

# Attachment in Adults with Intellectual Disabilities: Preliminary Investigation of the Psychometric Properties of the Manchester Attachment Scale—Third Party Observational Measure

Victoria Penketh\*, Dougal Julian Hare†, Andrea Flood‡ and Samantha Walker§

\*Lancashire Care NHS Foundation Trust, Preston, UK; †School of Psychological Sciences, University of Manchester, Manchester, UK; ‡Together Trust, Cheadle, UK; §Calderstones Partnership NHS Foundation Trust, Clitheroe, UK

Accepted for publication 30 June 2013

**Background** The Manchester Attachment Scale—Third party observational measure (MAST) was developed to assess secure attachment style for adults with intellectual disabilities. The psychometric properties of the MAST were examined.

**Materials and Methods** Professional carers ( $N = 40$ ) completed the MAST and measures related to the construct of attachment theory [Edward Zigler-Yale Personality Questionnaire (EZPQ), Emotional Rating Scale (ERS) and the Learning Disability Casemix Scale (LDCS)] regarding individuals with an intellectual disability ( $N = 57$ ). Individuals with an intellectual disability ( $N = 14$ ) completed the Self-report Assessment of Attachment Security (SRAAS).

**Results** The MAST was found to have good internal consistency, test-retest reliability and convergent validity. MAST scores were negatively correlated with level of intellectual disability and challenging behaviour (CB) as measured by LDCS.

**Conclusions** Support was provided for the reliability and validity of the MAST and a relationship between attachment security, level of intellectual disability and CB. The results of the study and implications of attachment theory for service provision are discussed.

**Keywords:** adults, assessment, attachment theory, intellectual disability

## Introduction

### Attachment

Bowlby (1977) described attachment as the 'propensity of human beings to make strong affectionate bonds to a particular other' via various proximity-seeking 'attachment behaviours'. Attachment behaviours maximize survival of human infants and constitute an innate affect-regulation device that protects an individual from actual or perceived physical and psychological threats thus reducing distress (Mikulincer *et al.* 2003). Attachment behaviours are behaviours that results in an individual attaining or retaining proximity to another preferred individual (attachment figure) and include

crying, calling and following the attachment figure. Although the intensity of such behaviours diminishes with age, they remain observable throughout adulthood and are usually activated in times of distress and are often directed towards an adult attachment figure who is typically an individual's partner (Bowlby 1969/1971/1982).

Attachment relationships promote emotional development (Schore 2001) and an individual's ability to self-regulate arousal levels and cope with overwhelming and disturbing emotions (Cassidy 1994). Furthermore, the primary caregiver of the securely attached infant provides *psychobiological attunement* and regulates the infant's positive and negative affective states (Schore 2001; with a secure attachment style being regarded as

critical to the post-natal development of the right hemisphere of the brain and especially the limbic system with its role in the processing of emotion and modulation of distress and self-regulation (Schoore 1994). Therefore, during the early stage of post-natal neural development, the infant relies on the primary caregiver to regulate arousal and provide safety. If this is not achieved and threat or danger are experienced, cortical development can be disrupted, especially with regard to the limbic system. Moreover, experiencing negative emotional states for long periods is associated with severe alterations of the biochemistry of the developing brain (Schoore 1996, 1997).

For adults with intellectual disability, existing deficits in neurological functioning can increase the risk of developing a non-secure attachment style.<sup>1</sup> For example, children with Down's syndrome (DS) tend to exhibit an insecure attachment style compared to peers without intellectual disability (Vaughn *et al.* 1994), with 40% of children with DS exhibiting secure behaviour, 47% unclassifiable and 13% insecure attachment behaviour (Atkinson *et al.* 1999). Furthermore, difficulties organizing attachment behaviour can exacerbate extant neurological deficits. An understanding of attachment theory contributes to our understanding of the factors involved in the prevalence of mental health problems and challenging behaviour (CB) for adults with intellectual disability, of whom 20–39% show mental health problems (Hatton & Taylor 2005), compared to 16–25% of the general population (Meltzer *et al.* 1995). A significant risk factor for such poor mental health in adults with intellectual disability is a lack of meaningful and intimate relationships (Deb *et al.* 2001; Emerson *et al.* 2001; Hastings *et al.* 2004). Similarly, approximately 28% of individuals with intellectual disability exhibit CB, and 15% display severe CB (Oliver *et al.* 1987; Harris 2008). Among the *protective* factors identified for such behaviour is a secure attachment relationship to parents (Carlson & Sroufe 1995). Conversely, absence or limited availability of an attachment figure may lead to emotional distress and increased arousal, manifesting behaviourally as withdrawal, disassociation, aggressive outbursts and self-harm. Janssen *et al.* (2002) propose understanding such behaviour within a stress attachment

model with the observable attachment behaviour as the consequence of unregulated arousal/poor affect regulation skills due to lack of an attachment figure (s), for example because of poor staffing levels for adults with intellectual disability living in supported accommodation. Such behaviour can be understood as a hyperactivating attachment strategy, that is, an attempt to elicit care and support from an attachment figure so as to maintain close proximity and regulate affect (Mikulincer & Shaver 2003).

Despite the prevalence of attachment difficulties in children with intellectual disability, little is known about attachment in adults with intellectual disability, who usually require support across the life span to meet practical and emotional needs. Adults with intellectual disability tend to direct their attachment behaviour towards care staff (Clegg & Lansdall-Welfare 1995; De Schipper *et al.* 2006; Sterkenburg *et al.* 2008; De Schipper & Schungel 2010), and research indicates that having direct-care staff as a secure base can help promote affect regulation and a sense of security, resulting in more positive outcomes for adults with intellectual disability (Clegg & Lansdall-Welfare 1995; De Schipper *et al.* 2006; Sterkenburg *et al.* 2008; De Schipper & Schungel 2010). Similarly, interventions aimed at improving attachment security for children with intellectual disability show that challenging behaviour is reduced as a consequence (Sterkenburg *et al.* 2008).

To date, a contributing factor to the lack of research and clinical practice in this important area is the lack of valid and reliable measures for assessing attachment styles in adults with intellectual disability. There are two main approaches for assessing adult attachment: the self-report and the narrative methods, both of which have limitations. Narrative approaches presume that securely attached individuals can effectively use an attachment figure as a 'secure base' from which to explore and a 'safe haven' when distressed or in danger (Crowell *et al.* 1999). A common narrative tool is the Adult Attachment Interview (AAI, Main & Goldwyn 1984) which requires an interviewee to retrospectively report on their experiences of parental relationships. Although the AAI has good reliability and predictive validity (Hesse 1999), it requires extensive training and is time-consuming to administer and score (Crowell *et al.* 1999). Self-report measures of adult attachment styles include the Relationships Questionnaire (Bartholomew & Horowitz 1991) and the Adult Attachment Styles Scale (Hazan & Shaver 1987), both of which rely on the ability to self-reflect upon childhood events, relationships with parents and current

<sup>1</sup>Throughout this paper, non-secure attachment behaviour refers to all behaviour classified as not secure, that is, insecure attachment, disorganised attachment, ambivalent attachment etc. Staff-client dyad refers to professional staff and the individual with an intellectual disability that they support.

interpersonal relationships (Smith & McCarthy 1996). Consequently, it requires respondents to have good verbal comprehension, good receptive language skills and the ability to remember and reflect upon childhood experiences, current friendships and romantic/intimate relationships. As result, such adult attachment measures are unsuitable for many individuals with intellectual disability, whose cognitive impairments reduce their ability to recall such information. Furthermore, interpersonal and social relationships are typically limited to paid professional carers, close family and others with an intellectual disability with whom individuals live (Department of Health 2007). Therefore, extant adult attachment measures have limited utility with adults with intellectual disability, necessitating the need to develop appropriate measures for clinical and research use. Two measures that may have utility in this regard are discussed below. The Self-report Assessment of Attachment Security (SRAAS) by Smith & McCarthy (1996) is an interview tool to measure comfort-seeking behaviour, which the authors argue is a 'key component of attachment-related experiences' as individuals who seek comfort from a significant other at times of 'low felt security' are likely to feel secure in their attachment relationships. The SRAAS is completed with individuals with an intellectual disability and has good test-retest reliability and a reasonable degree of convergent and divergent validity. However, there are a number of limitations, such as it only measures comfort-seeking/proximity-seeking behaviour to others, classifies participants' responses as either secure or insecure attachment style and does not measure any other aspects of adult attachment relationships. It also requires good comprehension and expressive language skills, again excluding participants with limited verbal skills and/or more severe intellectual disability.

The Edward Zigler-Yale Personality Questionnaire (EZPQ; Zigler *et al.*, 2002) is of relevance as its conceptual basis emphasizes the role of parent-child interactions in personality development in people with intellectual disability. The EZPQ measures seven personality-motivational traits based upon the motivational-based theory of personality, which postulates that maternal directiveness-parental interactions with children with an intellectual disability are different compared to children without intellectual disability in that parents will *excessively* try to enhance their child's development by being more directive, didactic and initiating more interaction which may reduce the child's motivation to succeed (cf Berger & Cunningham 1983; Tannock 1988).

### Operationalizing secure attachment in intellectual disabilities

There are still limitations in the conceptualization and operationalization of attachment in adults with intellectual disability. A study using Q methodology by Walker (2009) considered the same and aimed to examine what constitutes a secure attachment in adults with intellectual disability with a view to develop a measure of attachment for adults with intellectual disability. Thirty-four professionals working in the field of intellectual disability with knowledge of attachment theory completed a Q sort of 105 items to answer the question 'To what extent do you agree with the following statement when thinking about someone who is securely attached and has an intellectual disability'. The Q set items were derived from a thematic analysis of attachment assessment measures and literature. The results indicated a high agreement in the resultant Q sorts across all participants, with 16 items being identified as central to the construct of secure attachment in individuals with intellectual disability. These 16 items were subsequently used to develop a third-party observational measure of secure attachment, the Manchester Attachment Scale-Third party observational measure (MAST). The current study examines the psychometric properties of the MAST in terms of reliability (including internal consistency and test-retest reliability) and concurrent and divergent validity, as well as examining preliminary association of MAST scores with both level of intellectual disability and challenging behaviour.

## Materials and Methods

### Setting and participants

Multisite ethical approval was granted from the North West Research Ethics Committee, and appropriate steps were taken to ensure all participants had the capacity to consent to participating in the study. NHS staff ( $N = 40$ ) were recruited and completed the informant-based measures regarding  $N = 57$  participants with intellectual disability. Participants with intellectual disability varied in age 18-63 years (mean = 32.7 years) with 44 men (77.2%) and 11 women (19.3%), data being missing for two participants. Staff participants were recruited from several settings with 12 carers (30%) recruited from the community and 28 carers (70%) recruited from forensic settings. 27 (67.5%) of staff participants were female and 13 (32.5%) were male. Job roles varied (see Table 1). A

**Table 1** Participant job title/role

	<i>Job title/role</i>			
	<i>Community</i>		<i>Forensic</i>	
	<i>N (%)</i>		<i>N (%)</i>	
Nurse	1 (2.5)	Nurse	13 (32.5)	
Support worker	4 (10)	Support worker	11 (27.5)	
Clinical nurse specialist	1 (2.5)	Clinical nurse specialist	1 (2.5)	
Assistant psychologist	1 (2.5)	Assistant psychologist	1 (2.5)	
Consultant clinical psychologist	1 (2.5)	Consultant psychiatrist	1 (2.5)	
Occupational therapist	2 (5)	Trainee clinical psychologist	1 (2.5)	
Speech and language therapist	1 (2.5)			
Specialist advanced physiotherapist	1 (2.5)			

small number of individuals with an intellectual disability ( $N = 14$ ) were also directly recruited to enable the validity of the MAST to be assessed against the SRAAS (Smith & McCarthy 1996) which was used as an additional external criterion validity measure. All fourteen participants with an intellectual disability were male aged between of 21–47 years (mean = 29.4 years).

The staff informant-based measures were either completed with the researcher present or collected at later date depending on staff preference. Staff participants were usually a key worker for the individual they completed the measures regarding and were therefore considered to know the individual well. In addition, staff participants had been working with/supporting individuals with an intellectual disability for a minimum of 1 month prior to participating in the study. Reliability data were collected with staff repeating the MAST and the Emotional Rating Scale (ERS) following a period of time.

## Measures

### *The MAST*

The MAST is a third-party/informant-completed measure that requires the informant to rate observable attachment behaviour and make inferences about the needs and feelings of individuals with an intellectual disability. Examples of MAST items include:

1. The individual actively solicits comforting when distressed.
2. The individual accepts carers attention to others.
3. The individual acts to maintain social interaction.

Agreement with each of the 16 MAST items was rated using a 4-point Likert scale [strongly agree (4), agree (3), disagree (2), strongly disagree (1)]. The MAST total score is calculated by summing together each item score, with negatively worded items being reverse-scored. The MAST has been developed to support the assessment of the adaptive function of an individual's attachment style, and as such, there is no 'cut-off' score for a secure attachment.

### *The Emotional Rating Scale*

The ERS (Figure 1) is a three-item analogue measure developed specifically for the current study. It aims to measure the perceived quality of the relationship and emotional closeness of the relationship between individual staff and the individual with an intellectual disability who staff support. The ERS also aims to assess whether MAST scores are independent of relationship quality and level of emotional closeness and are not just reflecting the perceived quality of the informant's interaction with the person with intellectual disability on a given day. Each ERS item was scored using a 4-point Likert scale [strongly agree (4), agree (3), disagree (2), strongly disagree (1)].

### *The Learning Disability Casemix Scale*

The Learning Disability Casemix Scale (LDCS; Pendaries 1997) was used to assess the severity of intellectual disability and challenging behaviour. Part A assesses level of intellectual disability by examining physical, cognitive and functional aspects of intellectual disability, and Part B assesses severity of CB. Scores correspond with descriptive levels of severity of intellectual disability and CB and fall within three categories: mild, moderate or severe intellectual disability; no CB, mild CB and severe CB. In the current study, a total score was calculated for Part A (level of intellectual disability) and Part C (severity of CB) of the LDCS. A low intellectual disability score reflects mild intellectual disability, and a low CB score reflects low levels of CB. Part A of the scale has been assessed to have good reliability and validity (Pendaries 1997). Validity of Part C of the scale has been assessed as fair (Pendaries 1997). The LDCS was in part chosen as it is brief, informant-

### Emotional rating scale

Please think about the person you are supporting and are completing the questionnaires regarding, and answer the following questions.

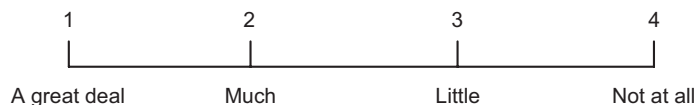
In **general** I have a good relationship with this person



**Today** I have a good relationship with this person



How emotionally close do you feel to the person **today**?



**Figure 1** Emotional Rating Scale.

completed measure that has minimal impact or burden upon the informant.

#### *The Edward Zigler-Yale Personality Questionnaire*

Subscales of the EZPQ were employed to assess the concurrent validity of the MAST by determining the degree of association between the EZPQ subscales and MAST scores. Permission was granted from the authors to adapt the EZPQ for the current study (see Figure 2), and the four subscales (21 items) considered most relevant to attachment theory were included. Each item was rated on a 4-point Likert as per the MAST with negatively worded items being reverse-scored. Due to an unequal number of items on each scale, mean scale scores were computed. The authors recommend using individual subscale mean scores rather than an overall mean total score as not all of the subscales are highly correlated. The 'maladaptive' EZPQ subscales (*positive-reaction tendency, negative-reaction tendency and outer-directedness*) were scored by subtracting each mean scale score from 5, such that a higher score represents more adaptive behaviour.

#### *Self-report Assessment of Attachment Security*

The SRAAS (Smith & McCarthy 1996) was used to assess the concurrent validity of the MAST. The SRAAS is a brief self-report measure and assesses how people cope with a range of negative emotional states (miserable, worried and frightened) by examining their choice from three options (i) tell somebody, (ii) not tell anyone about the way you are feeling (cope on your own, avoid people, keep it to yourself) or (iii) express the feelings in an uncontrolled way (throw things, scream, shout, hurt myself). Participants are also asked to give an example of such an experience. Responses are recorded verbatim and coded as follows: tells no one when distressed (1), tells parents (2), tells significant other (staff/partner) (3), denies feelings (4), expresses feelings in an uncontrolled way (shouts, throws things) (5), no response/response frequently changes (invalid response) (6).

A total frequency score was computed for the SRAAS on the basis of 1 point allocated for each 'tells significant other' response (i.e. codes 2 and 3) and 0 for all other responses. Frequency scores ranged from 0 to

**EZ-Yale Personality Questionnaire**

Please read the following statements and circle the number that best describes how much you agree with each statement.

	1	2	3	4
	Strongly agree	Agree	Disagree	Strongly disagree
The individual tends to keep thoughts, feelings, or products to				
1 him/herself	1	2	3	4
2 The individual accepts imposed limits	1	2	3	4
3 The individual spends more time alone	1	2	3	4
4 The individual imitates others' work	1	2	3	4
5 The individual is too familiar with strangers	1	2	3	4
6 The individual is a follower	1	2	3	4
7 The individual tends to withdraw and isolate him/herself when supposed to be in a group	1	2	3	4
8 The individual is disobedient and doesn't mind well	1	2	3	4
9 The individual seeks physical contact with others	1	2	3	4
10 The individual does what others say regardless of the consequences	1	2	3	4
11 The individual does something just because social custom dictates	1	2	3	4
12 The individual isolates him/herself	1	2	3	4
13 The individual is constantly seeking attention and praise	1	2	3	4
14 The individual is apt to pass up something he/she wants to do when others feel it isn't worth doing	1	2	3	4
15 The individual wants help from others even when it's not really needed	1	2	3	4
16 The individual could be more friendly	1	2	3	4
17 The individual does not listen to rules	1	2	3	4
18 The individual usually does as told	1	2	3	4
19 The individual usually doesn't trust others	1	2	3	4
20 The individual likes to be given a lot of direction	1	2	3	4
21 The individual observes what others are doing to guide his/her own actions	1	2	3	4

**Figure 2** Edward Zigler-Yale Personality Questionnaire. (Adapted from Zigler *et al.* 2002).

3, with a score of 2 or above indicating the individual has an expectation that they are able to confide in someone in most instances of low felt security, which is taken as indicative of a more secure attachment experience.

#### The British Picture Vocabulary Scale—Second Edition

The British Picture Vocabulary Scale—Second Edition (BPVS II) (Dunn *et al.* 1997) is a standardized test of receptive language development that has been widely used in clinical and research work with adults with intellectual disability (e.g., Ball *et al.* (2008); Leonard

(2008)). The BPVS II was included to assess receptive language skills of participants with intellectual disability. The BPVS II inclusion criteria were based upon previous research involving self-report by adults with intellectual disability (e.g. Leonard 2008).

#### Results

All data were analysed using Statistical Package for the Social Sciences (SPSS) version 16.0. Prior to conducting the analyses, the data were screened for normality and outliers, and if data were not normally distributed, equivalent nonparametric tests were used.

**Table 2** Descriptive statistics

Measure	Mean (SD)
MAST (time point 1; validity study)	45.35 (5.19)
MAST (time point 2; reliability study)	45.93 (6.48)
LDCS: intellectual disability	5.33 (3.65)

Measure	Median (range)
EZPQ: Positive-Reaction Tendency Mean Scale Score	2.75 (1–4)
EZPQ: Obedience Mean Scale Score	2.75 (1–3)
EZPQ: Outer-directedness Mean Scale Score	2.67 (1–3)
EZPQ: Negative Reaction Tendency Mean Scale Score	2.67 (1–3)
LDCS: Challenging behaviour	8 (1–20)

EZPQ, Edward Zigler-Yale Personality Questionnaire; LDCS, Learning Disability Casemix Scale; MAST, Manchester Attachment Scale–Third party observational measure.

Descriptive statistics for the measures are shown in Table 2.

### Reliability

A total of 57 questionnaires were collected at time point 1 and were included in the internal consistency data set. A correlation coefficient  $>0.7$  and  $<0.9$  is considered adequate to demonstrate that a scale is internally reliable (Field 2009). Cronbach's  $\alpha$  indicated that the MAST has adequate internal consistency ( $\alpha = 0.750$ ) with no evidence of multicollinearity. Cronbach's  $\alpha$  if item deleted was also computed and  $\alpha$  coefficients ranged from 0.711 to 0.764. Item-total correlations for each item were also computed, with the results indicating that removing items 1, 2, 4, 6 and 15 from the MAST would marginally increase the internal consistency, but the overall improvement in the overall Cronbach's  $\alpha$  would be negligible and so these items were retained.

Reliability of the MAST total scores was examined with  $N = 30$  staff participants completing the MAST and the ERS on two occasions (time point 1 and time point 2), with a mean of 18 (range 14–29) days between time point 1 and 2. Pearson's correlation indicated a significant positive correlation between the MAST total scores at time point 1 and time point 2 ( $r = 0.807$ ;  $P = 0.001$ ). A paired  $t$ -test indicated no significant

difference between the MAST total scores at the two time points ( $t = 1.429$ ; d.f. = 29;  $P = 0.164$ ). In addition, the MAST total scores were calculated and compared for time point 1 and time point 2 for each individual participant. This indicated less than a 10% difference between MAST total scores at time point 1 and time point 2 for 76.67% ( $N = 23$ ) of participants, further indicating that MAST total scores were consistent overtime. Pearson's correlation indicated that scores of 14 of the 16 MAST items were significantly positively correlated between time points 1 and 2. The results of a paired  $t$ -test showed no significant difference between the majority (14/16) of MAST items between time points 1 and 2. The results indicate that both the MAST total scores and the majority of the MAST individual items were reliable overtime.

### Concurrent validity

Manchester Attachment Scale–Third party observational measure total scores were compared with the individual EZPQ subscale mean scale scores *positive-reaction tendency*, *negative-reaction tendency*, *outer-directedness* and *obedience* (Table 3). Spearman's rank correlation coefficient indicated that the MAST total score was significantly positively correlated with mean subscale scores for *negative-reaction tendency* ( $r_s = 0.415$ ;  $P = 0.001$ ), *obedience* ( $r_s = 0.323$ ;  $P = 0.007$ ) and *positive-reaction tendency* ( $r_s = 0.221$ ;  $P = 0.049$ ), indicating that as these scores increase, the MAST total scores also increase. The results also show a positive but non-significant correlation between *outer-directedness* ( $r_s = 0.142$ ;  $P = 0.146$ ) mean scale scores and the MAST. The results indicate a medium effect size for *negative-reaction tendency* and *obedience* [a medium effect size is  $>0.3$  and  $<0.5$  (Cohen 1988)] and a small effect size [a small effect size is

**Table 3** Correlation of Manchester Attachment Scale–Third party observational measure (MAST) and Edward Zigler-Yale Personality Questionnaire (EZPQ) scores

	Spearman's rank correlation coefficient	P	Shared variance (%)
Negative-reaction tendency	0.415	0.001	17.22
Obedience	0.323	0.007	10.43
Positive-reaction tendency	0.221	0.049	4.88
Outer-directedness	0.142	0.146	2.02

>0.10 < 0.3 (Cohen 1988)] for *positive-reaction tendency* and *outer-directedness*. Overall, the individual EZPQ subscale scores cumulatively shared 34.55% of the variance with the MAST total score.

A total of 14 staff–client dyads completed the MAST (staff) and SRAAS (individual’s with intellectual disability) measures. Spearman’s rank correlation coefficient indicated a significant positive correlation between MAST total scores and total frequency scores on the SRAAS ( $r_s = 0.504$ ;  $P = 0.033$ ), taken as a large effect size [ $>0.5$  (Cohen 1988)]. Overall, the MAST and the SRAAS scores shared 25.4% of the variance.

There was a significant positive correlation between ERS item 1 (i.e. staff perceptions of a good *general* relationship with the individual about whom they completed the MAST) and the MAST total scores ( $r_s = 0.295$ ;  $P = 0.018$ ). There was also a positive but non-significant correlation between ERS item 2 (i.e. staff perceptions of a good relationship with the person *at the time* of completing the MAST) and the MAST total scores ( $r_s = 0.199$ ;  $P = 0.071$ ). Finally, there was a positive but non-significant correlation between ERS item 3 (i.e. staff reported degree of emotional closeness felt towards the individual they completed the MAST regarding) and the MAST total scores ( $r_s = 0.159$ ;  $P = 0.121$ ). The effect sizes for these associations were small, and the proportion of variance shared between the MAST and the ERS items was modest (15.19%). See Table 4, for MAST and ERS results.

There was a significant negative correlation between scores on part A ( $r = -0.289$ ;  $P = 0.015$ ) and C ( $r_s = -0.358$ ;  $P = 0.003$ ) of the LDCS and the MAST (Table 5), indicating that lower levels of intellectual disability and lower levels of CB as measured by the

**Table 4** Correlation of Manchester Attachment Scale–Third party observational measure (MAST) and Emotional Rating Scale (ERS) scores

	Spearman’s rank correlation coefficient		Shared variance (%)
		P	
ERS 1: <i>In general I have a good relationship with this person</i>	0.295	0.018	8.70
ERS 2: <i>Today I have a good relationship with this person</i>	0.199	0.071	2.53
ERS 3 <i>How emotionally close do you feel to the person today?</i>	0.159	0.121	2.53

**Table 5** Correlation of Manchester Attachment Scale–Third party observational measure (MAST) and Learning Disability Casemix Scale (LDCS) scores

	Spearman’s rank correlation coefficient		Shared variance (%)
		P	
Part C LDCS: challenging behaviour	−0.358	0.003	12.82
Part A LDCS: level of intellectual disability	−0.289	0.015	8.35

LDCS were associated with high scores on the MAST. The results indicated a medium effect size for both levels of intellectual disability and CB. The proportion of variance shared by part C of the LDCS and the MAST (12.8%) and part A of the LDCS and the MAST (8.4%) was small. In addition, a linear regression was conducted to test whether levels of intellectual disability (Part A of the LDCS) predicted MAST scores with MAST total score as the dependent variable and LDCS Part A score as the predictor variable. The results indicated that LDCS Part A made a significant contribution to predicting scores on the MAST ( $r^2 = 0.083$ ;  $F = 4.995$ ,  $P = 0.03$ ;  $\beta = -0.410$   $P = 0.03$ ). As LDSC Part C data were not normally distributed, it was not possible to conduct a comparable linear regression.

## Discussion

The results indicate that the MAST has adequate internal consistency and is reliable over time. In addition, the MAST appears to demonstrate good face validity and is a simple, time efficient measure to complete. Together the reported effect sizes, shared variance and significant positive correlations between the negative-reaction tendency, obedience and positive-reaction tendency subscales of the EZPQ support the concurrent validity of the MAST. The Self-report Assessment of Attachment Security (SRAAS; Smith & McCarthy 1996) was also used as a secondary external criterion to assess concurrent validity. As predicted, the results indicated that there was a significant positive correlation between the MAST total scores and self-report comfort-seeking behaviour as measured by the SRAAS. In addition, a large effect size was reported and the MAST and the SRAAS shared 25.4% of the variance. The results indicated that as MAST scores increased so did SRAAS total frequency scores,

therefore indicating that secure attachment style was significantly positively correlated with higher total frequency scores on the SRAAS (i.e. with more comfort-seeking behaviour).

The MAST was also significantly positively correlated with the *general* quality of the relationship between staff–client dyads as measured by ERS item 1. A positive but non-significant correlation was reported regarding quality of the relationship at *the time of completing* the MAST (as measured by ERS item 2), and there was a positive but non-significant correlation between levels of emotional closeness between staff–client dyads (as measured by the ERS item 3). This provides support that MAST scores are relatively independent of relationship quality and level of emotional closeness at the time of completing the MAST. Level of intellectual disability and challenging behaviour was also significantly negatively correlated with MAST scores with the former predicting MAST scores to a significant degree. These findings are consistent with previous research, with Clegg & Lansdall-Welfare (1995) and De Schipper & Schungel (2010) reporting secure attachment style was associated with lower levels of challenging behaviour. The relationship between MAST scores and level of intellectual disability as measured by the LDCS also provided support for previous research indicating a correlation between level of intellectual disability and attachment behaviour (e.g. Atkinson *et al.* 1999; van IJzendoorn *et al.* 2007; Rutgers *et al.* 2007). Overall, the results of the current study provide preliminary support for the reliability and validity of the MAST as a measure of secure attachment behaviour.

The results indicate that individuals with an intellectual disability who were reported to have a higher frequency of observed secure attachment behaviour (high MAST scores) were also likely to demonstrate lower levels of negative-reaction tendency (high mean scale scores) characterized by lower levels of initial weariness and reluctance to interact with strangers. This could be attributed to the theoretical link between the two constructs as individuals demonstrating secure attachment behaviour are likely to experience low levels of avoidance of others (Bartholomew 1997), which could be associated with negative-reaction tendency.

Individuals with an intellectual disability are reported to demonstrate higher levels of positive-reaction tendency (low mean subscale scores) which is defined as a desire for social reinforcement from a supportive adult. The results of the current study indicate that individuals

with an intellectual disability who were reported to have a higher frequency of observed secure attachment behaviour were also likely to demonstrate lower levels of positive-reaction tendency. The significant positive correlation between the MAST total score and positive-reaction tendency subscale scores could be attributed to the theoretical link between the two constructs. Individuals demonstrating secure attachment behaviour are likely to be more adaptive regarding the levels of social reinforcement they desire and rely less on the approval of others through achieving *interdependence*. For example, Bartholomew (1997) reported that secure adults develop adaptive strategies for coping with distress. They are able to seek support from others, develop intimate relationships and experience comfort with closeness, whilst behaving autonomously and seeking support when required.

The results also demonstrate that there was a significant positive correlation between MAST total scores and obedience mean scale scores. Obedience is defined as a tendency for an individual to follow directions rather than generating their own internal guidance and subsequent behavioural responses in a specific situation. The results indicate that individuals with an intellectual disability that were reported to have a higher frequency of secure attachment behaviour were also likely to demonstrate lower levels of obedience, that is, they were less likely to be reliant on the support of others and more likely to generate their own internal guidance and subsequent behavioural responses. The significant positive correlation, medium effect size and shared variance between the MAST total score and obedience subscale score could also be attributed to the theoretical link between attachment theory and the obedience scale. Individuals demonstrating secure attachment behaviour are likely to be confident in their own abilities and are likely to be adaptive (Bartholomew & Horowitz 1991; Bartholomew, 1997; Crittenden 2005) and generate their own solutions, which may be associated with lower levels of obedience (high obedience scale scores).

#### *Methodological limitations*

Despite these encouraging results, the significant correlations were typically modest and proportion of shared variance limited. This could in part be associated with a number of limitations, for example the limited measures used to assess concurrent validity and the relatively small convenience sample used, which may compromise generalization of the current findings. In

addition, a small number of staff ( $N = 10$ ) participants completed measures regarding more than one individual with an intellectual disability, thus potentially compromising the independence of the data. However, this will have had a minimal effect as the measures used were all objective rating scales.

The MAST could be regarded as a measure of the relationship between an individual and their carer or a measure of relatedness and the motivation of individuals to relate to others (Atkinson *et al.* 1999; Hobson 2008), rather than a measure of secure attachment behaviour *per se*. In response to this criticism, the MAST was developed from the existing attachment literature and has good content validity (Walker 2009). Moreover, the MAST does not assess a range of adult attachment styles, as, for example, identified by Mikulincer & Shaver (2003), which was intentional given that secure attachment is more readily defined across models (Walker 2009). Future research into attachment theory and adults with intellectual disability may allow for understanding of differing attachment behaviour in this population to be examined. Previous research regarding children with intellectual disability indicates that large proportions are classified as displaying non-secure attachment behaviours. This suggests that further research is required to examine whether current classifications are appropriate for adults with intellectual disability and whether the MAST is used to support a more adaptive assessment of the function of attachment behaviour as proposed by Crittenden (2005, 2008).

Further limitations of the study are associated with a paucity of measures that could be used to assess the validity of the MAST, with the ERS having to be developed specifically for the study as a relatively crude measure of discriminant validity. Further research into the validity of the MAST is therefore indicated. Similarly, the LDCS measure was deliberately adopted as an all round description of a person's intellectual disability in preference to other measures with better psychometric properties that only focus on specific attributes of people with intellectual disability such as their psychological and emotional functioning or their behaviour.

#### *Strengths of the study, clinical implications and future research*

In contrast, it can be noted that there are a number of strengths of the current study. Firstly, the MAST was developed based upon the attachment, and intellectual

disability literature therefore has good content validity. Secondly, the majority of the items are rated upon observable attachment behaviour, which is a strength of a third-party measure. Also the data for the MAST were normally distributed, suggesting the scores relate to the sample and not individual characteristics of staff or individuals with an intellectual disability. The results also suggest that attachment behaviour is stable over time, supporting previous research (Main & Cassidy 1988).

The MAST can be used to further understanding of attachment security for individuals with an intellectual disability and is intended for use as a continuous measure of secure attachment (not categorical as with many other attachment measures), so as to promote the assessment of the *adaptive* function of attachment behaviour as suggested by Crittenden (2005, 2008). The MAST does not require extensive training to use and can be completed with direct-care staff which will enable greater consideration for individual differences when assessing the emotional and behavioural needs of individuals with intellectual disability. However, it is noteworthy that staff self-report indicated that knowledge of attachment theory was limited; therefore, interpretation of the MAST should be conducted by clinicians with a good working knowledge of attachment theory.

Further research is required to further assess the psychometric properties of the measure. Replicating the study with a larger sample size will allow for assessment of the factor structure of the MAST and recruiting staff from a range of professional backgrounds and family members would allow for further assessment of the psychometric properties including inter-rater reliability. In addition, expanding the Likert scale and removing items 1 and 2 as indicated by results of the Cronbach's  $\alpha$  and reassessing the validity of the amended scale would be beneficial. Future research aimed at further examination of the psychometric properties of the MAST should prioritize assessing the validity of the MAST against the SRAAS as well as comparing the MAST with other measures of attachment behaviour, such the Secure Base Safe Haven Observation measure (De Schipper *et al.* 2006), although this would require the SBSHO to be modified accordingly given it was developed for use with children with intellectual disability in educational and day-care settings.

In addition, investigating whether individuals with intellectual disability personally identify with the items of the MAST, that is, whether they think the items

apply to other people they know with an intellectual disability, would be of use in determining the validity of the MAST. A method such as repertory grid technique might be useful in this regard (cf Leonard 2008). Recruiting staff to complete the MAST with regard to a more representative sample of individuals with a range of level of intellectual disability would also be beneficial. The clinical utility of the MAST for assessing attachment behaviour for varying levels of intellectual disability including mild to severe intellectual disability and consideration of whether the MAST requires adaptation for individuals with a more severe intellectual disability is required.

## Conclusions

Overall, the results provide preliminary support for the reliability and validity of the MAST as a measure of secure attachment behaviour and indicate that the SRAAS is a useful clinical tool to assess self-reported comfort-seeking behaviour. Attachment behaviour was also found to be stable overtime and was associated with levels of CB and intellectual disability. Further research regarding the prevalence of attachment difficulties and the factors increasing individual risk of attachment difficulties is essential. To meet the emotional needs of adults with intellectual disability, the development of interventions that offer a reciprocal focus and emphasize the role of others, especially professional carers in meeting the attachment needs of individuals, is crucial in promoting emotional development and affect regulation skills. Research that evaluates the effectiveness of attachment interventions that aim to create a 'safe base' for individuals with an intellectual disability who have attachment difficulties is required.

## Correspondence

Any correspondence should be directed to Dougal Julian Hare, School of Psychological Sciences, University of Manchester, Zochonis Building, Brunswick Street, Manchester M13 9PL, UK (e-mail: dougal.hare@manchester.ac.uk).

## References

- Atkinson L., Chisholm V. C., Scott B., Goldberg S., Vaughn B. E., Blackwell J., Dickens S. & Tam F. (1999) Atypical attachment in infancy and early childhood among children at developmental risk. III. Maternal sensitivity, child functional level, and attachment in Down syndrome. *Monographs of the Society for Research in Child Development* **64**, 45–66.
- Ball S. L., Holland A. J., Treppner P., Watson P. C. & Huppert F. A. (2008) Executive dysfunction and its association with personality and behaviour changes in the development of Alzheimer's disease in adults with Down syndrome and mild to moderate learning disabilities. *British Journal of Clinical Psychology* **47**, 1–29.
- Bartholomew K. & Leonard M. (1991) Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology* **61**, 226–244.
- Bartholomew K. (1997) Adult attachment processes: individual and couple perspectives. *British Journal of Medical Psychology* **70**, 249–263.
- Berger J. & Cunningham C.C. (1983) Development of early vocal behaviours and interactions in Down's Syndrome and non-handicapped infant-mother pairs. *Developmental Psychology* **19**, 322–331.
- Bowlby J. (1969/1971/1982). *Attachment and Loss: Volume 1. Attachment*. Basic Books, New York.
- Bowlby J. (1977) The making and breaking of affectional bonds I. Aetiology and psychopathology in light of attachment theory. An expanded version of the fiftieth Maudsley lecture, delivered before the Royal College of Psychiatrists, 19 November 1976. *British Journal of Psychiatry* **130**, 201–210.
- Carlson E. A. & Sroufe L. A. (1995) Contributions of attachment theory to developmental psychopathology. In: *Handbook of Attachment: Theory, Research, and Clinical Applications* (eds J. Cassidy & P. R. Shaver) (2008), pp. 637–665. The Guilford Press, New York.
- Cassidy J. (1994) Emotion regulation: influences of attachment relationships. *Monographs of the Society for Research in Child Development* **59**, 228–249.
- Clegg J. A. & Lansdall-Welfare R. (1995) Attachment in learning disability: theoretical review informing three clinical interventions. *Journal of Intellectual Disability Research* **39**, 295–305.
- Cohen J. (1988) *Statistical power analysis for the behavioural sciences*, 2nd edn. Lawrence Erlbaum Associates, Hillsdale, NJ.
- Crittenden P. M. (2005) Attachment theory, psychopathology, and psychotherapy: the dynamic-maturational approach. *Teoria dell'attaccamento, psicopatologia e psicoterapia: L'approccio dinamico maturativo. Psicoterapia* **30**, 171–182.
- Crittenden P. M. (2008) Raising parents: attachment, parenting and child safety. In: *DMM Assessments of Attachment and Adaptation: Procedures, Validity and Utility* (eds S. Farnfield, A. Hautamaki, P. Norbeck & N. Sahhar) (2010) *Clinical Child Psychology and Psychiatry*, **15**, 313–328.
- Crowell J. A., Fraley R. C. & Shaver P. R. (1999) Measurement of individual differences in adolescent and adult attachment. In: *Handbook of Attachment: Theory, Research, and Clinical Applications* (eds J. Cassidy & P. R. Shaver), pp. 434–465. Guilford Press, New York.

- De Schipper J. C. & Schungel C. (2010) Attachment behaviour towards support staff in young people with intellectual disabilities: associations with challenging behaviour. *Journal of Intellectual Disability Research* **54**, 584–596.
- De Schipper J. C., Stolk J. & Schungel C. (2006) Professional caretakers as attachment figures in day centers for children with intellectual disability and behaviour problems. *Research in Developmental Disabilities* **27**, 203–216.
- Deb S., Thomas M. & Bright C. (2001) Mental disorder in adults with intellectual disability. I: prevalence of functional psychiatric illness among a community-based population aged between 16 and 64 years. *Journal of Intellectual Disability Research* **45**, 495–505.
- Department of Health. (2007) *Valuing People Now: From Progress to Transformation*. Social Care Policy and Innovation, London.
- Dunn L., Dunn L., Whetton C. & Burley J. (1997) *British Picture Vocabulary Scale*, 2nd edn. NFER Nelson, Windsor, UK.
- Emerson E., Hatton C., Felce D. & Murphy G. (2001) Learning disabilities: the fundamental facts. In: *Client Group Applications. CBT for People with Intellectual Disabilities: Emerging. Evidence, Cognitive Ability and IQ Effects* (eds J. M. Taylor, R. W. Lindsay & P. Willner) (2008) *Behavioural and Cognitive Psychotherapy*, **36**, 723–733.
- Field A. (2009) *Discovering Statistics Using SPSS*, 3rd edn. Sage Publications, London.
- Harris P. (2008) The nature and extent of aggressive behaviour amongst people with learning difficulties (mental handicap) in a single health district. *Journal of Intellectual Disability Research* **37**, 221–242.
- Hastings R. P., Hatton C., Taylor J. L. & Maddison C. (2004) Life events and psychiatric symptoms in adults with intellectual disabilities. *Journal of Intellectual Disability Research* **48**, 42–46.
- Hatton C. & Taylor J. L. (2005) Promoting healthy lifestyles: mental health and illness. In: *Client Group Applications. CBT for People with Intellectual Disabilities: Emerging. Evidence, Cognitive Ability and IQ Effects* (eds J. M. Taylor, R. W. Lindsay & P. Willner) (2008), *Behavioural and Cognitive Psychotherapy*, **36**, 723–733.
- Hazan C. & Shaver P. (1987) Romantic love conceptualised as an attachment process. In: *Handbook of Attachment: Theory, Research, and Clinical Applications* (eds J. Cassidy & P. R. Shaver) (2008), pp. 482–502. Guilford Press, New York.
- Hesse E. (1999) The adult attachment interview: historical and current perspectives. In: *Handbook of Attachment: Theory, Research, and Clinical Applications* (eds J. Cassidy & P. R. Shaver), pp. 395–433. Guilford Press, New York.
- Hobson P. R. (2008) Interpersonally situated cognition. *International Journal of Philosophical Studies* **16**, 377–397.
- van IJendoorn M. H., Rutgers A. H., Bakermans-Kranenburg M. J., Swinkels S. H. N., Van Daalen E., Dietz C., Naber F. B. A., Buitelaar J. K. & Van Engeland H. (2007) Parental sensitivity and attachment in children with autism spectrum disorder: comparison with children with mental retardation, with language delays, and with typical development. *Child Development* **78**, 597–608.
- Janssen C. G. C., Schuengel C. & Stolk J. (2002) Understanding challenging behaviour in people with severe and profound intellectual disability: a stress-attachment model. *Journal of Intellectual Disability Research* **46**, 445–453.
- Leonard A. (2008) *Using Repertory Grids to Explore a Motivational Based Personality Structure for People with Intellectual Disabilities*. Doctoral dissertation, University of Manchester, Manchester, UK.
- Main M. & Cassidy J. (1988) Categories of response to reunion with the parent at age 6: predictable from infant attachment classifications and stable over a 1-month period. *Developmental Psychology* **24**, 415–426.
- Main M. & Goldwyn R. (1984) Adult attachment scoring and classification system. University of California at Berkeley. In: *Handbook of Attachment: Theory, Research, and Clinical Applications* (eds J. Cassidy & P. R. Shaver) (2008), pp. 552–598. The Guilford Press, New York.
- Meltzer H., Gill B., Peticrew M. & Hinds K. (1995) The prevalence of psychiatric morbidity among adults living in private households: OPCS survey of psychiatric morbidity in Great Britain, report 1. In: *Client Group Applications. CBT for People with Intellectual Disabilities: Emerging. Evidence, Cognitive Ability and IQ Effects* (eds J. M. Taylor, R. W. Lindsay & P. Willner) (2008). *Behavioural and Cognitive Psychotherapy* **36**, 723–733.
- Mikulincer M. & Shaver P. R. (2003) The attachment behavioural system in adulthood: activation, psychodynamics and interpersonal processes. In: *Handbook of Attachment. Theory, Research, and Clinical Applications* (eds J. Cassidy & P. R. Shaver) (2008), pp. 503–531. The Guilford Press, New York.
- Mikulincer M., Shaver P. R. & Pereg D. (2003) Attachment theory and affect regulation: the dynamics, development, and cognitive consequences of attachment related strategies. *Motivation and Emotion* **27**, 77–102.
- Oliver C., Murphy G. & Corbett J. A. (1987) Self-injurious behaviour in people with mental handicap: a total population study. *Journal of Intellectual Disability Research* **3**, 147–162.
- Pendaries C. (1997) Pilot study on the development of the learning healthcare resource groups. *British Journal of Learning Disabilities* **25**, 122–126.
- Rutgers A. H., van IJendoorn M. H., Bakermans-Kranenburg M. J., Swinkels S. H. N., van Daalen E., Dietz C., Naber F. B., Buitelaar J. K. & van Engeland H. (2007) Autism, attachment and parenting: a comparison of children with autistic spectrum disorder, mental retardation, language disorder, and non-clinical children. *Journal of Abnormal Child Psychology* **38**, 859–870.
- Schore A. N. (1994) *Affect Regulation and the Origin of the Self: The Neurobiology of Emotional Development*. Lawrence Erlbaum, New Jersey.
- Schore A. N. (1996) The experience-dependent maturation of a regulatory system in the orbital prefrontal cortex and the

- origin of developmental psychopathology. In: *The Effects of Early Relational Trauma on Right Brain Development, Affect Regulation, and Infant Mental Health* (eds A. N. Schore) (2001). *Infant Mental Health Journal* **22**, 201–269.
- Schore A. N. (1997) Early organization of the nonlinear right brain and development of a predisposition to psychiatric disorders. In: *The Effects of Early Relational Trauma on Right Brain Development, Affect Regulation, and Infant Mental Health* (ed A. N. Schore) (2001). *Infant Mental Health Journal* **22**, 201–269.
- Schore A. N. (2001) The effects of early relational trauma on right brain development, affect regulation, and infant mental health. *Infant Mental Health Journal* **22**, 201–269.
- Smith P. & McCarthy G. (1996) The development of a semi-structured interview to investigate the attachment related experiences of adults with learning disabilities. *British Journal of Learning Disabilities* **24**, 154–160.
- SPSS Inc. Statistical Package for Social Sciences (SPSS) for Windows. Released 28.04.2008. SPSS Inc., Chicago.
- Sterkenburg P. S., Janssen C. G. C. & Schuengel C. (2008) The effect of an attachment-based behaviour therapy for children with visual and severe intellectual disabilities. *Journal of Applied Research in Intellectual Disabilities* **21**, 126–135.
- Tannock R. (1988) Mothers' directiveness in their interactions with children with and without Down syndrome. *American Journal on Mental Retardation* **93**, 154–165.
- Vaughn B. E., Goldberg S., Atkinson L., Marcovitch S., MacGregor D. & Seifer R. (1994) Quality of toddler–mother attachment in children with Down syndrome: limits to interpretation of strange situation behavior. *Child Development* **65**, 95–108.
- Walker S. (2009) *Attachment in Adults with Intellectual Disabilities; The Development and Preliminary Validation of a New Criterion Q Sort Scale*. Doctoral dissertation. University of Manchester, Manchester, UK.
- Zigler E., Bennett-Gates D., Hodapp R. & Henrich C. (2002). Assessing personality traits in individuals with mental retardation. *American Journal on Mental Retardation* **107**, 181–193.