absence of overt abuse is probably the closest approximation to the insufficiency of care associated with the institutional rearing, yet provided by a limited number of consistent carers. There is some evidence that neglected children share at least some of the behaviours that have been found to typify institutional care in the early years (Iwaniec & McSherry, 2002). In addition they have the lowest levels of academic achievement and poorest language skills of all groups of maltreated children (Coster & Cicchetti, 1993, Kurtz, Gaudin, Wodarski & Howing, 1993; Trickett & McBride-Chang, 1995). On the other hand as discussed in the previous chapter, behavioural outcomes similar to those that typify early institutional care have been associated with multiple placements in foster care (Howe, 1997).

However according to Triseliotis (2002), the kind of children in long term foster care in my study are unlikely to be admitted into care today, but would be looked after at home supported by the available services. He suggested that the current intake of children is much more likely to have multiple problems. A very high overall level of psychopathology in the sample of foster children could limit any kind of meaningful analyses of differences due to parenting, particularly if the profiles of disorders were very mixed. However, three quarters of under 5's in the Multiple Placement Project had no recorded problems according to social work records, a not dissimilar proportion to children in long term foster families in my study, although this proportion increased to 47%, 2 years later (Cousins & Monteith, 2002; Cousins et al, 2003). Similar figures were reported by the recent UK survey of the mental health of looked after children and young people. They found 42 % of children 5-10 years had at least one problem and this proportion increased to 49% of 11-15 year olds, but proportionately fewer children in foster care had problems compared with those placed at home or in residential care (Meltzer et al., 2003). Breakdown by placement and age were not provided but a rough estimate of frequency of disorder in the younger age group might be between a third and two fifths, higher but not markedly different from the proportion of foster children with disorder in my sample. This suggests that further investigations into the specificity of effects found in my study would be feasible.

In order to address questions about the specificity of I/O and its relation to selectivity in social relationships, and early academic achievement a sample of 5-6 year old 'looked after' children could be taken, and followed up after two years (7-8 years). This age range has a number of advantages. First the age range coincides with the period of time when ADHD is most prevalent (Sandberg, 1996). Second, as argued earlier, the school provides an ideal venue to study the children. Finally as suggested in the previous chapter, it is essential to understand the dynamics of under-achievement at an early stage, not least to investigate the specific associations between poor performance, IQ and attentional difficulties.

Similar inclusion criteria to those adopted in my study could apply, including restricting the sample to children placed in mainstream education. This would limit the number of very low ability children sampled and reduce the possibility that child based characteristics, in particular low IQ, were instrumental in provoking or exacerbating neglectful parenting. Children with undetected language and communication problems, on the other hand, are less likely to be identified by this process (McCauley & Swisher, 1987). It is highly improbable that the low level of academic achievement found amongst

'looked after' children in general is explicable simply in terms of low cognitive ability, but this is a separate question that needs further investigation. To reduce the impact of mobility between the care system and home, the sample would be restricted to children with one admission to care, who had spent at least half their lives (i.e. 2- 3years) in family foster care. Variability in caring environments in foster homes is likely to be wider than that typically found in adoptive homes (Rutter, in press) and hence afford more potential to assess the impact of the substitute care environments. Number of placements in different foster family arrangements would be taken as a measure of mobility within care. Sampling would be targeted to identify high continuity of caregiving (1 placement only) and low continuity (3 or more). On the other hand, children would have spent periods ranging from less than a year to three years in their families of origin, which would provide a measure of duration of exposure to the different forms of adverse parenting.

A number of 'looked after' children of this age have been subjected to parental substance abuse (Cousins & Monteith, 2002). Like my study, it would be important to have measures of biological background and parental psychopathology to control for between group differences in parental malfunctioning. Similar but more recent measures of children's emotional and behavioural problems in general, and inattention and hyperactivity specifically, could be taken along with measures of social relationships and selective attachments to substitute carers, and psychometric assessments of cognitive abilities and academic achievement in addition to Key Stage 1. For example, in relation to the assessment of attachment relationships, the Multiple Placement Project are using a direct interview with the children using a 'Story Stem Technique' (Hodges et al., 2003); described as ' a non-intrusive, semi-structured assessment of children's 'internal working models' of self, family and attachment relationships and of aspects of their emotional regulation' (McSherry, personal communication, 2004).

Finally, in line with the BEIP project, the inclusion of language and communication measures would be informative in understanding the profile of difficulties found in my study. First problems in language and communication are known to be associated with emotional and behavioural difficulties on the one hand (Baker & Cantwell, 1987; Beitchman, Hood, Rochon, & Peterson, 1989; Benner, Nelson, & Epstein, 2002; Botting & Conti-Ramsden, 2000; Clegg, Hollis & Rutter, 1999; Toppelberg, 2000) and problems in reading and early literacy on the other (Catts, 1993; Scarborough, 1991; Snowling, 2000). Moreover, in terms of the relationship with psychopathology, the association between language problems and ADHD is particularly strong (Cohen et al., 1998a,b, 2000; Meltzer et al., 2003; Rutter & Mawhood, 1991); further such language problems

are frequently undetected (Cohen et al., 1998a,b). More specifically there is evidence that the rate of language and communication problems amongst 'looked after' children is exceptionally high, and in many cases again these difficulties have not been identified (Cross, 1999; Cross, 2004). Likewise different types of language problems including those of use not simply form and/or content have been found amongst maltreated children, particularly neglected children (Cicchetti & Coster, 1993) and children excluded from school (Law & Sivyver, 2003). Finally, recent evidence from a clinical sample and survey of children excluded from elementary school has found a strong association between previously undetected pragmatic problems and conduct problems (Gilmour, Hill, Place & Skuse, 2004).

Chapter 8: Conclusions

The starting point of my study was the concern about the high level of emotional and behavioural disturbance and poor academic achievement of 'looked after' children in general and those reared in institutional care in particular. My aim in designing the study was to determine the roots of their psychopathological risks. My findings confirmed that a substantive part of the problems of these vulnerable children was due to an institutional rearing rather than their high risk biological backgrounds that they shared in common with those in foster family care. The findings however qualified the original question in two important respects. What has emerged from my study and more recent evidence was the striking specificity of problems on the one hand, associated with early institutional care, rarely found in other disorders (Rutter et al., 2001) and the degree of individual differences and resilience that was evident in all studies, irrespective of the quality of the care, on the other.

My study and subsequent research have not only identified behaviours that typify early institutional care, but also those that are significant by their absence, at least in early childhood. Hence inattention/overactivity and problems of selectivity in social relationships and attachment behaviours have been associated with early institutional care irrespective of the quality of the care. Cognitive impairment and quasi autistic behaviours however, have been found to be specific outcomes of the kind of profound and global deprivation suffered by the Romanian adoptees, and were not evident if the quality of institutional care was at least adequate (Rutter et al., 2001). On the other hand, no study has reported significant conduct problems, and it is likely that the problems of emotionality and unsociability found only in the institutional care settings in my study, but not evident amongst the adopted children, were responses to their ongoing experiences of 'home' life. Recent government surveys of 'looked after' children offer general support for the signs of early academic underachievement found in the form of reading problems in my study, and evidence is emerging of a specific association between academic difficulties and early institutional care (Gunnar et al., 2000). Specificity is evident not only in the kinds of behaviours that have been found, but in the interrelationships between these behaviours, and their association with a lack of opportunities to form selective attachment relationships in the early years. It is the specificity of the relationship between a lack of opportunity to form selective attachments and I/O that has raised questions about the equivalence of I/O to 'ordinary' ADHD as clinically observed, and the relation of I/O to other forms of early disrupted parenting.

The association between I/O and ADHD is an example of equifinality, the process whereby apparently similar disorders or outcomes may derive from a diversity of developmental pathways. On the other hand the substantial degree of individual differences and resilience amongst children evident in all studies of early institutional care, exemplifies multifinality/equipotentiality; the notion that very different patterns of adaptation or maladaptation may arise from similar development trajectories (Bowlby, 1973; Cicchetti & Rogosch, 1996; Sroufe, 1997). These concepts are key aspects of developmental psychopathology, where psychopathology is viewed as evolving through the successive adaptations of individuals in their environments. Development is seen in terms of probabilistic trajectories affected by the interplay of intra-individual and extra-individual risk and protective factors. Within this kind of framework there is no simple demarcation between normal and atypical development: study of both is seen to be mutually informative (Sroufe, 1997; Sroufe, Carlson, Levy, & Egeland, 1999; Sroufe & Rutter, 1984). This is clearly exemplified in Bowlby's attachment theory.

As Sroufe et al., (1999) pointed out, from its inception Bowlby's attachment theory was a theory of psychopathology as well as a theory of normal development: about the formation of normal attachments and the implications of atypical patterns of attachment. Moreover, as Sroufe noted, it is not just a theory of outcomes, crucially it a theory of process; it provides a very specific set of propositions about the way early experience contributes to psychological health or pathology. In this sense its heuristic potential was high. Realisation of this potential, however, was dependent on the systematic testing of these propositions, what Sameroff (2000) referred to as the 'dialectic transaction' (p.297). Development of understanding is reliant on the testing out of explanatory models and the modification of models in the light of findings. In this field that development has been largely due to the extraordinary contributions of Michael Rutter. The combination of a powerful theory and rigorous application of the scientific method at all levels has led to significant advancements in our understanding of the long term sequelae of early disrupted parenting. The effect of this understanding on social policy and practice has been far reaching.

Finally the development of our understanding of both normal and atypical development is not possible without the participation and contributions of the children and the professionals involved in their care. As Zigler (1998) maintained that " those of us who study children must recognise that they are not merely subjects but partners in our research and we owe something to them"(p.536). My study has raised as many questions as it has answered. It is hoped that the pursuit of answers to these fascinating questions

will lead to insights that can increase our understanding about human development, inform policy and improve the lives of our most vulnerable children.

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