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Neurodevelopmental problems in maltreated children referred with indiscriminate friendliness

Eva Kocovska [a], Christine Puckering [c], Michael Follan [c], Maureen Smillie [c], Charlotta Gorski [c], James Barnes [c], Philip Wilson [a], David Young [b], Emma Lidstone [c], Rachel Pritchett [a], Hariett Hockaday [a], Helen Minnis [a,*]

[a] Institute of Health and Wellbeing, College of Medical, Veterinary, and Life Sciences, University of Glasgow, Caledonia House, Royal Hospital for Sick Children, Yorkhill, Glasgow G3 8SJ, UK
[b] University of Strathclyde, Department of Mathematics and Statistics, Livingstone Tower, Richmond Street, Glasgow G1 1XH, UK
[c] Yorkhill Hospital, NHS Greater Glasgow and Clyde, Glasgow, UK

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ABSTRACT

We aimed to explore the extent of neurodevelopmental difficulties in severely maltreated adopted children. We recruited 34 adopted children, referred with symptoms of indiscriminate friendliness and a history of severe maltreatment in their early childhood and 32 typically developing comparison children without such a history, living in biological families. All 66 children, aged 5–12 years, underwent a detailed neuropsychiatric assessment. The overwhelming majority of the adopted/indiscriminately friendly group had a range of psychiatric diagnoses, including Attention Deficit Hyperactivity Disorder (ADHD), Post-Traumatic Stress Disorder (PTSD) and Reactive Attachment Disorder (RAD) and one third exhibited the disorganised pattern of attachment. The mean IQ was 15 points lower than the comparison group and the majority of the adopted group had suspected language disorder and/or delay. Our findings show that school-aged adopted children with a history of severe maltreatment can have very complex and sometimes disabling neuropsychiatric problems.

1. Introduction

Adopted children have often experienced neglect, abuse and significant separations from caregivers. In addition, a significant minority suffer from serious problems with social relationships such as indiscriminate friendliness (Rushton & Dance, 2006) which are thought to be associated with these early experiences of deprivation or trauma (Rutter et al., 2007; Zeanah, Smyke, & Dumitrescu, 2002). In the UK, adoption does not take place on average until 4 years (http://www.gro-scotland.gov.uk/press/news2004/03adopt-press.html; http://www.baaf.org.uk/info/stats/england.shtml), despite the presence of adversity in most cases since birth. Previous research has shown that over half of such "late-placed" children have emotional and behavioural problems when placed with adoptive families that do not diminish over the first year of placement (Rushton, Mayes, Dance, & Quinton, 2003). When these placements were followed up into adolescence, 23% had broken down and 28% were continuing but with ongoing severe behavioural and social difficulties (Rushton & Dance, 2006). It has been challenging for adoptive parents to access appropriate support (Rushton, Monck, Leese, McCrone, & Sharac, 2010) and it has been unclear which are likely to be the best models for intervention as children's problems can seem entrenched. A

* Corresponding author. Tel.: +44 141 201 9239; fax: +44 141 201 0620.
E-mail address: helen.minnis@glasgow.ac.uk (H. Minnis).

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recent randomised controlled trial comparing two models of parenting intervention for adoptive families suggested that adoptive parents "had greater capacity to change than the children" (Rushton et al., 2010).

Longitudinal research has shown that certain social behavioural difficulties associated with early maltreatment, such as indiscriminate friendliness, are very stable over time, even when other difficulties have largely resolved (Hodges & Tizard, 1989; Rutter et al., 2007) and can co-occur with other developmental difficulties (Rutter et al., 2007). Indiscriminate friendliness is one of the core symptoms of Reactive Attachment Disorder (RAD) – described as a severe disorder of social functioning associated with early maltreatment (World Health Organisation, 2007). RAD is still a controversial diagnosis, apparently associated with both under and over referral to psychiatric services among adoptive families (Byrne, 2003). Most of the research on RAD has focussed on disinhibited social behaviour among internationally adopted, previously institutionalised infants or children (Bruce, Tarullo, & Gunnar, 2009; Rutter et al., 2007; Zeanah et al., 2002) and little is known about these difficulties in school-age children who have been adopted from the care system.

Here we report on detailed neuropsychiatric assessments of children adopted after experiences of severe maltreatment and referred with symptoms of indiscriminate friendliness, and a group of typically developing comparison children. Our hypothesis was that these adopted children might have significant neurodevelopmental problems.

2. Materials and methods

2.1. The study protocol

The study protocol was approved by West of Scotland NHS Research Ethics Committee 2.

2.2. Participants

Sixty six children aged 5–12 years took part: 34 were adopted and 32 had no history of local authority care and were living with their biological parents.

2.2.1. Adopted children

We wanted to involve adoptive families because we were interested in children who had experienced maltreatment early in life but who had lived in stable families for some years. The inclusion criteria were: symptoms of indiscriminately friendly behaviour plus a history of maltreatment. The exclusion criteria were: moderate or severe intellectual disability (children with intellectual disability may be disinhibited for other reasons) and current family instability or ongoing maltreatment.

Adopted children were recruited via the charity 'Adoption UK': the Development Manager for Scotland was given a paragraph describing our inclusion and exclusion criteria and she approached all eligible families living within reasonable travelling distance of the laboratory. There were 43 children referred as presumed cases of RAD and/or maltreatment. Thirty-nine children met the inclusion criteria. Two families (five children) withdrew. *Thirty-four* children (18 boys and 16 girls; mean age 9.4 years) were clinically assessed.

2.2.2. Comparison group

We did not aim to achieve a representative sample of the general population but, rather, to achieve a group of typically developing children, matched on age and gender with the adopted group. The inclusion criteria were: age 5–12 years. The exclusion criteria were: any child psychiatric diagnosis, moderate or severe intellectual disability, any history (even suspected) of child maltreatment, known contact with social work, child protection registration or any recent trauma within the last year.

The comparison group was matched on age and gender and selected through two moderate sized general medical practices in Glasgow. The practices had 750 children within the age range 5–12 years and 615 were eligible according to the inclusion criteria. The general practitioners sent 461 invitation letters: 58 responded, nine withdrew and, due to gender and age mismatches, not all remaining eligible children were assessed. In order to address imbalances in age and gender, a further 62 invitation letters were re-sent to non-responders from the original 461, this time only to boys aged 6–10 years. Of these, four had moved away, six responded and were assessed.

Altogether, the comparison group comprised *32* children (17 boys and 15 girls; mean age 8.7 years) who were clinically assessed.

2.3. Procedure

After obtaining consent forms from all parents and children an initial home visit was arranged with the adoptive parents. During the home visit demographic data were collected, and parents completed three questionnaires: the Strengths and Difficulties Questionnaire (SDQ) investigating a wide range of child psychiatric symptoms (Goodman, Ford, Simmons, Gatward, & Meltzer, 2003), the Relationships Problems Questionnaire (RPQ) investigating RAD symptoms (Minnis et al., 2009) and the 'Life Change Scale' to monitor current or recent life stresses (Foxman, 2004). Parents were then interviewed using two semi-structured measures: the Development and Well-Being Assessment (DAWBA) (Goodman, Ford, Richards, Gatward, & Meltzer, 2000) to investigate psychopathology and the Child and Adolescent Psychiatric Assessment, RAD module (CAPA-RAD) to investigate RAD (Angold et al., 1995; Minnis, Pelosi, Taylor, O'Connor, & Barnes, 2006). The child's

medical status, including any current medication, was noted. In addition the child's early family history, birth weight, birth mother's educational level and details about early maltreatment were recorded from detailed notes recorded by social workers at the time of adoption, using a checklist designed for this study.

During the following month, children were invited, with their families, to our clinic and assessed using a battery of tests including the Wechsler Abbreviated Scale of Intelligence (WASI) (Wechsler, 1999), the Manchester Child Attachment Story Task (MCAST) (Green, Stanley, Smith, & Goldwyn, 2000) and the Renfrew Language Scales – Bus Story Test – a test of narrative speech, language ability and short term memory (Renfrew, 1991). An observation of child behaviour was made in the clinic waiting room based on a structured checklist (McLaughlin, Espie, & Minnis, 2010).

The organisation of the comparison group assessments was slightly different in order to make it easier for the families. All assessments were carried out either in the child's general practice or home. Parents were interviewed in a different room in parallel with children's assessments, after school hours. All equipment was identical to that used for adopted children.

Psychiatric diagnoses were made by experienced clinicians, based on DAWBA and CAPA-RAD interview scores, review of video material from the child's assessment and, in the case of RAD, review of the structured waiting room observation. All diagnoses were agreed in multidisciplinary conferences involving speech and language, nursing, psychology and psychiatric expertise.

3. Results

3.1. Demographics and assessment outcomes in adopted and comparison children

Table 1 presents a comparison between demographics and assessment outcomes between the adopted and comparison groups.

The mean age, in both groups, was approximately 9 years. Children in the adopted group had been adopted, on average, around 5 years of age and had spent an average of 4 years with adoptive families at the time of this study. All adopted children had previously experienced severe maltreatment: all had suffered physical and/or emotional neglect; half had suffered physical and one fifth sexual abuse; three quarters of parents had misused alcohol and 62% of parents had misused drugs (see Table 1).

3.2. Psychiatric diagnoses, and comorbidity, in adopted children

The overwhelming majority of the adopted/indiscriminately friendly group had psychiatric diagnoses according to DSM criteria (American Psychiatric Association, 2000) as measured by the DAWBA (see Table 2). Sixty percent fulfilled criteria for

Table 1
Comparison of demographics, maltreatment history and assessment outcomes between adopted children and comparison children (n varies due to the missing data).

Variable	Adopted children ($n = 33$)	Comparison children ($n = 32$)		
Gender (% males)	51.5%	43.1%		
	Mean (SD)	Mean (SD)		
Age (years)	9.4 (1.8)	8.7 (2.4)		
Age of adoption (in months)	62.9 (25.3)	N/A		
Months with adoptive family	51.3 (26.8)	N/A		
			Statistical test	
			t	p value
WASI verbal IQ	96.3 (14.8)	113.1 (14.8)	−3.41	.001
WASI Performance IQ	95.6 (12.7)	105.9 (12.6)	−3.08	.003
WASI Full Scale IQ	95.4 (13.6)	110.6 (14.1)	−3.68	.001
WASI verbal-performance	10.2 (7.6)	10.5 (8.2)	0.73	.001
Total Difficulties Score on parent SDQ	20.1 (7.8)	7.59 (6.03)	6.83	<.0001
Parent total RPQ score	9.2 (7.1)	.7 (1.8)	5.84	<.0001
CAPA RAD Overall Score	22.7 (12.6)	3.6 (3.4)	7.89	<.0001
Life Stressors Score	310.5 (138.3)	227.3 (144.6)	2.35	.022
	Number (%)	Number (%)	Statistical test	p value
DAWBA any developmental problems	33 (97.1%)	6 (20.7%)	χ^2	<.0001
MCAST Secure Attachment Classification	19 (56%)	31 (96.9%)	χ^2	<.0001
MCAST Disorganised Attachment Classification	11 (32.4%)	1 (3.1%)	Fisher's exact test	.002
Renfrew Bus performing below chronological age	18 (52.9%)	3 (11.1%)	Fisher's exact test	.001
Speech and Language assessment suggested	12 (35.3%)	1 (3.6%)	Fisher's exact test	.002
Birth parent alcohol misuse	74%	N/A		
Birth parent drug misuse	62%	N/A		
Physical and/or emotional neglect by birth parent	100%	N/A		
History of physical abuse in birth family	49%	N/A		
History of sexual abuse in birth family	20%	N/A		

Table 2
Psychiatric diagnoses in adopted children.

ICD-10 diagnosis	Number; percentage of children fulfilling (ICD-10) criteria for diagnosis: % with possible diagnosis expressed in brackets					
	Adopted			Comparison		
RAD	20	60%		0	0%	
ADHD	17	50%	(7–21%)	2	7%	
PTSD	6	18%	(8–24%)	0	0%	
Anxiety	12	35%	(16–47%)	0	0%	(2–7%)
ASD	1	3%	(18–54%)	0	0%	(1–4%)

RAD. Of the 20 children with RAD: 17 (85%) also had possible or likely attention deficit hyperactivity disorder (ADHD); 17 (85%) also had a possible or likely anxiety disorder; 11 (55%) had possible or likely post-traumatic stress disorder; 15 (75%) had possible or likely oppositional defiant disorder; 17 (85%) had possible or likely conduct disorder; and 14 (70%) appeared to have possible or likely autism spectrum disorder (see Fig. 1). Fifty-seven percent of the adopted group were securely attached according to the MCAST assessment. See Table 1 and Fig. 1.

3.3. Cognitive profiles in adopted and comparison children

On formal psychometric testing using the WASI, the adopted group's full scale IQ scores (FIQ) ranged from 68 to 117 (mean 95.39; SD 13.62) while in the comparison group their FIQ scores ranged from 86 to 150 (mean 110.62; SD 14.08). Similar results were also found for verbal IQ scores – adopted group VIQ mean 96.27 (SD 14.78) and for the comparison group, 113.10 (SD 14.81) (see Table 1).

In both groups there were quite large discrepancies in their individual profiles: 12 (36.4%) of the adopted children and 11 (38%) of the comparison group had statistically significant discrepancies between verbal and performance IQ scores ($p < 0.05$). For 3 children in each group, these differences were also clinically significant. This discrepancy has been noted in

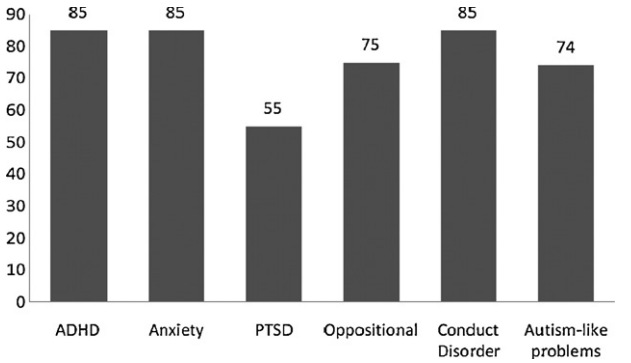

Fig. 1. Comorbidity among children with a diagnosis of RAD (%).

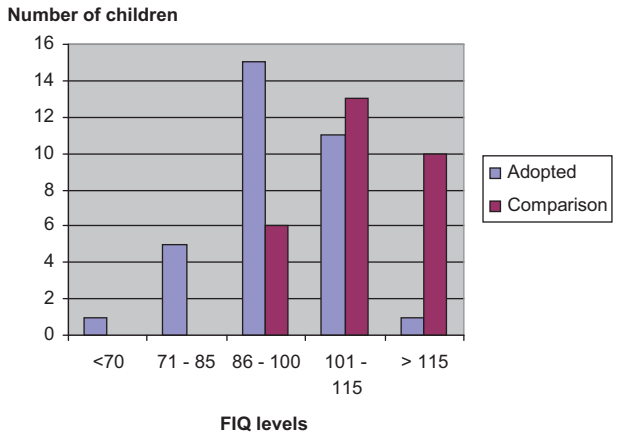

Fig. 2. Comparison of FIQ levels in both groups.

the previous research (Watkins, 2003). While nearly one fifth of the adopted children (18.2%) scored at lower than average level IQ (FIQ < 85) in contrast with 0% in the comparison group, only 1 adopted child (3%) scored higher than the average level IQ (FIQ > 115), in contrast to 30% of comparison group (see Fig. 2).

Over half of the adopted children had suspected language disorder and/or delay, on the Renfrew Bus Test, in comparison to 10% of the comparison group children. One third of the adopted group had language difficulties that would merit a thorough language assessment and more than half performed at a lower level than expected for their chronological age.

Scores on the Life Change Scale in the adopted group were also higher than in comparison group signalling many more changes happening in the past year, in the lives of these adopted children.

Despite the high level of psychiatric disorder and comorbidity in the adopted group, only 10 children (29.4%) had ever been in some form of contact with Child and Adolescent Mental health Services (CAMHS) before taking part in this study. Of the 7 who were currently involved with CAMHS, most were not receiving ongoing therapy.

4. Discussion

Our findings show that school-age adopted children referred with indiscriminate friendliness have very complex and sometimes disabling neuropsychiatric problems.

There are, however, some potential sources of bias in our study. The fact that we recruited our adopted sample through a voluntary organisation run by and for adopted parents may have skewed our sample towards more motivated and perhaps better functioning adopted families. We had a low recruitment rate for our comparison group which, again, makes it more likely that those who did take part were better functioning. This is suggested by the fact that our comparison group had an above average a mean FIQ. Our attachment measure, the MCAST, was designed for children up to age 8. The fact that our mean age was slightly higher than this may be reflected in the higher than expected rate of secure attachment in both groups.

Despite the fact that only 21% (7) of adopted children were currently in contact with child and adolescent mental health services at the time of the study, many had treatable conditions that had been previously unrecognised. However, even in those cases the child/family was usually not receiving therapy. There were various reasons for this: the child's presentation was perceived as an inability to engage in treatment or therapy; the adoptive parents' worries were underestimated or dismissed or, as in the majority of these cases, there was simply a shortage of resources (e.g. a lack of available appropriate therapists).

We were interested to note that, despite their difficulties, 57% of adopted children were assessed as being securely attached. This might be the positive result of the nurturing, warm and secure environment of their adoptive families. However, one third of adopted children displayed disorganised attachment patterns despite living in what we perceived to be very well functioning families. This may be a remnant of their earlier difficult circumstances and/or an index of their current developmental problems. Because disorganised attachment is known to be associated with psychopathology (Futh, O'Connor, Matias, Green, & Scott, 2008), it should not be underestimated.

Our adopted group scored one SD lower than the comparison group which is a highly significant result not only in statistical terms but also clinically. This effect size is similar to those described in previous studies investigating IQ in children with developmental difficulties (Dodrill, 2002; Dodrill, 2004), in whom it was associated with various longterm challenges.

Although the adopted group had marked discrepancies between cognitive subscales, this was also true for the comparison group. This has been noted in previous research (Watkins, 2003). It is, however, important to note that the comparison group had full scale IQ (FIQ) scores between 86 and 150, so these differences might genuinely indicate children's greater or lesser strengths or talents, as all these values lie comfortably within a general educational level appropriate for a mainstream school. Meanwhile, in the adopted group, values of FIQ ranged between 68 and 117 which means that the lowest scores indicate problematic performance and potential need for attention and assistance in order to allow these children to achieve satisfactory outcomes. When there is a major IQ discrepancy, it is likely that teachers and others in contact with the child will assume an even profile and, hence, have unrealistic expectations of the child in certain areas. This is particularly concerning for the adopted group in which some of the lowest scores are in the learning disabled range.

More than half of the adopted group scored below their chronological age on the language scale 'The Renfrew Bus Story' test and more than a third were deemed to require a thorough speech and language assessment. This, in addition to their significantly lower verbal and full scale IQ results, represents a major disadvantage in everyday life, education and future employment.

5. Conclusion

Our sample of adopted children with indiscriminate friendliness had a high level of neuro-developmental complexity, yet were usually not receiving services from child and adolescent mental health. When coupled with the difficulties we found in language abilities and mental health, it is clear that this group has a significant burden which, if untreated, could create major problems for these children and their families across the lifespan. We would recommend that children presenting with indiscriminate friendliness, who have a history of early maltreatment, should receive a full neuropsychiatric assessment in order to identify treatable conditions and to inform management.

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