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Development of a Brief Waiting Room Observation for Behaviours Typical of Reactive Attachment Disorder

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Objective: To develop a brief standardised observational schedule for Reactive Attachment Disorder (RAD) in school-age children to aid clinician recognition of these behaviours. **Design:** A new structured observational schedule for symptoms of RAD was developed using unstructured observation of children in a clinic waiting room setting. The measure's ability to discriminate between a sample of children with RAD and a normative sample was established by comparing scores in these two groups. **Method:** Children aged 5–8 years (n = 77 [38 RAD cases and 39 controls]) were observed with their primary caregiver in a standardised waiting room setting. A structured observational tool was developed that tested the reliability, sensitivity and specificity of each item. **Results:** The schedule has good internal consistency (0.75). The individual items on the observational schedule were predominantly highly discriminatory between cases and comparisons, showing both reasonable sensitivity and excellent specificity. Certain questions were dropped due to poor discrimination and/or poor inter-rater reliability. **Conclusion:** The 10-item observational schedule for RAD in school-age children provides a promising tool for assessment, although further research will be required to evaluate its ability to discriminate between RAD and other disorders.

Key Practitioner Message:

- RAD may be both under- and over-diagnosed in CAMHS
- Ideally RAD should be diagnosed using reports from more than one informant and direct observation
- We have developed a simple yes-no checklist to aid clinicians in observing behaviours typical of RAD in the clinic waiting room
- Items on the observational schedule were predominantly highly discriminatory between cases and comparisons, showing reasonable sensitivity and excellent specificity

Keywords: Reactive Attachment Disorder; observation; assessment

Introduction

Until recently, children with suspected Reactive Attachment Disorder (RAD), were rarely referred to CAMHS (Byrne, 2003) although this may now be changing, especially since the expansion of services for looked after and accommodated children (Zeanah et al., 2001; Arcelus, Bellerby, & Vostanis, 1999). This paper describes the development and preliminary testing of a waiting room-based standardised observation of symptoms of RAD. It has already been described as part of an assessment package for RAD in school-age children which includes a parental semi-structured interview, a questionnaire for teachers and this waiting room observation (Minnis et al., 2009). In this paper, more detail on its development and clinical use is presented.

RAD is a serious psychosocial disorder of infancy and early childhood. It first entered the American Psychiatric Association's nosology in rudimentary form in the 1980's, however many of the core behavioural traits of RAD have been recognised since early studies of institutionalised children (Goldfarb, 1945a; Spitz, 1945; Tizard & Rees, 1975; Tizard & Hodges, 1978; Goldfarb, 1945b). Diagnostic guidelines stress that RAD is a disorder of the child's social relatedness and divide behavioural characteristics into two distinct subtypes: inhibited and disinhibited. The inhibited child is described as 'generally withdrawn and hypervigilant and seeks proximity to potential caregivers in ambivalent or odd ways.' (Boris et al., 1998). Paradoxically the disinhibited child 'seeks proximity and contact with any available caregiver, a symptom complex known as indiscriminate sociability' or friendliness (Boris et al., 1998). The diagnostic boundaries of RAD are still subject to debate, (Hughes, 1997; O'Connor, Bredenkamp & Rutter, 1999; Smyke, Dumitrescu & Zeanah, 2002; Minnis et al., 2006) and there is 'continuing uncertainty regarding the diagnostic criteria' (World Health Organisation, 1992). Two preschool diagnostic systems (DC 0-3R and RDC PA) have attempted to describe symptoms of RAD in more detail in younger children but there has been little research on the syndrome beyond age 5 (AACAP Offical Action, 2005).

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The inhibited subtype is particularly under-researched however features are thought to include 'frozen watchfulness' and 'approach-avoidance', where the child approaches with their 'head averted' (George & Main, 1979). These behaviours appear to be present, though fairly infrequent, in children who are maltreated and/or living in institutional care, but seem to be rare once children are adopted or fostered (Stafford, 2006).

The disinhibited subtype has been more clearly depicted. These behaviours are described as having a 'superficial impersonal quality' (O'Connor et al., 1999), being 'rarely reciprocal' and frequently 'shallow' (O'Connor et al., 1999). O'Connor and Rutter have detailed what they feel to be the key features: 'lack of differentiation among adults'; 'readily goes off with strangers' and 'lack of checking back' behaviour with the caregiver (O'Connor et al., 1999).

Despite the concerns regarding the nosology of RAD, numerous studies have now documented symptom stability in the context of RAD (Chisholm et al., 1995; Chisholm, 1998; O'Connor et al., 1999; O'Connor & Rutter, 2000). Tizard and colleagues documented considerable behavioural remodelling during development, however indiscriminate friendliness was relatively stable over time (Tizard & Rees, 1975; Tizard & Hodges, 1978).

Clinical assessment of child and adolescent mental health problems needs to bring together information from a variety of sources, including interviews with parents, information from school and observation of the child and family (Rutter & Taylor, 2008). For certain diagnostic categories, ways of achieving this have been clearly operationalised. For example, in the assessment of ADHD in child and adolescent mental health or specialist paediatric clinics, observation of the child's behaviour at school is a recommended part of the clinical assessment Scottish Intercollegiate Guidelines Network (SIGN) (Scottish Intercollegiate Guidelines Network, 2001) and National Institute for Health and Clinical Excellence (NICE) Guidelines (National Institute for Health and Clinical Excellence, 2008). Any assessment of RAD should include reports from key informants and also observation of the child (O'Connor & Zeanah, 2003). Observing key symptoms of RAD such as overfriendliness with strangers may be a useful adjunct to parental interview and teacher report in making a diagnosis.

There is a very extensive literature on structured observation of attachment *patterns* and the Strange Situation Procedure (SSP) is one of the most widely used and well validated instruments in developmental psychology research (van Ijzendoorn, Schuengel & Bakermans-Kranenburgh, 1999; Sroufe, 2005; Ainsworth et al., 1978). The similarities between disorganised/disorganised (D) attachment behaviour and RAD inhibited type have been noted previously (Green, 2003; van Ijzendoorn & Bakermans-Kranenburg, 2003): in high-risk populations, D attachment patterns are associated with maltreatment (Solomon & George, 1999; Carlson, et al., 1989) and there is a significant, though modest, association between D attachment patterns in infancy and aggressive behaviour in later childhood (van Ijzendoorn et al., 1999). However, D attachment behaviour and RAD are not synonymous: the D pattern is a measure of a particular relationship present in around 15% of mother-infant dyads (van Ijzendoorn et al., 1999), whereas RAD is thought to be rare and to be pervasive across social contexts (American Psychiatric Association, 1994). Various authors have argued that RAD is fundamentally different from insecure attachment: RAD does not describe a relationship, but describes a set of behaviours within an individual child and is pervasive across social contexts (Green & Goldwyn, 2002; Prior & Glaser, 2006; Minnis et al., 2006). In addition, the SSP has not translated to clinical practice because training, administration and rating are too time-consuming for most clinical settings (O'Connor & Zeanah, 2003).

In order to develop an observational measure for RAD, it is possible to borrow from observations made within other experimental paradigms. For example, both Chisolm (1998) and O'Connor et al. (2003) have noted that during structured observations of separation-reunion children with RAD have unusual ways of interacting with strangers. Unfortunately structured separation-reunion episodes such as these are not appropriate for clinical settings (O'Connor & Zeanah, 2003). Zeanah and colleagues have developed a measure called 'Stranger at the door' in which, by prearrangement, a stranger appears at the family door and asks a young child to 'go for a walk' (Zeanah & Smyke, 2008). Although there was substantial convergence, using this measure, with parental reports of indiscriminate friendliness, it might be difficult to incorporate this into routine clinical practice. This study aimed to develop a new paradigm for observation of RAD symptoms in school-age children in which the focus was on children's interaction with strangers and which could be easily incorporated into routine clinical assessment. The clinic waiting room has the advantages of being a previously underutilised but routinely available setting, being unfamiliar and therefore mildly stressful for children and in which it is easy to arrange for the presence of strangers. Because of the paucity of research on the inhibited subtype of RAD the study focused on disinhibited behaviours.

The study aimed to investigate:

- The extent that individual items on the new observational schedule discriminate between children with a diagnosis of RAD and comparison children
- The inter-rater reliability of items on the schedule

Methods

Approval was obtained from the Multi Centre Research Ethics Committee for Scotland.

Identification of key behaviours

In order to identify previously recognised behavioural features of RAD, a detailed literature review was conducted. The main behavioural areas recognised for observation during the literature review were reviewed at clinical team meetings leading to the production of a rudimentary observational schedule of key areas. Normal research procedure would suggest that at this stage the proposed ideas should be compared to the 'gold standard' research tool. However, as no such tool existed for this age group, it was reviewed by a group of experts in the fields of neglect, abuse, attachment, nosology and autism for advice about which behaviours

to focus on during observation and which behaviours may be symptoms of other disorders.

Figure S1 (see online supplementary material) illustrates the waiting room setting used for the study.

The study protocol stated that:

- The family is phoned the day before to advise that the child will be observed at all times.
- The observer is seated in the waiting room prior to the arrival of the participants. A receptionist may or may not be present or visible behind an office glass window. Other strangers may or may not also be present or may pass through the waiting area.
- A stranger greets the child and their caregiver as they enter the waiting room.
- Drawing materials are supplied and introduced to the child.
- The stranger then leaves the waiting room leaving the carer to complete a short questionnaire (this provides a distraction for the carer).
- The observer remains in the waiting room.
- The stranger returns to the waiting room after approximately fifteen minutes.

Sample selection

The aim of the sampling strategy was to produce a group of children clinically identified as having reactive attachment disorder behaviours and a comparison group at low risk of reactive attachment disorder sampled from the general population. For more details of methodology see Minnis et al. (2009).

Cases. Educational meetings about reactive attachment disorder as described in ICD-10 (World Health Organisation, 1992) were held with social workers and child mental health clinical teams in the Glasgow area. Clinicians/social workers were requested to telephone if they thought any child aged 5–8 years who symptomatically fit ICD-10 diagnostic criteria for reactive attachment disorder. A psychiatrist or a mental health nurse from the research team reviewed the child's symptoms during the telephone discussion. If it seemed that reactive attachment disorder was likely, the parents or guardians were given information about the study. The only exclusion criterion was verbal ability lower than that of a 4 year old (which would preclude the child's participation in a representational assessment of attachment). Children could also be excluded after the full clinical research assessment (see below under *Diagnosis of RAD* and Minnis et al., 2009) if the research team did not consider the child to be suffering from RAD (Supplementary Figure S2). During approximately one year, 47 children with presumptive reactive attachment disorder were referred, 66% ($n = 31$) of whom were male. After comprehensive clinical assessment including parent and teacher report (described elsewhere) a final sample of 38 children with RAD was included in the study (Supplementary Figure S2).

Comparison group. The aim was to recruit a comparison group of children at low risk of reactive attachment disorder behaviors group-matched for age and gender (Supplementary Figure S2). All 217 children aged 5–8 on the case register of a moderate sized family medical practice were identified. The following exclusion criteria were based on risk indices for reactive attachment disorder behaviors in previous research (Millward et al., 2006): known contact with social work regarding child protection concerns (children with previous contact with child and adolescent mental health services were not excluded unless there was a diagnosis of reactive attachment disorder), child protection registration, foster or residential care, family practitioner perception of family dysfunction or diagnosis of reactive attachment disorder. Thirty-nine families were excluded on these grounds. Information packs and consent forms were sent to 178 eligible families in batches of 10, initially in random order. The balance of age and gender in cases and comparisons was reviewed at monthly research meetings. When it became clear, approximately half way through data collection, that there was a preponderance of older boys among cases compared to comparisons, batches of comparison boys only were contacted in descending order of age. Fifty-four (30%) families contacted agreed to take part. Two families could not be contacted to arrange appointment and a further 13 could not be included because the children were younger girls. A total sample of 39 (67%; $n = 26$ male) was included in the study. The case and comparison group were comparable in mean age (6.57 vs 6.44 years) and gender (66% vs 67% boys).

Diagnosis of RAD

Diagnosis of RAD rested upon information from parents, teachers and also observation of child behaviour in the waiting room. This process is outlined in detail elsewhere (Minnis et al., 2009) but, in brief, a prototype assessment package was developed based on existing measures used with younger children (Egger & Angold, 2006; Goodman et al., 2000; O'Connor et al., 1999; Rushton, 1998). Research diagnoses were corroborated by a panel of experts (in child development, maltreatment and attachment- Tom O'Connor, Jonathan Green, Danya Glaser and Eric Taylor) blind to the research team's diagnosis. Statistical reduction of the number of items, using discriminant function analysis, resulted in a 28-item semi-structured parent-report interview called the Child and Adolescent Psychiatric Assessment - RAD Module (CAPA-RAD) (taking about 15–30 minutes to administer), the Waiting Room Observation (taking 15 minutes to administer) and a 14-item questionnaire for teachers called the RPQ.

Phase 1 - development of the waiting room observation schedule

The first eight RAD cases and eight comparison children were observed in the standard waiting room setting during this phase. The child was not made explicitly aware that the role of the person already sitting in the waiting room was that of an observer. This process theoretically ensured that the children behaved naturally, with the role of the observer not inducing 'reactivity' in their behaviour (Lynes, 1999).

In this phase, the observer was aware of whether or not the child had a diagnosis of RAD and made free text written observations, under the following behavioural headings: child-stranger interaction, explor-

atory behaviour, child-carer interaction and general behavioural characteristics. The content of the resulting free-text account was analysed qualitatively, by noting emerging behavioural themes such as whether or not the child displayed noticeable shyness or caution with strangers. In addition, quantitative event recording of key behaviours, such as the number of times the child interrupted the conversation between the stranger and the carer was performed. A preliminary observational schedule was developed from this interactive process with 23 items rated 'yes' or 'no' by the observer.

Thirteen of the 16 free-text accounts were re-rated by another member of the research team (HM), blind to the nature of the participant's sample grouping, according to the items in the rudimentary observational schedule. A preliminary estimate was made of the level of inter-rater reliability of each item and of the ability of each item to discriminate between cases and comparisons. Those which appeared to be both reliable and discriminating were included in the Waiting Room Observation (WRO). One item was removed from the schedule due to poor inter-rater reliability and two were removed due to poor discrimination.

Phase two - reliability of the tool

The twenty-item Waiting Room Observation (WRO) schedule developed in phase one was administered to the 61 remaining children (n = 31 comparisons and 30 cases) recruited to the study. Various members of the clinical research team acted as observers and each was blind to RAD diagnosis. For 15 (24%) of the waiting room observations, two observers were situated in the waiting room, thus providing the data to establish inter-rater reliability for the schedule's individual items.

Statistical analysis

Sensitivity and specificity was calculated to assess the ability of individual items in the schedule to discriminate cases from comparisons. For categorical analysis of inter-rater unweighted Kappa statistics (*K)* were employed following Landis and Koch (1977).

In order to assess the internal consistency of the schedule an intra-class correlation coefficient was derived using Cronbach's alpha. All statistical analysis was undertaken using SPSS, version 11.

Results

Sample characteristics

Table 1. details the case and comparison participant demographics. Cases and comparisons were well matched for age (mean age 6.57 vs 6.44) and gender (66% vs 67% boys). The table illustrates that the children with RAD were significantly less likely to be living in their birth family and significantly more likely to have experienced adverse life events than comparison children.

Reliability of the WRO

The 20-item categorical observational schedule (Table 2) had good internal consistency, with a Cronbach's alpha of 0.75. Most questions had good inter-rater reliability (Cohen's Kappa > 0.61) however some (item 5 of the 'child-stranger interaction' section; all 3 items in the 'exploratory behaviour' section; items 1, 2, 4 and 5 from the 'child-carer interaction' section and questions 4 and 6 from the 'general behavioural characteristics' section) had poor inter-rater reliability and/or poor discrimination between cases and comparisons and will be removed from future versions of the schedule. The majority of items (Table 2) are specific in discriminating children with RAD from normative comparisons (unlikely to falsely identify children as having RAD), but sensitivity tended to be more modest (not all children who have RAD will be identified).

The recommendations for future clinical use of the structured observational schedule, based on good inter-rater reliability and good specificity, are listed in Supplementary Figure S3.

Discussion

This exploratory study provides preliminary evidence of the reliability of a simple observational schedule for Symptoms of RAD in five to eight year old children in a standardised waiting room setting. Good reliability was established for several items despite the observations being made by various members of the clinical research team with different levels of clinical and research expertise. The tool should therefore be useable in clinical practice without intensive specific training, but this will have to be investigated in future research. Certain items appear to discriminate well between children with RAD and normative comparison children and to be recognised reliably by two observers. A strength of our study is that despite basing our domains of observation on the extant literature (hence focussing on disinhibited rather than inhibited behaviours), free observation of actual behaviours was used to construct the schedule.

The study also has various limitations. The two groups were well matched on age and gender, but there are other areas of potential bias, for example both groups were selected samples and may have been less well matched on other important but unknown variables. It is also possible that differences between the groups were due to, or accentuated by, various confounding variables such as socio-economic status or verbal IQ which varied between the groups. Future research in the general population will be needed to overcome these difficulties. The comparison group was drawn from a non-clinical population and this is an important shortcoming: although the findings show that certain behaviours can reliably discriminate between RAD and a normative comparison group, our data cannot tell us whether these behaviours could also discriminate between RAD and other diagnoses. At this early stage of the research it is not yet clear which symptoms are core characteristics of the disorder and which are features of associated difficulties (O'Connor & Zeanah, 2003). For example, one item which reliably discriminated between cases and comparisons was 'refuses or ignores requests' which might be regarded as a symptom of oppositional defiant disorder rather than RAD. Whether this will prove to be a core or an associated symptom of RAD is not yet known. A key task of future research will be to use the WRO in other clinical populations to establish which of these behaviours are truly characteristic of RAD.

There was no attempt to ascertain the child's understanding of why s/he was in the clinic waiting

Table 1. Participant demographics

	Cases (n = 38)	Comparisons (n = 39)	Statistical test	
Variable	*Mean (SD)*	*Mean (SD)*	*t*	*p*
Verbal IQ (BPVS)	96.28 (10.34)	102.53 (9.83)	2.52	.014
Age	6.57 (1.17)	6.44 (1.07)	−.52	.376
Gender	66% male	67% male	Chi^2 2.48	.29
Ethnicity	All participants were white British			
Total Difficulties Score on parent SDQ	22.56 (5.72)	6.00 (5.69)	10.79	<.0001
Total Difficulties Score on teacher SDQ	19.35 (7.55)	5.57 (5.40)	7.58	<.0001
Parent total RPQ score	14.38 (7.00)	.75 (1.50)	10.74	<.0001
Teacher total RPQ score	13.76 (3.33)	5.20 (1.34)	6.1	<.0001
	Median	*Median*	Fisher's exact test	
Socio-economic status*	5	4.5		
Care placement				
	n = 36	n = 38		
Living with biological parent(s)	13 (36%)	38 (100%)		<.0001
Living with adoptive parents	3 (8.3%)	0		
Living with foster carer(s)	12 (33%)	0		
Living with kinship carer (relative)	8 (22%)			
Previous life events				
	n = 35	n = 38		
Current parental problems with drugs or alcohol	1 (2.9%)	0		.49
Past parental problems with drugs or alcohol	2 (5.7%)	0		.49
Removal from home due to neglect	22 (64.7%)	0		<.0001
History of physical abuse	14 (40%)	0		<.0001
History of sexual abuse	4 (11.8%)	0		.04

**National Statistics Classification*
http://www.statistics.gov.uk/methods_quality/ns_sec/default.asp) ranges from 1 to 8 with 1 indicating higher managerial and professional occupations and 8 indicating never worked and long-term unemployed.
Note: Numbers vary due to missing data

room but reliance on parents giving the child their own explanation. It is also possible that the written notes made by the observer may be anxiety-provoking for the child. These factors may have affected the child's anxiety levels and hence attachment behaviours, but we would not expect this to fundamentally affect the more pervasive symptoms of RAD such as indiscriminate friendliness with strangers.

It is interesting that none of the items in the exploratory behaviour section of the WRO proved reliable. The observation that a child wanders off in unfamiliar surroundings without checking back with the caregiver has been seen as a key component of RAD diagnosis in previous research (O'Connor & Rutter, 2000), but perhaps wandering off behaviour was hard to distinguish, in our paradigm, from impulsive or simply confident behaviours. Exploratory behaviour is a fundamental part of relationship functioning whereby, in secure mother-infant pairs, there is 'a happy balance between exploration and attachment' (Bowlby, 1982). Abnormal exploration may not be a core part of RAD behaviour unless there is a genuine problem in the attachment system. Similarly, the child-carer items which might be regarded as attachment related - warmth and reciprocity - did not prove reliable. Various authors have commented that the relationship between RAD and insecure attachment is not a simple one (Boris et al., 2004; O'Connor & Zeanah, 2003; Minnis et al., 2006; Green & Goldwyn, 2002).

In the section on child-stranger interaction it has been possible to deconstruct the meaning of disinhibition to some extent. For example, making eye contact with the observer and interrupting the conversation between the carer and stranger were common in children with RAD, but uncommon in comparison children. Both of these behaviours could be regarded as disinhibited in that they demonstrate a lack of the usual reticence seen in children who enter unfamiliar settings. It was of interest that shyness appears to be a very common feature in the normative sample, but was rare among children with RAD. Some of the 'general behavioural characteristics' observed are already encapsulated within the existing classification systems (e.g. attention-seeking behaviour) whereas others are not, such as rapid shifts in emotional expression. However, such symptoms do not conflict with our theoretical understanding of children who have been neglected and abused. For example, Dozier et al. (2006) have recently demonstrated abnormalities of the hypothalamic pituitary axis in young children who have been maltreated and this is an area which needs more research.

Deliberately, few constraints have been placed on the way the observational schedule is administered (e.g.

Table 2. Percentage of items rated positively for cases and comparisons and sensitivity and specificity of individual items in the observational schedule

Item	Cases	Comparisons	Sensitivity	Specificity	*P* value
	% (*n*) who scored positively	% (*n*) who scored positively			
Child-stranger interaction					
Q1. Inviting eye contact	84 (21)	16 (4)	0.64	0.89	.000
Q2. Interrupts conversation	72.7 (16)	27.3 (6)	0.46	0.90	.004
Q3. Initiates conversation	82.4 (14)	17.6 (3)	0.40	0.92	.001
Q4. Moves towards	85.7 (18)	14.3 (3)	0.51	0.92	.000
Q5. Physical contact	*100 (3)*	*0 (0)*	*0.09*	*1.00*	*.101*
Q6. Shyness	17.9 (5)	82.1 (23)	0.15	0.41	.000
Exploratory behaviour					
Q1. Leaves orbit without asking	*52.2 (12)*	*47.8 (11)*	*0.34*	*0.72*	*.573*
Q2. Enters out of bounds areas	*72.2 (8)*	*27.3 (3)*	*0.23*	*0.92*	*.067*
Q3. Takes objects	*75 (6)*	*25 (2)*	*0.18*	*0.95*	*.135*
Child-carer interaction					
Q1. Warm relationship	**30.6 (15)**	**69.4 (34)**	**0.43**	**0.13**	**.000**
Q2. Spontaneous comments	**61.1 (22)**	**38.9 (14)**	**0.63**	**0.64**	**.021**
Q3. Refuses or ignores request	80 (16)	20 (4)	0.46	0.90	.001
Q4. Hypercompliance	*100 (2)*	*0 (0)*	*0.06*	*1.00*	*.213*
Q5. RECIPROCAL CONVERSATION	**45.6 (31)**	**54.4 (37)**	**0.89**	**0.05**	**.413**
General behavioural characteristics					
Q1. Rapid shifts in emotion	100 (5)	0 (0)	0.14	1.00	.020
Q2. 'Babyish' role	81.3 (13)	18.8 (3)	0.38	0.92	.002
Q3. Superficially charming	100 (7)	0 (0)	0.21	1.00	.003
Q4. Controlling	**88.2 (15)**	**11.8 (2)**	**0.43**	**0.95**	**.000**
Q5. Attention seeking	81 (17)	19 (4)	0.49	0.90	.000
Q6. PREFERENTIAL INTEREST FOR CARER	**45.2 (28)**	**54.8 (34)**	**0.80**	**0.13**	**.403**

Note: *p* value is reported using Fisher's Exact Test rather than Pearson's Chi-Square when cell counts were less than 5.
Key: *Italic,* items removed due to non- significant discrimination between cases and comparisons; **Bold**, items removed due to poor inter-rater reliability; **UPPER CASE BOLD**, items removed due to both the above

more than one stranger can be present) so that the tool should be useable in most ordinary clinical settings. Research is ongoing to establish whether the measure is, in fact, reliable in a range of clinical settings and a training DVD for the full RAD diagnostic assessment process is available from the corresponding author.

Conclusion

This exploratory study has provided a promising clinical tool for reliably observing symptoms of RAD in school-age children in a routine clinical setting, although further research will be required to evaluate its ability to discriminate between RAD and other disorders. It is important to emphasise that this tool is not designed to be used as a diagnostic instrument in itself, but only as part of a full diagnostic work-up which includes information from parents and school. Future studies using the WRO will be able to provide further validation of the instrument in a range of clinical and general population settings.

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Supporting Information

Additional supporting information may be found in the online version of this article:

Figure S1. Waiting room setting (word document)

Figure S2. Recruitment diagram (word document)

Figure S3. Waiting room observation for reactive attachment disorder (word document)

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