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Volume I

Research Component

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Overview

This thesis is submitted in partial fulfilment of the requirement for the degree of Doctorate in Clinical Psychology at the University of Birmingham. The thesis consists of two volumes:

Volume 1 comprises a review of the literature and an empirical paper. The former examines the relationship between attachment style and challenging behaviour in people with developmental disabilities and the latter examines whether young people with ID understand the importance of positive parent-infant relationships and whether this can be taught using a DVD, and how much and what information is retained at follow-up.

Volume 2 compromises a total of five Clinical Practice Reports. The first outlines a case formulated from two different psychological models; Clark and Well's (1995) model of social anxiety and Malan's (1995) triangle of conflict and triangle of person. The second presents a service evaluation of the ethnic breakdown of patients seen in secondary care psychological therapies services. The third report describes the application of a cognitive-behavioural assessment, formulation and intervention for a 12-year old boy with Asperger's Syndrome and anxiety. The fourth describes a single-case experimental design of a 12-year-old girl with intellectual disabilities presenting with difficulties initiating and maintaining sleep. The fifth report, which was presented orally, describes the application of a cognitive-behavioural therapy (CBT) model to a 13-year-old boy presenting with social anxiety.

Volume 3 presents a public domain paper outlining the research undertaken in the empirical paper suitable for a public audience.

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Contents

Chapter 1: Literature Review

Is problematic attachment style an associated and/or predictive factor of challenging behaviour in people with developmental disabilities?

1.0 Abstract

Objectives: This review examines the evidence that exists on whether there is a relationship between attachment style and challenging behaviour in people with developmental disabilities (DD).

Methods: A systematic search of papers regarding attachment style, challenging behaviour and DD was conducted. Seven papers published between 2002 and 2011 were identified and, depending on the research design, which included correlational and intervention studies, evaluated against the methodological criteria provided by the National Institute of Clinical Excellence (NICE, 2004) or Single-Case Experimental Design Scale (SCED Scale; Tate et al, 2008).

Results: The review provides limited evidence that there is a relationship between attachment style and challenging behaviour in people with DD. Of the four correlational studies, study 4 was the only one that was able to infer causality and received the highest quality rating however even this study was affected by several methodological limitations. Of the three SCEDs, study 5 and 7 received the highest quality rating however their results were compromised by a lack of baseline measure. Therefore, in light of the paucity of research in this area and methodological limitations, conclusions should be considered tentative at best.

Conclusions: There is a paucity of research in this area with the majority of studies rated as providing little evidence. More longitudinal designs and robust SCEDs are needed before firm conclusions can be reached. Clinicians working with individuals with DD presenting with insecure attachment styles and challenging behaviour may consider attachment-based behaviour interventions as part of their therapeutic repertoire.

Keywords: Attachment style, attachment-based behaviour modification, challenging behaviour, intellectual disabilities, developmental disabilities.

1.1 Introduction

What is attachment?

Bowlby (1969/1982) described attachment as an enduring affectional tie that infants form with their mother. Attachment behaviour is believed to have a biological basis which evolved through a process of natural selection (Bowlby, 1969/1982). Infants are biologically predisposed to engage in attachment behaviours to increase their chance of survival and maximise protection from danger (Bowlby, 1964 cited in Bowlby, 1969/1982). Each infant has an "attachment behavioural system" which helps them to organise their attachment behaviours in response to internal and external cues (Bowlby, 1969/1982). When an infant is tired or faced by threats from the environment, the attachment system activation level increases and attachment behaviours are observed (Goldberg, 2000). Attachment behaviours may include crying to notify the mother that something is not right, proximity seeking behaviours to help the infant to stay close to the mother and to facilitate affect regulation, or signalling behaviours to gain the mother's attention for interaction (Cassidy, 1999). Similarly, adults are predisposed to behave in ways that serve to protect and care for infants by responding to signals of tiredness or distress and modifying the environment to reduce the threat of harm (Goldberg, 2000).

Individual differences in the quality of attachment relationships mean that some children develop a secure attachment, whereas others develop an insecure attachment (Ainsworth, 1979). Secure attachment develops when the parent is sensitive to the infant's needs, and is reliably and consistently available and responsive to the infant (Cassidy, 1999). These children develop an 'inner working model' of their parent as a secure base from which to explore. In contrast, insecurely attached children are less likely to have had their needs met by their caregiver (Cassidy & Shaver, 1999), and are therefore more likely to develop an inner working model of their caregiver as unreliable and inconsistent when needed, and develop a view of themselves as being unworthy of such care.

Ainsworth, Blehar, Waters & Wall (1978) developed the Strange Situation Procedure to assess the quality of the mother-infant relationship by observing the child's reaction to a series of separations and reunions with its mother. Attachment classification is determined by

the infant's reaction when the mother returns and the reunion takes place. In each episode a rating is given for a number of infant behaviours: proximity-seeking, contact-maintaining, avoidance of the mother, resistance to comforting, searching behaviour during separation, and distance interaction with the mother (Goldberg, 2000). From these scores, the infant's attachment style is determined.

Attachment patterns have traditionally always fallen into three broad categories (Ainsworth, 1979); however more recently a fourth attachment pattern has been identified (Main & Solomon, 1990 cited in van IJzendoorn, Goldberg, Kroonenberg & Frenkel, 1992). They are described as being secure (type B), insecure (Type A and C) or disorganised (type D). Each classification is associated with a unique pattern of behaviour which is observed during episodes of separation and reunion during the Strange Situation Procedure (Ainsworth et al, 1978).

What are the implications of an insecure attachment later on in life?

Securely attached children are more likely to be sociable and show more adept emotional regulation (Greenberg, 1999). In contrast, an insecure attachment is related to the reverse and in some cases poorer mental health and behavioural problems in childhood and lower resilience and increased risk of psychopathology such as internalising and externalising presentations in adulthood (Dozier, Stovall & Albus, 1999).

What is a developmental disability?

Defining the term developmental disabilities (DD) is challenging; it is a constantly evolving term with different definitions used in different countries. For the purpose of this review, the term DD will be used to refer to delays, disorders or impairments that affect cognitive, communication, social or motor abilities and appear during the developmental phase, impeding independent participation and acceptance in society (Odom, Horner, Snell & Blacher, 2007). DD include intellectual disability (ID) and Autistic Spectrum Disorders (ASD) as well as attention deficits and behavioural disorders. A broad range of conditions may impose limitations and individuals with DD can be above average intelligence (Odom et al, 2007).

What do we know about attachment and DD?

A meta-analysis which investigated the distribution of attachment styles among non-clinical groups found that 62% of infants are classified as securely attached (type B), 15% as insecure avoidant (type A), 9% as insecure resistant (type C) and 15% as disorganised (type D) (van IJzendoorn, Schuengel & Bakersman-Kranenburg, 1999). However, it is not clear whether the Strange Situation Procedure (Ainsworth et al, 1978) is appropriate for evaluating attachment security in children with DD as it was originally validated for normative samples within the age range of 12 to 21 months (Rutgers, Bakermans-Kranenberg, van IJzendoorn, 2004).

Studies that have used the Strange Situation Procedure with children with DD demonstrate mixed findings. Vaugh et al (1994) investigated the distribution of attachment patterns in children with DD and found that these children were more frequently classified as being insecurely attached compared to typically developing (TD) children. The authors argued that reduced emotional and physiological reactivity observed during the separation and reunion episodes accounted for the high rate of insecurity among children with DD. However, the authors also highlighted difficulties assigning children with DD to an attachment type suggesting that the traditional classificatory system does not adequately describe attachment behaviour shown by these children, and thus may not offer a valid measure of attachment quality for this population. Similarly, Ganiban, Barnett & Cicchetti (2000) investigated the relationship between emotional reactivity and attachment in children with Down Syndrome (DS) using the Strange Situation Procedure and a coding system to rate distress vocalisation. However, in contrast to Vaugh et al (1994), they concluded that even for children with low emotional reactivity, the Strange Situation Procedure is a valid measure of attachment quality.

The notion that attachment security can be achieved by children with ASD has been widely debated. In addition, the research findings in this area are mixed. Children with a diagnosis of autism are impaired in reciprocity in social interaction (Diagnostic and Statistical Manual of Mental Disorder, 4th ed., Text Revision [DSM-IV-TR; American Psychiatric Association [APA], 2000). Yet, empirical evidence has demonstrated that the majority (53%, n=72) of children with autism and Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS) show evidence of being securely attached using the Strange Situation Procedure (Rutgers et al, 2004; Buitelaar, 1995). A meta-analysis, however, demonstrated that children with autism were significantly more insecurely attached to their parents compared to

neurotypical children (Rutgers et al, 2004). Furthermore, having an ID in addition to a diagnosis of autism appears to increase the risk of developing an insecure attachment. Rutgers et al (2004) reported that co-mobidity of autism and ID was associated with less attachment security.

More recently, the relationship between parental sensivity and attachment styles in children with ASD has been investigated. Research has shown that parents of children with ASD were equally sensitive as parents of neurotypical children (van IJzendoorn et al, 2007). Nevertheless, the extent to which sensitive parenting effects attachment styles or indeed the impact parenting interventions may have on attachment styles in children with ASD is unclear. A study by van IJzendoorn et al (2007) found that sensitive parenting was not linked to attachment security in children with ASD suggesting that attachment-based interventions for this population may not be so effective.

Overall, these studies create a mixed picture about attachment patterns in people with DD although what does appear clear is that attachment style in this population appears to be somewhat affected by accompanying neurological abnormalities. Despite empirical evidence showing that children with DD show signs of attachment security, concerns remain about the validity of the measures used to assess attachment style in this population. The applicability of such measures to children who arguebly have compromised communication abilities and unique behavioural patterns, which may affect the intrepretation of attachment behaviour, is also unclear.

What is challenging behaviour?

The term challenging behaviour is typically used to describe a broad range of unusual behaviours exhibited by people with ID. Emerson (1995) defined challenging behaviour as:

“culturally abnormal behaviour of such intensity, frequency or duration that the physical safety of the person or others is likely to be placed in serious jeopardy, or behaviour which is likely to seriously limit use of, or result in the person being denied access to, ordinary community facilities.” (Emerson, 1995:3)

Prevalence and risk factors to challenging behaviour

The exact number of people with DD who exhibit challenging behaviour is unknown; some studies have reported that approximately 30% and 60% of the population engage in such behaviour (Deb & Bright, 2001), whereas others report much lower figures. A epidemiological study conducted in northwest England (Emerson et al, 2000) found that challenging behaviour were shown by 10-15% of the people with DD, with the most common forms including 'other' (9-12%), aggression (7%), destructive behaviour (4-5%) and self-injury (4%). The majority of people who showed multiple challenging behaviour were male and either adolescents or young adults (Emerson et al, 2000).

What do we know about challenging behaviour in people with DD in the context of attachment style?

People with DD are vulnerable to stress and have a limited repertoire of coping skills (Janssen, Schuengel & Stolk, 2002). In addition, they are at risk of developing insecure attachment relationships, especially disorganised attachment (Schuengel & Jassen, 2006; van IJzendoorn, Schuengel & Bakersman-Kranenburg, 1999). A secure attachment relationship plays an important role in facilitating affect regulation (Janssen et al, 2002), suggesting that external support may help to buffer the effects of stress. Consequently, in the absence of such relationships or when there is limited access to attachment figures, individuals are more likely to develop maladaptive ways of coping with stress. Clegg & Lansdall-Welfare (1995) argued that separation anxiety experienced by people with DD living in residential facilities manifests itself as challenging behaviour. Challenging behaviour in people with DD may therefore be explained by a complex interaction of factors including coping skills, attachment relationships and developmental history (Janssen et al, 2002).

That said, caution should be taken when intrepreting the stress-attachment model for two reasons: firstly, those most at risk of frequent, intense and sustained levels of stress are more likely to have severe and profound ID suggesting that stress may affect people with ID differently, depending on the degree of their learning disability and cognitive functioning (Janssen et al, 2002). Secondly, due to difficulties assessing subjective experience of distress in people with severe and profound ID, the majority of studies have often relied on psychophysical measures to ascertain perceived stress, limiting their assessment to one type of measure.

Rationale for this systematic review

The most recent review exploring ID and attachment relationships was conducted by Janssen et al (2002). Another review investigating autism and attachment was conducted in 2004 and concluded that the majority of studies found evidence of secure attachments in children with autism, using the Strange Situation Procedure (Rutgers et al, 2004). However, what remains less clear is whether the attachment model is a useful theoretical framework for understanding challenging behaviour in people with DD and what research has been done in the area since the last two reviews were conducted.

1.2 Aim for this review

The aim of this review is to evaluate the evidence that exists on whether there is a relationship between attachment style and challenging behaviour in people with DD.

1.3.1 Methodology

1.3.1 Search Strategy

Articles for the review were identified by (1) searching electronic databases; (2) searching developmental disability websites; and (3) hand searching reference lists of included studies and previous reviews in the field of challenging behaviour and attachment relationships in people with developmental disabilities.

(1) Electronic databases

An electronic database search of *PsycINFO (1987-April Week 4 2013), Web of Science (1980- April week 4 2013, Assia (1987- April Week 4 2013), Social Services Abstracts (1979- April Week 17 2013),* and *Sociological Abstracts* (1952- Week 17 2013), *Cinahl (1982- April Week 4 2013),* was undertaken using the following search strategy:

A. A keyword search was conducted for "intellectual development disorder" **or** "learning disabilities" **or** "developmental disabilities" **or** "delayed development" **or** autism **or** aspergers syndrome **or** pervasive development disorder **or** attention deficit disorder with hyperactivity **or** attention deficit disorder ((intellectual* **or** mental* or learning) near/1 (disabilit* or disorder* or impairment* or retard*)) **or** (developmental* near/1 (disabilit* or disorder* delay*))

B. A keyword search was conducted for "attachment behaviors" or "attachment disorders" **or** "attachment theory" **or** (attachment adj1 (problem* or difficult* or behave* or secur* or figure* or relation* or style* or classification* or model* or theor*))

C. A keyword search was conducted for "behaviour problem" **or** "behaviour disorder" **or** ("behav* adj1 (problem* or difficult* or disorder*)) or "challenging behav*" or challenging near/1 behav* near/1 (problem* or difficult* or disorder*))

Search strategy A **and** B **and** C combined

Results = 105 (with duplicates removed)

(2) Developmental disability related websites

The following websites were searched:

A. Tizard Centre – Research projects. Searched on 29/04/13
http://www.kent.ac.uk/tizard/research/research%20project%20archive.html

B. National Autistic Society – Research. Searched on 29/04/13
http://www.autism.org.uk/about-autism/research.aspx

C. Public Health England – Child and Maternal Health. Searched 29/04/13
http://www.chimat.org.uk/default.aspx?QN=LDCAMHS_BEHAVIOUR

Results = 97 (with duplicates removed)
Results = 94 (with duplicates across databases and website removed)

(3) Hand searching

In order to identify further relevant studies, the reference lists of the included studies were examined.

Results = 0 (with duplicates removed)

1.3.2 Criteria for inclusion in review

Articles generated by the above search strategies were screened based on information contained within the full reference for the article (title, abstract and author) and the following inclusion criteria were applied:

- Articles written in English

- Studies examining attachment relationships and CB in people with DD
- Studies comparing people with DD with other groups
- Correlational studies
- Intervention studies

Results = 7 (total number of papers identified for review)
A flow chart representing the above is presented in Figure 1 (see Appendix A).

1.3.3 Data extraction

In order to identify pertinent information regarding each of the chosen articles, a data extraction table was created. This focused on the aims of the research, study design (including number of participants, methodological design and measures used), key findings and limitations (see Table 1).

1.3.4 Assessing Methodological Qualities of Included Studies

Two quality frameworks were selected for the systematic evaluation of the papers identified. One checklist was provided by NICE (2004) and was used to evaluate the quality of the correlational, cross sectional and longitudinal designs. The other was the Single-Case Experimental Design (SCED) Scale proposed by Tate et al (2008) which was used to evaluate the quality of the single case designs. Both were selected on the basis of the compatibility between the framework and the studies. The former provides a rating structure whereby a paper can receive a ++, + or – to indicate that most, some or none of the criteria have been met respectively. The SCED scale assesses each study according to the clinical history, design, measures, analysis and results. Each item receives a score of 2 (definite evidence), 1 (indicating partial evidence) or 0 (indicating no evidence) (see Table 1 and Appendix A). In order to achieve consistent scoring across all studies, three common categories were used (see Table 1). Accordingly, each study received an evaluation rating (definite evidence, some evidence and little evidence) to indicate the quality of the study.

1.4 Table 1: Data extraction

Author, year, origin	Participants and sample size	Study aims	Study type and quality	Measures	Results relevant to review	Limitations
1.Clegg & Sheard (2002) United Kingdom	Staff and carers of 54 school leavers (25 men, 29 women), severe ID, aged between 20 and 26 years (m= 23 years)	To explore whether there is a relationship between attachment problems and challenging behaviour	Correlational design **Little evidence**	Survey of 24 questions about behaviour in the past three months, one question assessed 'over investment' behaviour (Sheard et al, 2001).	Students who did not over-invest were significantly less likely to show other CB	Correlational design cannot infer causality. Attachment style is assessed using only a single survey question.
2. De Schipper, Stolk & Schuengel (2006) Netherlands	5 children (3 boys, 2 girls), aged between 3.4 and 14.4 years (m = 8.96 years). Two had Autism, one had PDD-NOS and two showed no sign of mental disorder	To investigate whether children with ID display attachment behaviour towards professional caregivers To examine attachment behaviour within each individual as well as between individuals	Correlational design **Little evidence**	Attachment Q-sort measure (AQS; Waters, 1987) Secure base behaviour scale (based on six items from the AQS)	Each child showed attachment behaviour towards primary caretaker. Characteristics attachment behaviours vary for each dyad.	Small heterogeneous sample size Poor external validity No statistical analysis of the relationship between attachment behaviour and CB

Author, year and origin	Participants and sample size	Study aims	Study type and quality	Measures	Results relevant to review	Limitations
3. De Schipper & Schuengel (2010) Netherlands	Support staff of 156 participants (107 male, 69%), moderate to severe ID, aged between 3 and 23 years (median = 9 years; SD=15.6 years)	To examine whether participants' show relationship specific attachment towards support staff To examine whether a person's attachment behaviours towards two caregivers are uniquely related to CB	Correlational study **Little evidence**	Abberant Behaviour Checklist + (ABC; Aman & Singh, 1994) The Secure Base Safe Haven Observation list + (SBSHO; De Schipper & Schuengel, 2006)	Significant negative association between secure attachment behaviour and less irritability, social withdrawal and stereotypic behaviour, even after controlling for developmental age and ASD Attachment behaviour towards caregiver two explained additional variance in lethargy and stereotypic behaviour above attachment behaviour with caregiver one	Correlational design cannot infer causality The AQS, used to inform the SBSHO, is only valid for use with children aged between 1 and 5 years but was not used on participants aged 18 years and above

Trainee Number:

Author, year and origin	Participants and sample size	Study aims	Study type and quality	Measures	Results relevant to review	Limitations
4. Niccols, Milligan, Chisholm & Atkinson (2011) Canada	Fifty-three mother-child dyads at age 2, 3 and 5	To investigate the relationship between maternal sensitivity in mothers of children with DS (at ages 2, 3 and 5 years) and child aggression at home and school To investigate whether maternal sensitivity can predict child aggression	Longitudinal correlational design **Some evidence**	Ainsworth Sensitivity Rating (Ainsworth, Bell & Stayton, 1971) Maternal Behaviour Q-sort (MBQS; Pederson et al, 1990) Vineland Adaptive Behaviour Scales ° (Sparrow et al, 1984) Observations	Maternal sensitivity at age 2 and 3 did not significantly predict child aggression at age 5 Significant negative association between maternal sensitivity at age 5 and aggression at home and school	Small sample size Missing data Sample attrition Reliability of classroom observation was low Potential factors that may have contributed to the development of aggression were not examined

Author, year and origin	Participants and sample size	Study aims	Study type and quality	Measures	Results relevant to review	Limitations
5. Sterkenburg, Janssen & Schuengel (2008) Netherlands	Six participants, severe ID and visual disabilities, severe challenging behaviour and a history of early pathogenic care	To compare effectiveness of attachment-based behaviour modification with behaviour modification alone in the treatment of challenging behaviour	Multiple-single case studies **Definite evidence**	Severe Challenging Behaviour Protocol – National Institute for Health Care Challenging Behaviour Scale for people with ID* *(Kraijer & Kema, 1994) Residential Observation Lists Video analysis of challenging behaviour and adaptive behaviour	Challenging behaviour score significantly reduced from the start to the end of the intervention Behaviour modification sessions led by the attachment therapist was associated with a significantly longer duration of adaptive behaviour during treatment Except for client A, challenging behaviour reduced when attachment therapist led behaviour modification sessions compared to control therapist	Research design did not enable examination of the independent effect of attachment-based therapy. Does not take account of extraneous factors which may have contributed to behaviour change The quality of the attachment relationship was not examined, nor was the therapist role in supporting affect regulation Did not include a measure of attachment behaviour

Trainee Number:

Author, year and origin	Participants and sample size	Study aims	Study type and quality	Measures	Results relevant to review	Limitations
6. Sternkenburg, Schuengel, Janssen (2008) Netherlands	Blind, 17-year-old boy with severe ID, Down syndrome, persistent challenging behaviour and history of early pathogenic care	To assess the effectiveness of attachment-based behaviour modification in the treatment of persistent challenging behaviour in people with ID and visual disabilities	Single-case study **Some evidence**	Residential Observation Lists Video analysis of attachment behaviour Observation coding schedules The VU-AMS Posture was measured using a 3 point scale	Attachment therapist and control therapist were equally effective in behaviour modification Significantly more appropriate replacement behaviours and less stress when the behaviour modification treatment was delivered by the attachment therapist compared to the control therapist	Single case design involving one participant, results from this study cannot be generalised

Author, year and origin	Participants and sample size	Study aims	Study type and quality	Measures	Results relevant to review	Limitations
7. Sterkenberg, Janssen, Sterkenburg & Jongbloed (2009) Netherlands	6 participants (mean age = 15.2 years, SD 2.79 years) had a severe intellectual disability (IQ range 20-35) and were blind or had a visual impairments	Establish whether attachment therapy and behaviour modification would stimulate more secure attachment behaviour than a behaviour modification alone Establish whether arousal during behaviour modification was lower with the attachment therapist than with the control therapist	Controlled multiple-case design study **Definite evidence**	Videotaped behaviour Behavioural coding system VU AMS	Proximity seeking behaviour displayed significantly more often towards the attachment therapist than the control therapist Attachment therapist behaviour modification sessions associated with significantly lower arousal For 4 out of 6 children, arousal was significantly lower when behaviour modification sessions was done with control therapist	Case design means that the results cannot be generalised Did not include a measure of challenging behaviour

*Cohen's kappa of 0.91 and high external validity (Kramer, 2001)
** Cohen's kappa of between r=0.75 and 0.79 and adequate validity
⁺ Good internal consistency
° Standardised assessment

1.5 Results

In this section the evidence that exists on whether there is a relationship between attachment style and challenging behaviour in people with DD will be examined. The first part will address the evidence from correlational studies and the second part will address the evidence from intervention studies. At the end of each section a summary of the findings will be presented.

1.5.1 Is there a relationship between attachment style and challenging behaviour in people with DD?

Correlational studies

Four studies employed a correlational design to examine whether there is a relationship between attachment style and challenging behaviour in people with DD (study 1, 2, 3 & 4). Study 1 used a correlational design and received a quality rating of little evidence. Study 2 used a correlational design and received a quality rating of little evidence. Study 3 and 4 used a correlational and longitudinal correlational design and received a quality rating of little evidence and some evidence respectively.

Although the above studies all report similar findings, that is, there is a relationship between attachment style and challenging behaviour, the quality of the studies varies. The three studies that used a correlation design (study 1, 2 and 3) cannot infer causality. Study 4 gathered longitudinal data and therefore is able to generate hypotheses about causation. However, their conclusions are weakened by a number of methodological limitations. These include a small sample size, low observation reliability, missing longitudinal data, participant drop-out and failure to quantify other factors that may have been important in the development of aggression; the conclusions should therefore be interpreted with caution.

A range of measures assessing attachment behaviour in people with DD were utilised across the four studies. These included a survey question (Clegg et al, 2001), AQS (Waters, 1987 cited in De Schipper et al, 2006), Secure Base Behaviour Scale (SBBC; De Schipper et al, 2006), Secure Base Safe Haven Observation list (SBSHO; De Schipper & Schuengel, 2006), Ainsworth Sensitivity Rating (Ainsworth et al, 1971) and the MBQS (Pederson et al, 1990).

Study 1 used a single survey question to assess attachment style yet, as highlighted by the authors, such assessments typically involve the use of a combination of observation and interview methods. Thus, the extent to which one survey question offers a reliable and valid measure of attachment style is questionable. In contrast, the AQS is a widely used, validated measure of attachment security used with children aged between 1 and 5 years-old (De Schipper et al, 2006). However, study 2 used this measure with a sample of children aged between 3.4 and 14.4 years. Similarly, study 3 used part of the AQS to inform their own measure of attachment behaviour – the SBSHO list – yet approximately 65% of their sample was aged 7 years or older. The validity of extending the AQS assessment to older children, including children and young adults aged between 6 and 23 years, which made up part of the study 3 sample, is not known. In addition, study 2 used the SBBS, a measure developed by the authors to assess the degree of compatibility between the researchers and professional caregivers' observations of the children's secure base attachment behaviour. High scores indicate that the child uses her caregiver as a secure base from which to explore. However, the authors do not offer a rationale as to why they chose the six items that constitute this scale, nor do they define what constitutes a high or a low score although they do for the AQS measure.

The challenging behaviour measures included the survey questions (Clegg et al, 2001), the ABC (Aman & Singh, 1994), the Maladaptive Behaviour Domain of the Vineland (Sparrow, Balla & Cicchetti, 1984) and direct observations of child aggression. Of these measures, the ABC is the most widely used and has good psychometric properties (Aman, Singh, Stewart & Field, 1985 cited in De Schipper & Schuengel, 2010). Similarly, the Maladaptive Behaviour Domain of the Vineland is standardised, has excellent psychometric properties including good reliability and validity, and has been widely used with children aged 5 years and older. In contrast, the evidence demonstrating the reliability and validity of the survey questions is either absent or unknown and the reliability of the systematic observations used in study 4 was deemed low.

In light of the quality rating each study received, the findings across the four studies should be interpreted with caution. Due to their longitudinal data and thus their capacity to make tentative claims about causality, the findings from study 4 demonstrate the highest quality and thus, of all four studies, should be taken most seriously. The authors found that childhood aggression at age 5 was not significantly predicted by maternal sensitivity at ages 2 and 3.

However at the age of 5, low maternal sensitivity was significantly related to aggression at home and at school. Due to the nature of the design used, which was correlational, study 1 and 3 were unable to infer causality. Nevertheless, both studies identified a significant relationship between attachment and challenging behaviour. Of all four studies, study 2 was least credible for several reasons including the absence of statistical analysis. The authors identified that children described as being insecurely attached tended to either play roughly with their caregiver or play quietly alone, whereas children who engaged in secure attachment behaviour also engaged in more interactive play with their caregiver and were less likely to be demanding or impatient with the caregiver when the latter interacted with other children.

In summary, the findings from each of the four studies show a relationship between insecure attachment style and challenging behaviour in people with ID; secure attachment is considered to be a protective factor against challenging behaviour. Due the methodological limitations associated with each study, the conclusions should be considered tentative at best. The samples across the four studies were small and diverse and the majority of the participants were aged between 2- and 17-years- old. Consequently, the results are limited in their generalizability. Based on the reported psychometric properties of the attachment measures, it would appear that the best way to measure attachment is by means of the AQS as this is a reliable and well validated measure. However, the AQS is only suitable for children aged 1 to 5 years. The most reliable measure of challenging behaviour is the Maladaptive Behaviour Domain of the Vineland as this measure is standardised, has excellent psychometric properties and is widely used. However, this measure is only valid for children and adults aged 5 years and above.

Intervention studies

This review identified three intervention studies, each of which used a different design to examine whether there is a relationship between attachment style and challenging behaviour in people with DD. More specifically, two studies assessed whether attachment-based behaviour modification treatment consisting of stimulating therapeutic attachment followed by behaviour modification was more effective than behaviour modification alone at reducing challenging behaviour and increasing adaptive behaviour (study 5 & 6). In addition to this aim, study 6 and another study (study 7) examined the role of an attachment therapist as an external regulator of stress for participants during behaviour modification sessions. Study 5

employed a multiple single-case experimental design (SCED) with alternating treatments and received a quality rating of definite evidence. Study 6 used a single-case study with alternating treatments and received a quality rating of some evidence (study 6). Study 7 employed a multiple-case design study with alternating treatments and received a quality rating of definite evidence.

Although study 5 and 6 report similar findings as do study 6 and 7, all three suffer from methodological limitations and the quality of the studies varies. Firstly, all three research designs are limited in terms of their ability to generalise their findings to the wider population (Barker, Pistrang & Elliott, 2002) due to their use of a single case design. Furthermore, although each design allows, to some extent, for the examination of a cause and effect relationship to demonstrate treatment efficacy by employing a control therapist, the lack of baseline and consideration given to the role of other extraneous factors which may have contributed to behaviour change, means that the design is only able to draw weak causal inferences about the effect of the therapeutic attachment on challenging behaviour, adaptive behaviour (study 5 and 6) and affect regulation (study 6 and 7). This limitation may have been overcome by employing a reversal (ABAB) design, however this was considered undesirable by the authors (e.g. Sterkenburg et al, 2008) due to the potential impact this may have had on the developing therapeutic attachment relationship. In addition, study 5 and 6 were limited in their ability to provide an accurate representation of the variability of target behaviour as both presented a small number of data points during the treatment phase and neither included a baseline.

Both study 5 and 6 used similar measures to examine challenging behaviour over the course of the treatment, whereas study 7 did not. Rather the authors briefly incorporated a measure of challenging behaviour – the antecedents, behaviours and consequences assessment (Hanley, Iwata, & McCord, 2003 cited in Schuengel et al, 2009) - in order to identify socially acceptable adaptive behaviours. Consequently, study 7 is limited in its ability to offer an accurate interpretation of the impact of attachment-based behaviour modification on challenging behaviour in individuals with DD. The measures used by study 5 and 6 included the Residential Observation List (Sterkenberg et al, 2008) and behaviour therapy video analysis. Study 5 also used the Severe Challenging Behaviour Consensus Protocol (Kramer, 2001) and the Challenging Behaviour Scale for people with an ID (Kraijer & Kema, 1994) both of which have excellent psychometric properties. Both studies reported the inter-

observer reliability Cohen kappa score for each measure. Inter-observer reliability of all measures used in both studies was shown statistically to be either good or excellent (Fliess, 1981 cited in Robinson, 2009).

Two of the three studies (study 6 and 7) employed measures to assess attachment behaviour, whereas study 5 did not. Both studies used different measures to assess attachment behaviour although the same measure was used to assess psychophysiological arousal. Study 6 assessed attachment behaviour, including proximity-seeking, resistance, avoidance and contact maintenance using an observation coding schedule developed by the authors and videotapes of the treatment and control sessions were scored with this measure. Based on the Cohen kappa scores, the inter-observer agreement for the four types of attachment behaviour was shown statistically to be either good or excellent. In contrast, study 7 exclusively examined proximity-seeking behaviour, as initiated by the participant at times of arousal, using an observation coding schedule based on the observation scales for mother-child interaction in the Strange Situation (Ainsworth et al, 1978). Based on the Cohen's kappa score, the inter-observer agreement for the mean frequency and duration of proximity-seeking behaviour was shown statistically to be good (Fleiss, 1989 cited in Robinson, 2009), and there was no observer drift. Both studies used the VU Ambulatory Monitoring System (VU-AMS) to record the electrocardiogram (ECG) and changes in the thoracic impedance (ICG). Interpretations were based on changes in psychophysiological arousal. Neither of the two studies offered information concerning the reliability and validity of the data although, study 6 does point the reader in the direction of where this information can be accessed.

Overall, study 5 and 6 identified that addressing the attachment relationship improved the effectiveness of behaviour modification. However, based on the quality rating of each study, most emphasis should be placed on study 5 which, of the two, achieved the highest quality rating. This study noted two key findings: firstly, that challenging behaviour in the residential home significantly decreased for all six participants from the beginning to the end of the attachment-based behaviour modification treatment. Secondly, that behaviour modification sessions conducted by the attachment therapist resulted in a significant longer duration of adaptive behaviour and a non-significant reduction in challenging behaviour. In other words, when the therapist spent time building a therapeutic attachment relationship with the participant both adaptive and challenging behaviour outcomes improved, with participants' showing significantly more adaptive behaviour when sessions were delivered by the

attachment therapist. Based on a less robust study, the authors of study 6 similarly identified that frequency and intensity of challenging behaviour significantly decreased even outside the therapy sessions. Secondly, significantly more appropriate replacement behaviour was observed when the behaviour modification treatment was conducted by the attachment therapist compared to the control therapist. The latter is consistent with the finding from study 5. However, it should be noted that the participant that took part in study 6 also took part in study 5. The findings from study 5 and 6 therefore show that addressing the attachment relationship has a positive impact on challenging behaviour, suggesting that the two factors are to some degree related.

Study 6 and 7 report that the therapeutic attachment relationship positively impacted on affect regulation and proximity-seeking behaviour. However, based on the quality rating each study achieved, most emphasis should be placed on the results reported by study 7 which, of the two, achieved the highest quality rating. The authors identified that two out of six participants displayed significantly less arousal from the parasympathetic nervous system when the attachment therapist conducted by the behaviour medication phase compared to the control therapist. However, as both participants had displayed lower levels of arousal in the phases preceding the introduction of the behaviour modification treatment, the difference in arousal could not be clearly interpreted as a protective factor due to the therapeutic attachment relationship. In addition, it was identified that, for four out of six participants, arousal from the sympathetic nervous system was significantly lower when the attachment therapist conducted the behaviour medication treatment compared to the control therapist. Proximity seeking behaviour occurred significantly more during periods of high arousal when the attachment therapist conducted the behaviour modification sessions compared to the control therapist.

Likewise, study 6 demonstrated that arousal from the sympathetic nervous system was lower when the behaviour modification phase was conducted by the attachment therapist compared to the control therapist who used the same protocol. Also, the physiological stress reaction from the sympathetic nervous system was significantly stronger when behaviour modification was conducted by the control therapist compared to the attachment therapist. Proximity seeking behaviour also occurred significantly more often towards the attachment therapist than towards the control therapist. It should be noted, however, that the participant that took part in study 7 also took part in study 6. The findings from study 6 and 7 therefore suggest

that addressing the attachment relationship has a positive impact on arousal, which may in turn affect challenging behaviour. The authors argue that establishing an attachment relationship helps to buffer against stress. This finding is supported by the stress-attachment model proposed by Janssen et al (2002), which proposes that people with ID may be at increased risk of developing challenging behaviour as a result of a complex interaction of factors including insecure attachment style, increased psychological stress and inept coping skills.

In summary, study 5 and 6 compared the effectiveness of attachment-based behaviour modification treatment with behaviour modification alone in treating challenging behaviour in people with DD, whereas study 6 and 7 examined the effect of addressing the attachment relationship on affect regulation and proximity-seeking behaviour. Despite the use of a control therapist which, to some extent, served to strengthen the research design, all three studies are based on single case design, which by their very nature are limited in their ability to draw causal inferences about the impact of the treatment on challenging behaviour. Based on the quality framework rating, study 5 which employed the multiple single-case design is rated as a higher quality paper than study 6 and therefore of the two studies, this one is most credible and should be taken most seriously. Similarly, study 7 which used a controlled multiple case design is rated as being a higher quality paper than study 6 and thus more emphasis should be placed on the findings from the former study. However, both study 5 and 6, and 6 and 7 report similar findings. The results from study 5 which demonstrated a statistically significant increase in adaptive behaviour following behaviour modification sessions with the attachment therapist suggests that attachment-based behaviour modification can help challenging behaviour and therefore offers tentative support for the hypothesis that there is a relationship between attachment style and challenging behaviour.

In contrast, study 7 did not examine challenging behaviour. Nevertheless this study did measure physiological arousal and proximity-seeking behaviour and found that when the treatment was conducted by the attachment therapist compared to the control therapist physiological arousal reduced and proximity-seeking behaviour increased. This suggests that contact with the attachment therapist helps to facilitate affect regulation and buffer the effects of stress. Therefore these findings indicate that study 7 offers tentative evidence that there is a relationship between attachment style and challenging behaviour. However, while SCEDs enable conclusions to be drawn about the effectiveness of an intervention on a single

individual, they are often subject to threats to internal validity (Barker et al, 2002) and so there is an increased risk of attributing positive behavioural change to the implementation of the intervention when the change may in fact be linked to the role of an extraneous factor.

1.6 Discussion

The present review aimed to evaluate the evidence that exists on whether there is a relationship between attachment style and challenging behaviour in people with DD.

The results from the review show that although there is empirical evidence that there is a relationship between attachment style and challenging behaviour in people with DD, the quality of the studies varies. Only one of the four correlational studies was able to infer causality and even this study was affected by several methodological limitations. The intervention studies reviewed shows that attachment-based behaviour modification treatment can help to reduce challenging behaviour, increase adaptive behaviour and support affect regulation and proximity-seeking behaviour. However there is a paucity of research in this area and the studies that attempt to address this question are limited by a lack of baseline measure. Consequently these studies are only able to draw tentative conclusions about the relationship between attachment style and challenging behaviour in people with DD.

1.6.1 Limitations to Quality Framework

Two quality frameworks were employed to evaluate the methodological criteria of the papers reviewed, the framework provided by NICE (2004) and the SCED Scale (Tate et al, 2008) which was adapted for the purpose of this review. Both frameworks were selected because they provided a systematic approach to evaluating the types of methodology reported in the papers included in this review. Each framework, however, is characterised by its own limitations. The framework provided by NICE evaluates several different types of studies and as such, the methodological criteria are broad making it difficult to draw comparisons between the different ratings. Furthermore, this framework only provides an overall quality rating; it does not allow the user to evaluate the individual aspect of the studies against a methodological criterion which would have helped to identify specific areas of methodological weakness. The SCED, on the other hand, is a brief measure and only considers the minimum core set of criteria pertinent to methodological rigor of single-subject designs (Tate at al, 2008).

1.6.2 Recommendations for future research

This review describes several measures for assessing attachment security among people with DD. However, none of these measures have been standardised for use with children above the age of 5. Yet this group of children is increasingly being investigated. More research is, therefore, needed to either investigate the applicability of the AQS to children aged 5 years or over, or to develop measures of attachment security that can be used with older children and adults.

Due to the idiosyncratic nature of challenging behaviour, authors often devise their own measures such as the Residential Observation List (Sterkenburg, Janssen & Schuengel, 2007). However, due to the prevalence of behavioural difficulties in this population, it is recommended that more robust standardised measures such as the ABC (Aman & Singh, 1985 cited in De Schipper & Schuengel, 2010) or Maladaptive Behaviour Domain of the Vineland (Sparrow et al, 1984) are employed.

The majority of studies reviewed reported on only a small sample size which mainly consisted of children aged between 2 and 17 years. The statistical power of these studies particularly the correlational designs has not been reported and is expected to be low. Furthermore adults with DD as opposed to children are underrepresented throughout. Further research, particularly involving adult participants and larger sample sizes is needed to explore the influence of attachment on challenging behaviour in adulthood.

Only one study exploring the relationship between attachment style and challenging behaviour incorporated longitudinal data; the other studies were correlational. More longitudinal research is needed in order to draw a more robust conclusion about the relationship between these two factors. In addition, a greater understanding about the role other factors play in the development of challenging behaviour such as family stress and maternal demographics is needed to fully appreciate the relationship between attachment style and challenging behaviour (Niccols et al, 2011).

More robust SCEDs evaluating the effect of attachment-based behaviour interventions with children and adults with DD are needed. This may include using a reversal design where appropriate or a multiple-baseline design with a greater number of data points at pre intervention, post intervention and follow-up.

1.5.3 Recommendations for clinical work

This evidence reviewed here suggests that for children with DD and persistent challenging behaviour for whom behavioural interventions show little effect, integrative psychotherapeutic treatment, namely attachment-based behaviour modification therapy, is to some extent effective in treating challenging behaviour and supporting affect regulation. Furthermore, this approach can be taught to professional caregivers to help reduce incidents of challenging behaviour in residential care homes. Clinicians working with individuals with ID, particularly those who are more likely to have experienced maladaptive care in their early years, and thus show signs of insecure attachment, should be aware of the potential benefits of this treatment, especially in cases where behavioural intervention alone has had little effect.

Given the importance of secure attachment relationships in supporting affect regulation and protecting against the development of challenging behaviour, it is recommended that services offer an early intervention service to children with ID. There are many ways of offering a cost effective service whilst maintaining high standards of care, for example by delivering psycho-educational groups to parents and carers and offering staff consultations to residential services.

1.6 Conclusions

Based on correlational and intervention studies, the research findings reviewed offer tentative evidence that there is a relationship between attachment style and challenging behaviour. However, there is a paucity of research in this area with the majority of studies rated as providing little evidence. Similarly there is evidence to suggest that attachment-based behaviour interventions are more effective at reducing incidents of challenging behaviour and increasing adaptive behaviour than behaviour treatment alone. However, to date, only two studies have explored this and the quality of the studies varies; one was rated as providing definite evidence for the effectiveness of attachment-based behaviour modification treatment and the other was rated as providing some evidence. Addressing the attachment relationship has been demonstrated to facilitate affect regulation and increase proximity-seeking behaviour during behaviour modification sessions. This is consistent with the stress-attachment model for people with ID (Janssen et al, 2002) which suggests that a combination poor coping skills and difficulties accessing attachment figures in times of stress put people with DD at increased risk of exhibiting challenging behaviour. However, there are only two published studies in this area and the quality of the research is variable.

Future research would benefit from developing more robust attachment measure and employing the available well-researched challenging behaviour measures. In addition, more longitudinal designs are needed as well as better quality SCEDs. Clinicians working with children with ID and persistent challenging behaviour that has previously been unresponsive to behavioural interventions should be aware of the emerging evidence-base which suggests that attachment-based behavioural interventions can help to reduce incidents of challenging behaviour, increase adaptive behaviour and support affect regulation.

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Chapter 2: Empirical paper

Teaching young adults with Intellectual Disabilities about early attachment behaviours using a DVD

1.0 Abstract

Background: Parent training interventions for parents with ID are effective (Feldman, 1994). There has been no research exploring knowledge of attachment behaviour between parents and infants in young adults with ID despite previous acknowledgement that research in this area was needed (Tymchuk & Feldman, 1991).

Method: Using a within-subjects research design, sixteen participants with ID took part in three conditions: pre-intervention (condition 1), post-intervention (condition 2) and follow up (condition 3). The intervention comprised an adapted 'Attachment in Practice DVD' (Siren Films, 2009) and a booklet summarising the content of the DVD. Knowledge and understanding of attachment behaviour was measured using seven semi-structured interview questions developed by the authors.

Results: A paired t test showed that a significant increase in mean knowledge scores was observed across the group after the DVD had been presented ($t_{15} = 2.75$; $p = 0.015$). A nonparametric bootstrap confirmed the significance (bootstrap t = 2.18; 95% CI of 4.62 to 0.16). Of the sixteen participants, a third showed either no change or some deterioration, and two thirds showed either some or substantial improvement at post-intervention. A non-significant increase in knowledge scores was observed between the pre-intervention condition and follow up ($t = 1.82$, $p = 0.09$). A nonparametric bootstrap confirmed the significance (bootstrap t = 1.49; 95% CI of 4.01 to -0.60), suggesting that treatment effects were not maintained. Difference between the pre-intervention and follow-up percentile scores showed that over half of all participants demonstrated either no change or some deterioration in knowledge and just under half showed either substantial improvement and or some improvement.

Conclusions: The findings offer empirical support that young adults with ID can be taught about attachment behaviours between parents and infants using a DVD. However, across the group and individually, participants demonstrated difficulties retaining this information over a period of two weeks. This suggests that participants' would benefit from regular on-going support to reinforce their learning over time. The results must be interpreted within the methodological limitations of this study. Future research and clinical implications are discussed.

1.1 Introduction

Parenting is recognised as being a basic human right for all adult citizens (The Human Rights Act, 1998). However, for decades there have been concerns about people with intellectual disabilities (ID) taking on this role (Dowdney & Skuse, 1993) and at the beginning of the 20th century, people with ID were subjected to involuntary sterilisation (Park & Radford, 1998). However, more recently, the right of people with ID to be treated as equal members of society and become parents have been highlighted in legislation (Disability Discrimination Act, 1995) and national policy (Department of Health (DoH), 2001; DoH 2007a). The closure of large institutions for people with ID has increased opportunity for social and intimate relationships. Thus the number of parents with a ID has increased (Booth & Booth, 1994) and although the exact number in the UK is unknown (Booth & Booth, 2000), a recent national survey conducted in England found that in a sample of almost 3,000 adults with ID one in fifteen had children (Emerson, Davies, Spencer & Malam, 2005).

The Good Practice Guidance on working with parents with a learning disability states that children's needs are often best met by supporting parents to care for them (DoH and DfES, 2007). Research has demonstrated that when given the right support, people with ID can be good parents (MacIntyre & Stewart, 2011). Tarleton, Ward & Howarth (2006) emphasised the importance of providing parents who have ID with effective and flexible support including assessment of support needs before and during pregnancy, skills training and help at home to meet the constantly evolving needs of the parent and child.

However, for people with ID, gaining access to the right support is not without its challenges. This is largely attributed to negative and stereotypical attitudes held by professionals (Tartleton et al, 2006) as well as services being split between supporting parents on one hand while protecting the welfare of children on the other (Booth & Booth 1996). Parents with an ID are often criticised as inadequate and neglectful by social services (Murphy & Feldman, 2002). This was highlighted by Booth, Booth & McConnell (2005) who investigated the way in which the child protection system manage child protection cases where families are headed by a parent with ID and the factors that influenced decisions made about the best interests of children of such families. They found that in 50% of all cases a parent's ID was regarded by social care professionals as being a risk factor to their child's well-being. Moreover, it was found that parents with an ID were over-represented in care proceedings and were more

likely to have their child removed from their care than other group of parents. The authors concluded that parents with ID were treated "more harshly" because of their disability (Booth et al, 2005; pp. 16). Consequently, these parents may be less likely and/or willing to engage with services (Tarleton et al, 2005).

The ecological model proposed by Bronfenbrenner (1986) suggests that developmental outcomes for children and their parents are influenced by a diverse range of psychosocial and environmental factors. These include mental illness, social class and parental support networks. In addition, research has found that low levels of parent-child interactions can also increase the likelihood of child development problems arising (Feldman, Case, Towns & Betel, 1985).

Psychosocial risk factors of abuse and exploitation, social isolation and neglect are prevalent among parents with ID (O'Keeffe & O'Hara, 2008). A combination of these factors rather than the ID *per se* is likely to lead to children being placed in care. Research suggests that ID is a poor predictor of parenting competency (e.g. Tymchuk, & Feldman, 1991).

Parents with ID experience poorer mental health and physical health problems in comparison to the general population, and higher levels of maternal stress which has been associated with child behaviour problems and hostile and inconsistent parenting (Aunos, Feldman and Goupil, 2008). A study by Feldman, Varghese, Ramsay & Rajska (2002) investigated the relationship between parenting stress, social isolation and mother-child interaction in 30 mothers with ID. Each of the variables was assessed using measures with robust psychometric properties including the Parent Stress Index (PSI: Abidin, 1990 cited in Feldman et al, 2002), an adapted version of the Telleen Parenting Support Index (Telleen, 1985 cited in Feldman et al, 2002) and the Interpersonal Support Evaluation List (ISEL; Cohen & Hoberman, 1983 cited in Feldman et al, 2002) respectively. The authors reported that parenting stress was positively correlated with social isolation and greater need of social support. This suggests that parents' with ID who experience social isolation may be at greater risk of developing stress. Furthermore, social support networks for parents with ID are likely to be smaller (Stenfert Kroese, Hussein, Clifford & Ahmed, 2002) and often consist mainly of family and professionals (Llewellyn, McConnell, Cant & Westbrook, 1999; Feldman et al, 2002), lacking reciprocal relationships with parents and peers. These findings not only have significant implications for services, particularly child and family services and adult ID social

and health services which are key players in supporting parents with ID, but also indicate the importance of multi-agency working and co-ordination between services (Ward & Tarleton, 2007).

Empirical evidence for the effectiveness of parenting interventions for parents with ID has been demonstrated by several reviews (e.g. Feldman, 1994; Wade, Llewellyn & Matthews, 2008; Coren, Thomae & Hutchfield, 2011). Their findings offer social workers and courts feasible alternatives to placing children in care when there are concerns about parental competency (Feldman, 1994). Such interventions, however, have typically focused on teaching practical skills (Feldman, 1994). A study by Llewellyn, McConnell, Honey, Mayes and Russo (2003) provided empirical support for effectiveness of the Home Learning Program (HLP) in teaching home safety to parents with ID. Similarly, a study by Feldman, Case and Sparks (1992) demonstrated the effectiveness of a home-based individual training programme on infant and child care skills for parents with ID. These findings suggest that parenting interventions for parents with ID can be effective.

Nevertheless, the investigation of pre-natal support and training for parents with ID remains an underdeveloped area of research (Tymchuk and Feldman, 1991) as is research on the impact of such interventions for young adults who are not yet in intimate relationships and/or planning a family.

The importance of enhancing attachment between typically developing mothers and their infants is increasingly being recognised in pre-and post-natal services (Haworth & Hickson, 2010). Yet there is as yet no research investigating the understanding of attachment behaviour between parents and infants among young adults with ID, who, at the later stage of their lives, will be the most vulnerable group to have their children taken away from them and put into care (Booth et al, 2005).

Attachment theory (Bowlby, 1973) suggests that in order to survive infants need a close and consistent relationship with their primary caregiver. Attachment relationships have also been reported to promote social and emotional development (Greenberg, 1999) and subsequent psychological well-being and resilence (Dozier, Stovall & Albus, 1999). Attachment based parenting groups for adoptive parents and foster carers have reported some success, with results showing a significant improvement in parent-child relationships following the

intervention (Holmes & Silver, 2010).

Effective communication is of paramount importance when sharing information with people with ID. People with ID can be supported to learn skills essential for parenting (e.g. Llewellyn et al, 2003) provided information is presented in an accessible format that can be easily understood (Tarleton et al 2005) such as a DVD. The guidelines on accessible writing proposed by Mencap (2002) recommend ways of making written material easier to understand. They advise using clear and simple short sentences, larger print, bullet points and images such as photographs to communicate the main points and supplement the text.

1.2 Research aims

The aim of this research is to explore whether young people with ID understand the importance of positive parent-infant relationships for later psychological well-being and whether this can be taught using a DVD. The study also aims to examine how much and what information is retained at follow-up. Thus, the primary research question is, what do young people with ID understand about positive parent-infant relationships and the second question is, how much of this taught information is recalled immediately and retained over a period of time?

1.3 Method

1.3.1 Design

The present study employed a quantitative within-subjects design. There were three conditions: pre-intervention assessment (condition 1), the post-intervention assessment (condition 2) and the follow up assessment (condition 3). The intervention consisted of the presentation of the adapted 'Attachment in Practice DVD' (Siren Films, 2009) (see Appendix M) and a booklet summarising the content of the DVD developed by the authors of the present study (see Appendix N). The dependent variable, knowledge and understanding of attachment behaviours between parents and infants, was measured using seven semi-structured interview questions (see Appendices J, K, L). Intelligence quotient (IQ) as measured by the Wechsler Abbreviated Scale of Intelligence – Second Edition (WASI-II; Wechsler, 2011) was included as an independent measure in the design. In keeping with the BPS definition for significant impairment of intellectual functioning, individuals scoring 2 or more standard deviations below the population mean (i.e. an IQ of 55-70) were considered to have an intellectual disability (ID) (British Psychological Society, 2000).

1.3.2 Participants

Number of participants

In order to calculate the number of participants required, a power analysis was performed. The magnitude of the difference between two conditions is determined by the effect size. Cohen (1988) developed guidelines for classifying an effect size as small, medium or large. In the present study 25 participants would have been needed to identify a medium effect size (power= 0.6, $\alpha = 0.05$). Due to time constraints the actual number of participants recruited for this study is 16.

Participants

Table 2 presents socio-demographic information. After participants had given consent to take part in the study they were asked to provide information on their age, number of siblings, family history of ID, main primary caregiver and previous teaching on parent-infant relationships. Where this information could not be provided by the participants teachers were

asked for this information at the end of condition 1. However this was rarely necessary as the majority of participants were able to respond to all of the questions.

Table 2: Socio-demographic Information of Participants

	Participants
Gender	
Male	n=9
Female	n=7
Age (Years)	
Range	16.4 - 22.10
Mean	18.3
Median	18.2
Siblings	
Range	1 - 5
Mean	2
Family history of ID	
Mother/Father	1
Sibling	3
Aunt/Uncle	0
Grandparents	1
Cousin	1
Primary caregivers	
Mother/Father	13
Relative	1
Foster carer	2
Adoptive parent(s)	0
Previous teaching on parent-child relationships	
Yes	n=2*
No	n=14

*participants who received the training (number 3 and 16) were cared for by parents

1.3.3 Ethics

The present study was granted ethical approval by The University of Birmingham School Ethics (Reference number ERN_12-0322) (see Appendix C).

Two Colleges specifically for adults with Special Educational Needs (SEN) and one mainstream college with a Special Needs department, situated in urban areas across the local region, gave consent to take part. Each educational institution was given an information sheet describing the inclusion/exclusion criteria (see Appendix D) to assist staff with the identification of appropriate individuals for the study. Parental letter of consent (see Appendix H) was also used to assist with participant recruitment from the mainstream college.

1.3.4 Recruitment and consent of Participants with ID

Participants were recruited using convenience sampling. Attempts were made to recruit participants from a diverse range of backgrounds including gender, age, race, culture and ethnicity. The researcher met with each potential participant to explain the research and what it would entail (see Appendix E). Individuals were invited to ask any questions they had about the research before informing the researcher of their decision whether or not to take part.

To ascertain whether individuals with ID were able to give informed consent, a consent procedure (see Appendix F) developed by Arscott et al (1998) was completed. This procedure assesses how well a participant is able to understand, retain and respond to information presented to them orally including the subject of the interview, ‘good’ and ‘bad’ things about participating in the study and how they can terminate the interview. The researcher then checks to ensure the participant is still willing to take part. In addition, one college also required parental consent before allowing potential participants to take part (see Appendix H). Participant inclusion was dependent upon the individual’s ability to explain the subject of the interview, identify the benefits and drawback of taking part in the research, and describe how they would terminate the interview.

The exclusion criteria applied were not having an ID, having a diagnosis of a neurodevelopmental disorder (e.g. Autistic Spectrum Disorder or Attention Deficit Hyperactivity Disorder), a severe or enduring mental health problem (e.g. Psychosis) or not

having the capacity to give informed consent. One participant did not have capacity to give informed consent, one chose not to take part and two took part but subsequently dropped out of the study after completing the pre-assessment condition due to on-going familial issues or unavailability. For all remaining participants capacity to give consent was assessed prior to each condition, and each participant was asked to complete a consent form (see Appendix G) before taking part each of the three conditions.

1.3.5 Measures

WASI-II

The WASI-II (Wechsler, 2011) is a standardised assessment of intellectual functioning of individuals aged 6 years to 90 years. It comprises four subtests including Block Design, Vocabulary, Matrix Reasoning and Similarities, which gives a measure of the individual's verbal, non-verbal and general cognitive functioning. However, for the purpose of this research only two subtests were administered, namely Vocabulary and Matrix Reasoning, to estimate general cognitive functioning. The assessment lasted approximately 30 minutes each.

Knowledge question

Seven semi-structured knowledge questions (see Appendix J, K & L) were developed by consulting the attachment literature and meeting with four local experienced clinicians working with parents and/or people with ID to help to enhance the clinical utility of the items. This involved ascertaining more information about the resources that were currently being used by clinicians to assess and address parental need and the attachment relationship, for example the CHANGE parenting resources (2012) (e.g. You and your baby 0-1) and Secure Start assessment (Merrill-Palmer Institute, Wayne State University) for parent-infant relationships, and discussing the types of concepts clinicians would like to see included in attachment assessments such as the respondents' understanding of attachment, the importance of having a secure attachment and the consequences of not having a secure attachment. Participant responses were scored a 0, 1 or 2 according to a marking criterion and the total score thus could range from 0 to 14. Inter-rater reliability was approximately 89%.

1.3.6. Materials

DVD

The 'Attachment in Practice' DVD (Siren Films, 2009) (see Appendix M) was adapted by the authors and a Speech and Language Therapist working with people with ID to ensure the voiceover was as comprehensible as possible for people with a significant ID. The DVD aims to teach individuals with ID about attachment behaviours between parents and infants by explaining and illustrating a number of attachment related concepts including: different types of attachment styles (secure and insecure); the advantages and disadvantages of secure and insecure attachment; recognising attachment behaviours in infants; and attunement and emotional regulation development in infants.

Booklet

The 4-page booklet was developed by the authors of the present study to help participants to retain the key messages conveyed in the DVD between the intervention and follow-up phase. The content of the booklet was informed by the guidance described by Mencap (2002) which recommends using short, clear and simple sentences with no jargon and simple punctuation, a larger print and plenty of spacing, with images such as photos, drawings and symbols presented to the side of the text to make the subject of the leaflet as clear as possible. Thus accordingly each page contains a brief paragraph, using short, clear and simple sentences, and photo of a parent and baby (see Appendix N).

1.3.7 Procedures

All interviews were carried out by the researcher or a research assistant in a quiet room.

Pilot study

One of the colleges identified two potential participants to take part in the pilot study. The aim of the pilot was to gauge the accessibility of the DVD and leaflet and the suitability of style and content of the interview questions. The researcher met with each participant separately, completing the interview in accordance with a standardised interview protocol (see Appendix Q) that was developed specifically for the pilot. This involved the informed consent procedure, the application of the WASI-II, the knowledge questionnaire made up of

seven questions (with a number of standardised prompts to be used if participants had difficulties understanding the questions), and the presentation of the DVD and summary booklet. Subsequent to this procedure, the two pilot participants were encouraged to comment on all aspects of the study and to describe their experience of taking part to gain an understanding of how accessible and/or challenging the research procedure had been for them. Interviews lasted approximately 90 minutes and all answers were recorded verbatim. The pilot threw up a number of issues namely that participants found it difficult to sustain their attention and concentration during the interview. This was addressed by introducing a short break (see below).

Main study

The researcher met with each individual who had expressed an interest in taking part in the study. Two interviews were attended by a research assistant whose role was to observe the interview process including effective ways of communicating with and engaging people with ID in order to aid the replication of subsequent interviews later on in the study, and maximise the number of interviews that were able to be completed. After accounting for the three participants that either did not have capacity to consent or began the study but subsequently dropped out, the total number of participants' interview by the main researcher was seven, and the research assistant interviewed nine. The main researcher completed interviews across two educational institutions and the research assistant completed interviews across one. All interviews including those completed by the main researcher and the research assistant were conducted in accordance with a standardised interview protocol comprising the informed consent procedure, WASI-II, knowledge questions and the presentation of the DVD and booklet. The DVD was shown in three 'chunks', repeating information and allowing individuals to ask questions before moving on to the next section. To facilitate engagement, the initial interview was split into two halves; the first part included the administration of the WASI-II and knowledge questions and the second part included the presentation of the DVD and re-administration of the knowledge questions to assess the impact of the DVD on knowledge of attachment behaviour. By splitting the interview into two halves participants were allowed a break before returning to complete the rest of the interview. Upon completing the follow-up condition, each participant was de-briefed using a standardised protocol. Participants were also invited to ask any questions they may have had.

1.4 Results

1.4.1 Inferential statistics

Analysis Strategy

As is often the case in data derived from clinical samples, it is not possible to assume a normal distribution of scores in the reference population. Deviations from normality may not reflect idiosyncratic aspects of sampling but rather reflect the non-normal distribution of scores in the reference population. Accordingly, correcting sample distributions for normality is an inappropriate procedure for these data. Traditionally, use of nonparametric statistical procedures has been recommended for such data. Unfortunately, the use of nonparametric procedures is also associated with a loss of statistical power for inferential tests (Howell, 2010). In small sample situations, this loss of statistical power may substantially increase the risk of type II errors. Accordingly, where possible traditional asymptotic probability estimates will be supplemented by nonparametric bootstrap estimates and associated 95% confidence intervals. The nonparametric bootstrap procedure has the twin advantages of being independent of sample and population distribution and providing robust confidence intervals in small sample situations (Hardle, 1991; Moore & McCabe, 2005).

1.4.2 Group Response to Training Materials

This section will present two sets of statistical analyses. The first analysis will examine the difference between participants' mean pre- and post-intervention scores to establish whether there has been a change in participants' knowledge of parent-infant relationship after watching the DVD; and the second will investigate the difference between each participant's pre- and post-intervention percentile scores in order to identify those that improved, deteriorated or stayed the same.

Hypothesis 1: There will be a significant increase in knowledge of parent-infant relationship after watching the DVD.

Pre- and post-intervention knowledge scores for each of the sixteen participants are presented in Figure 2.

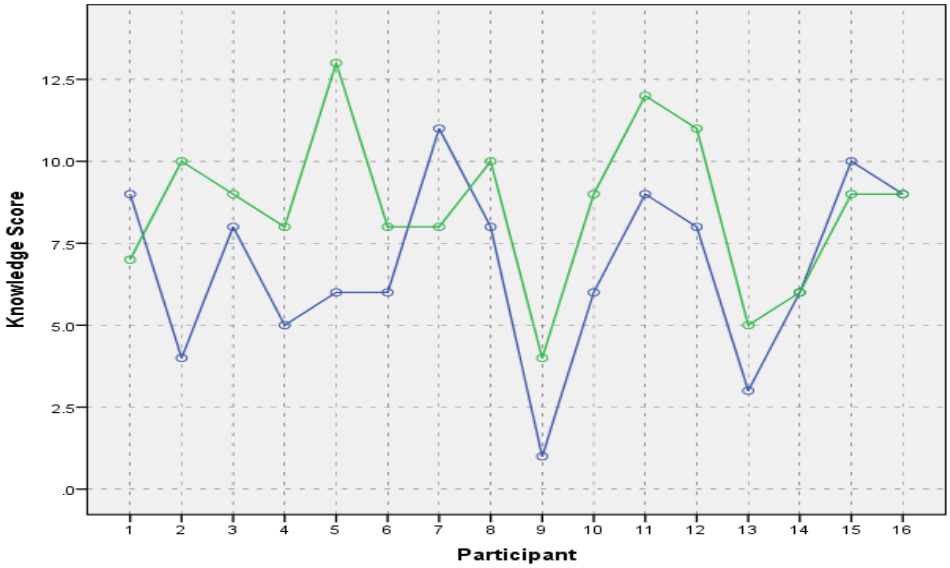

Figure 2: Pre- and post-intervention knowledge scores: Pre-intervention scores are depicted in blue and post-intervention in green.

Prior to the onset of the intervention a mean knowledge score of 6.81 (SD-2.69) was observed. This value increased to 8.62 (SD-2.39) when knowledge was assessed after the intervention had been completed. A paired t test was used to evaluate the difference between pre and post intervention knowledge scores. A significant increase in knowledge scores was observed ($t_{15} = 2.75$; $p = 0.015$), and was confirmed using a nonparametric bootstrap of this t test with ten thousand replications (bootstrap t = 2.18; 95% CI of 4.62 to 0.16) .

1.4.3 Individual Response to Training Materials

The individual participant's response to the training materials was assessed by plotting the difference between pre- and post-intervention knowledge for each of the sixteen participants. Pre-intervention knowledge was calculated as the percentile of each individual's pre-intervention knowledge score (i.e., the cumulative normal density function of the participants pre-intervention score, minus the pre-intervention mean knowledge score and then divided by the standard deviation of the pre-intervention knowledge score). This value is plotted on the horizontal axis of Figure 3. Post-intervention knowledge was calculated as the percentile score relative to the mean and SD of the pre-intervention knowledge scores. Accordingly, if

the intervention was associated with no change in knowledge then the pre- and post-intervention percentile scores would be clustered on or around the diagonal line in Figure 3. Points that are in the upper segment of Figure 3 indicate improved knowledge, whereas points that are in the lower segment of Figure 3 indicate decreased knowledge. The distance of each point from the diagonal line indicates the amount of change that each participant has obtained. The red serrated lines indicate improvement or deterioration in knowledge greater than thirty percentile points. Accordingly, points outside of this range would be considered as substantial improvement or deterioration.

Hypothesis 2: Post-intervention percentile scores will be substantially greater at post-intervention than pre-intervention.

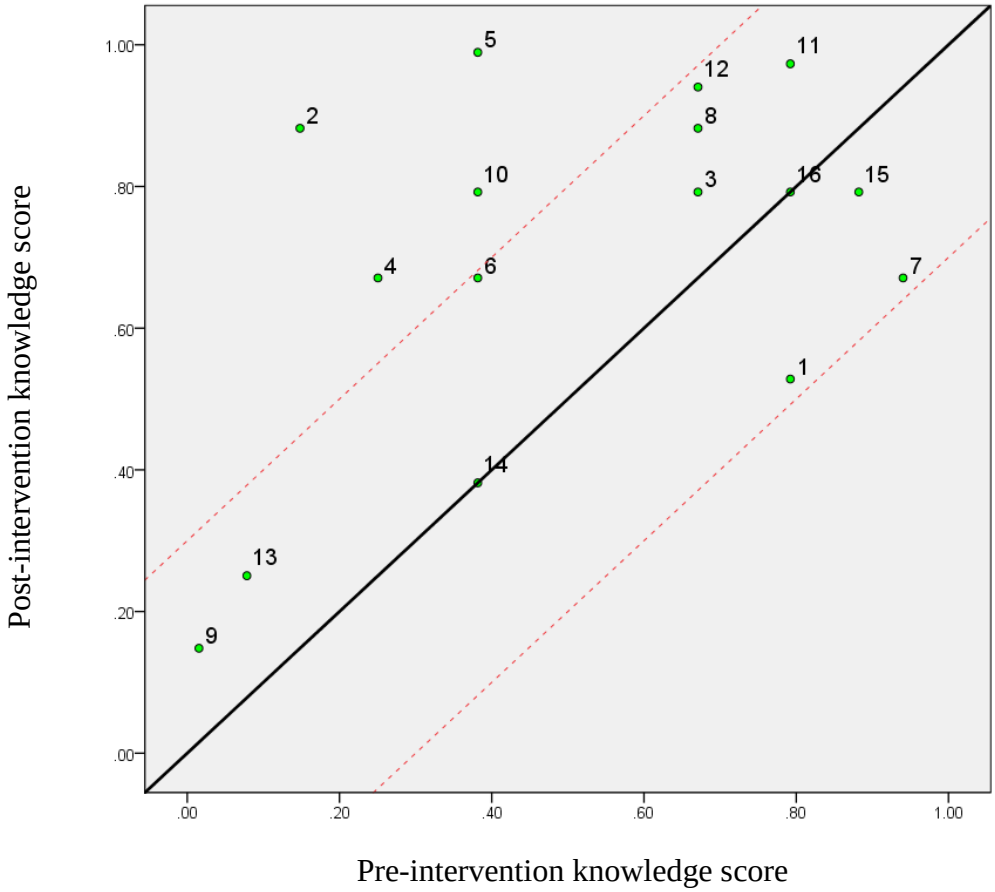

Figure 3: Individual responses at pre- and post-intervention

Figure 3 shows that two participants (14 and 16) did not show an increase in knowledge of parent-infant relationships at post-intervention and three participants (1, 7 and 15) showed some deterioration. In contrast, seven showed some improvement (3, 6, 8, 9, 11, 12 and 13)

and four (including 2, 4, 5 and 10) showed substantial improvement. Overall, the results show that a third of participants showed either no change or some deterioration and two thirds showed either some or substantial improvement. The results therefore indicate that a comparatively larger number of participants demonstrated an increase in knowledge compared to those that did not.

1.4.4 Are improvements maintained at follow-up?

This section will present two sets of statistical analyses. The first analysis will examine the difference between participants' mean pre-intervention and follow up scores to examine whether learning is retained across the group over a period of two weeks. The second analysis will examine the difference between each participant's pre-intervention and follow up percentile score to identify participant's whose knowledge improved, deteriorated or stayed the same over a period of two-weeks.

Hypothesis 3: Follow-up scores will be significantly higher than pre-intervention scores.

Pre-intervention and follow up knowledge scores for each of the sixteen participants is presented in Figure 4.

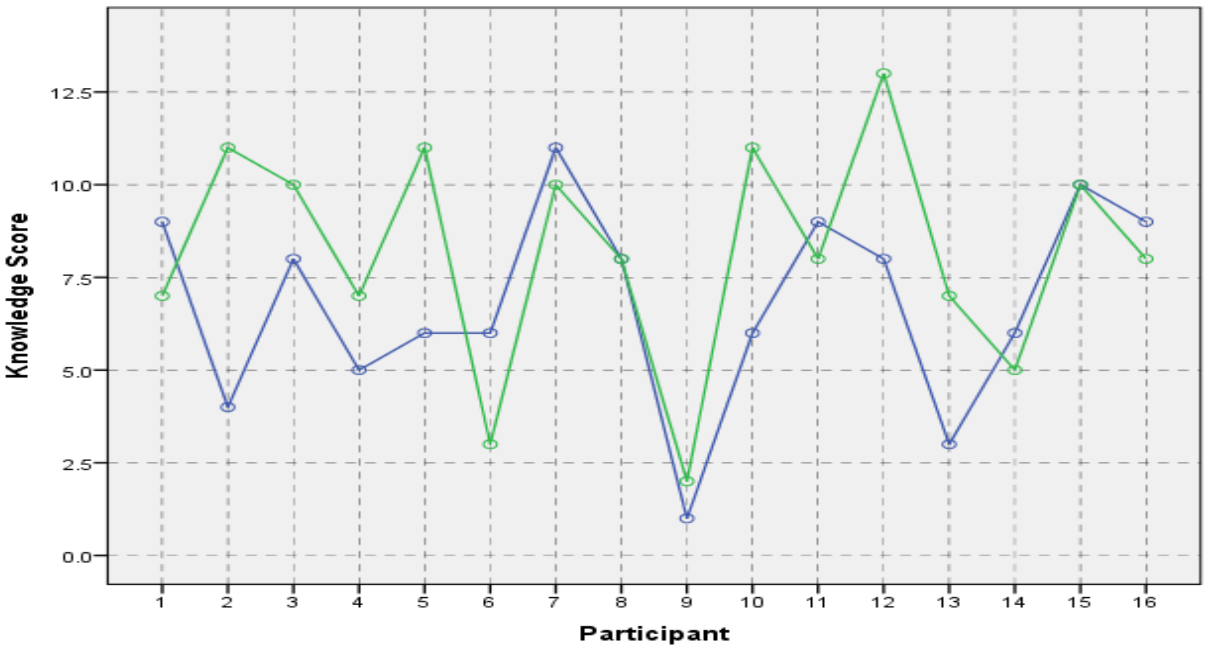

Figure 4: Pre-intervention and follow up knowledge scores: Pre-intervention scores in blue and follow up in green

When participants' knowledge assessed at two weeks follow up was compared to knowledge immediately after the intervention, a non-significant decrease in knowledge scores was observed ($t = -0.80$, $p = 0.44$) and was confirmed using a nonparametric bootstrap of this t test with ten thousand replications (bootstrap $t = 0.45$; 95% CI = 1.69 to -2.55). In other words, although there was a decrease in mean knowledge scores, this change was not significant. However, a non-significant decrease in knowledge scores between the post-intervention and follow up condition does not mean that learning has been retained. Accordingly, the maintenance of intervention effects was assessed by comparing pre-intervention scores with participant knowledge as assessed at two weeks follow up. At follow up mean knowledge scores were 8.18 (SD=3.02). A paired t test was used to evaluate the difference between pre-intervention and follow up knowledge scores. A non-significant increase in knowledge scores was observed ($t = 1.82$, $p = 0.09$) and was confirmed using a nonparametric bootstrap of this t test with ten thousand replications (bootstrap $t = 1.49$; 95% CI of 4.01 to -0.60). That is to say that although there was a mean increase in knowledge scores, this difference was not significant.

Although the gains in knowledge, when considered at a group level, did not show statistical significance at follow up it is interesting to note from Figure 4 that three of the four participants who had demonstrated substantial change at post-intervention also showed maintenance of this substantial change at follow up.

Hypothesis 4: Follow up percentile scores will be substantially higher than pre-intervention percentile scores

Individual responses at pre intervention and follow-up are presented in Figure 5.

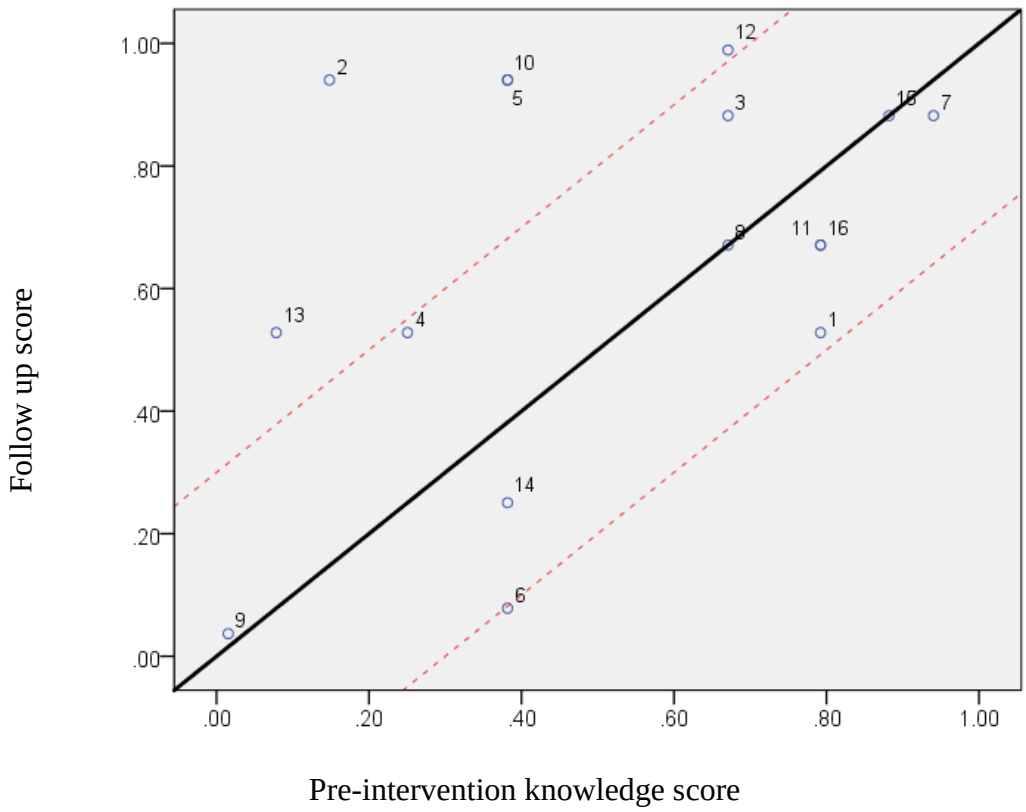

Figure 5: Individual responses at pre-intervention and follow up

Figure 5 shows that overall five participants showed substantial improvement at follow up (2, 5, 10, 12 and 13), two made some improvement (4 and 3), three showed no change (8, 9 and 15) and six showed a decrease in knowledge (1, 6, 7, 11, 14 and 16). Overall, the results show that in comparison to knowledge at pre-intervention, over half of all participants demonstrated either no change or some deterioration in knowledge. Just under half showed either showed substantial improvement or some improvement.

In comparison to participants' previous performance (see Figure 3), three of the four who showed substantial improvement at post-intervention (2, 5 and 10) maintained this substantial improvement at follow up. Participant 4 showed some deterioration at follow up. Of the seven that showed some improvement at post-intervention (3, 6, 8, 9, 11, 12 and 13), two performed similarly at follow-up (3 and 9). The five remaining participants showed either substantial improvement (12 and 13) in comparison to their post-intervention score or some deterioration (6, 8 and 11). Participants that did not show an increase in knowledge at post-intervention (14 and 16) showed some deterioration at follow-up. Of the three that showed a decrease in knowledge at post-intervention (1, 7 and 15), two performed similarly at follow

up (1 and 7). Participant 15 improved moving from having made some deteriorated to making no change. Overall, the results show that in comparison to participant performance immediately after the intervention, half of all participants (8 participants) maintained learning, under a fifth improved (3 participants) and a third (5 participants) got worse.

1.4.5 Correlational data

This section presents the correlational data between participant demographic information and change in knowledge score pre to post-intervention to identify whether any of these factors predicted performance on the task.

Table 3: Correlation between demographic factors and change in knowledge pre to post intervention

		ChangePK
Age (years)	Pearson correlation	r = -0.12
	Sig. (2-tailed)	p = 0.66
IQ score	Pearson correlation	r = -0.06
	Sig. (2-tailed)	p =0.82
No of siblings	Pearson correlation	r = 0.05
	Sig. (2-tailed)	p = 0.84
Previous child care	Pearson correlation	r = 0.21
teaching	Sig. (2-tailed)	p = 0.41
Read booklet	Pearson correlation	r=-0.30
	Sig. (2-tailed)	p=0.24
College	Pearson correlation	r=-0.24
	Sig. (2-tailed)	p=0.36

Table 3 shows that age, IQ, reading the booklet and college was negatively correlated (r = -0.12, p= 0.66; r = -0.06, p=0.85; r = - 0.30, p=0.24; r = -0.24, p=0.36 respectively) with an increase in knowledge of parent-child relationships. However, these relationships were weak and not-significant. Conversely, number of siblings and previous child care teaching was positively correlated (r = 0.05, p = 0.66; r = 0.21, p = 0.41 respectively) with an increase in knowledge. However, these relationships were also weak and not significant. That said, it should be noted these results are based on a sample of sixteen participants which is

considered small and, consequently, they cannot be accurately generalised to the rest of the ID population.

1.4.6 Descriptive Statistics

This section will present participants' mean score and (SD) for all three conditions (pre-, post- and follow up) on each of the seven questions to assess participants' knowledge including areas of strength and weakness prior to intervention and how much and what information is retained at follow-up across the group.

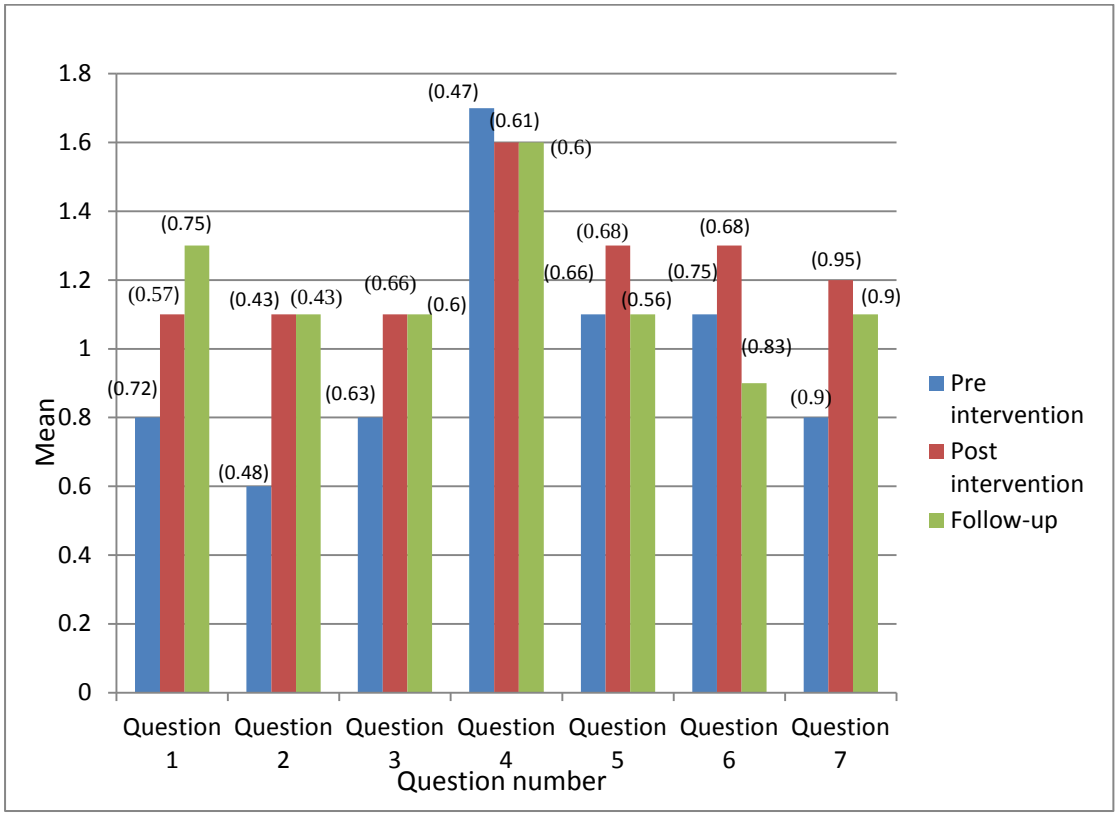

Figure 6: Mean scores (SD) of participant performance for each question in all three conditions.

Attachment questions:

Q1: What do we mean when we say a parent and their baby have a good attachment?

Q2: What are the good things about a parent and their baby having a good and strong attachment?

Q3: What problems do you get if the parent and child don't have a good attachment?

Q4: Why is it important that a parent goes to the baby as quickly as possible when the baby cries?
Q5: Babies do lots of things to keep their parents close, can you tell me what some of these things are?
Q6: Pre intervention – What does a parent do to show the baby they are listening to them? Post-intervention and Follow-up – What does Jess do to show Leila she understands?
Q7: What does a child learn to do if their parent responds quickly and sensitively when they are upset?

Figure 6 shows that participants' mean pre-intervention score for each question were lower than the mean post-intervention scores with the exception of Q4. Mean pre-intervention scores were highest for Q4 (m 1.7, SD 0.47) and the mean post-intervention and follow-up scores did not improve for this item. The lowest mean pre-intervention score was observed for Q2 which showed the greatest mean improvement for both post-intervention and follow-up (m improvement 0.5 in each condition). All post-intervention and follow-up mean scores were >1 with the exception of the follow-up mean score for Q6 which fell just below 1. The follow-up mean score was > than the post-intervention mean score for only one question (Q1) with post-intervention and follow up mean scores being equal for Q2, 3 and 4 and mean follow up < than mean post-intervention for Q5, Q6 and Q7. Overall, participants made least improvement between the pre- and post-intervention condition on Q5 and Q6 and the most improvement on Q2.

1.5 Discussion

The present study aimed to explore whether young people with an ID understand the importance of positive parent-infant relationships for later psychological well-being and whether this can be taught using a DVD. The study also aimed to examine how much and what information is retained at follow-up. Thus, the main research questions were: what do young people with ID understand about positive parent-infant relationships before and after a teaching session, and how much of this taught information is retained over a period of two weeks?

The results showed that after receiving the intervention, that is, watching the DVD, a significant mean score increase in knowledge of parent-infant relationships was observed across the group. Of the sixteen participants who took part, eleven (just over two thirds) either showed some or substantial improvement at post- intervention whereas only five (a third) showed either no improvement or some deterioration. As a group, participants' showed a non-significant increase in knowledge at follow up. In other words, although participants' mean score of knowledge of parent-infant relationships increased from pre-intervention to follow up, the change was not significant suggesting that improvements made immediately were not maintained. Differences between pre-intervention and follow up percentile scores showed that the majority of participants showed either no change or some deterioration at follow up and under half showed either substantial or some improvement. Nevertheless, the majority (just over two thirds) of those that made substantial improvement at post-intervention maintained this substantial improvement at follow up.

Although this study was completed with young adults with ID and not parents, the results suggest that the findings from the present study are consistent with empirical evidence that has found teaching interventions for parents with an ID to be effective (Llewellyn et al, 2003; Feldman et al, 2002). More specifically, the findings are in keeping with research that has demonstrated the clinical utility of early interventions for parents with ID (Murphy and Feldman, 2002; MacIntrye & Stewart, 2011).

This study also investigated the correlation between demographic factors and increase in knowledge score pre- and post-intervention. The results showed that several factors including age, IQ, number of siblings, previous teaching on parent-child relationships and reading the

booklet were not significantly correlated with an increase in knowledge. However, it should be noted that these findings were based on a sample of sixteen participants which is considered small and, consequently, the results cannot be reliably generalised to the wider population. Nevertheless, it is interesting to note that the finding from the present study that IQ does not predict capacity to parent is consistent with findings described in the literature (Tymchuk and Feldman, 1991). What does appear important, however, are the social relationships and support networks people with ID have access to in order to enhance learning about attachment and potentially to facilitate parenting behaviour.

All post-intervention and follow up scores were >1 (indicating some knowledge) with the exception of the follow-up mean score for Q6, which fell just below 1. In contrast to all the other questions, Q6 depended on a memory of a particular scenario in the DVD. With hindsight this question could have been asked differently, placing less emphasis on participants' memory of the scenarios in the DVD. The SD for each response was large preventing generalisations from being made.

The results showed that the mean pre-intervention scores where highest for Q4 with the scores remaining high at post-intervention and follow-up. There are two possible explanations as to why participants scored so high on each of the conditions. One possibility is that participants' came with a good understanding about the importance of keeping young babies safe and fostering their trust which was maintained across the three conditions or the scoring criteria for Q4 was less demanding resulting in most participants achieving a high baseline score and consequently a ceiling effect.

Limitations

The present study has several methodological limitations which are important to consider when interpreting the results. Firstly, according to the power analysis calculation, a minimum of 25 participants were needed in order to establish pre- post-intervention effects, using a parametric statistical analysis. However, due to difficulties recruiting participants only 16 completed the study. Consequently, this study is limited by a small sample size.

In this study participants acted as their own controls by taking part in the pre-intervention condition. Whilst this has strengthened the study by providing a baseline measure and an indication of the efficacy of the training materials, it does not demonstrate how people with

ID compare to typically developing (TD) young adults of the same age. This comparison would not only help to inform conclusions about whether or not young adults with ID compare favourably or unfavourably against their TD peers but would also help to contextualise areas of strength and difficulty, and potentially inform interventions more accurately.

The scale used to assess participants' understanding of attachment was developed by the authors who used the attachment literature to inform each item. Although the scale was shown to demonstrate good inter-rater reliability, data concerning the test-retest reliability was not gathered. A test-retest reliability score gives an indication of the extent to which the scale is reliable (Pallant, 2007). Consequently, this study is unable to quantify the magnitude of the difference between the pre and post-percentile scores and thus the results have to be interpreted with caution.

Although, the results show that in some cases participants demonstrated a substantial improvement, the 30 point percentile difference used to calculate substantial change is an arbitrary number.

This study examined change in understanding of attachment behaviour but did not investigate the extent to which this translates into behaviour change, as practical skills were not assessed. This is an important area to investigate since it has often been assumed that parents with ID struggle to adequately implement learned parenting skills (e.g. Llewellyn et al, 2003).

The results showed that gains in knowledge across the group at follow up did not show a statistical significance in knowledge, suggesting that treatment effects across the group were not maintained at follow up. Nevertheless, it is interesting to note that the majority of those who made a substantial improvement pre- to post-intervention also seemed to maintain their improvement at follow up.

1.5.1 Contributions to the literature

To date, most of the research exploring the effectiveness of parenting interventions has focused on post-natal support for mothers (Feldman, 1994). There is as yet no research investigating the understanding of attachment behaviour between parents and babies among

young adults with ID who are not yet parents despite previous acknowledgement that research is needed in this area (Tymchuk & Feldman, 1991). This research therefore contributes to the literature on two levels: firstly, it examines a specific type of early intervention, that is, teaching people with ID about parent-infant attachment behaviour. Secondly, is focuses on interventions for young adults who are not yet parents but may consider parenting in the future. Parents with ID are more at risk of having their children removed from their care compared to any other group of parents, with parents' with ID being perceived as a risk factor in child protection procedures (Booth et al, 2005) It is therefore important to develop support and teaching that may enable parents to develop skills and understanding of child rearing issues such as attachment. Although there is a substantial body of evidence that suggests that parents with ID can learn practical skills to cater for their childrens' physical well-being and safety (e.g. Llewellyn et al, 2003), there has been little research on teaching them to facilitate emotional well-being in children other than ensuring their child is stimulated (play) and protected from abuse. Teaching parents with ID about the importance of attachment has until the current paper not been reported.

1.5.2 Future research

This is the first paper to have explored understanding of attachment behaviour in young adults with ID and there are many different ways in which this area of research could be developed and expanded.

Further research is needed in this area using larger sample sizes to achieve greater statistical power, and more robust research designs such as Randomised Clinical Trials (RCTs) in order to generate firm conclusions about the relationship between a particular intervention and outcome, thus allowing the results to be generalised to a wider ID population.

Currently, it is unknown whether people with ID understand more or less about attachment behaviour compared to their TD peers. More research is needed comparing understanding of attachment behaviour in young adults ID with TD young adults of the same age to examine whether there are any significant differences between the two groups. This would serve to contextualise the findings from this study and further investigate the relationship between IQ and capacity to learn about important parenting concepts such as attachment.

There is a dearth of measures that specifically examine understanding of attachment behaviour. The majority of measures either focus on investigating attachment behaviour in young infants for example the Attachment Q-Sort (Waters, 1987 cited in De Schipper, Stolk and Schuengel, 2006) or attachment classification in adults such as Adult Attachment Interview (AAI) and the Adult Attachment Projective Picture System (AAP) (George & West, 2001). More research is needed to develop psychometrically robust measures of understanding the concept of attachment.

The research in this area would benefit from investigating whether change in knowledge of attachment behaviour translates into behavioural change. This would determine the extent to which learning can be implemented in real life, generalised and maintained by parents.

1.5.3 Clinical Implications

Currently, there are no clinical tools that can assess the understanding of the concept of attachment in young people with ID. Assessment of parenting needs is necessary in order to guide and inform intervention. This semi-structured interview and the training materials offer clinicians a tentative resource to assess understanding of attachment and offer appropriate interventions. However, as previously identified more research is needed in order to offer robust measures.

Although further research is required, the training package offers an early intervention resource for teaching young adults with ID about attachment. The aim of delivering such an intervention would be to support young adults who may be planning a family or are in the ante-natal stages of pregnancy and require support. Accordingly, this would satisfy national guidance emphasising the importance of offering parents early, effective, flexible and on-going support in order to meet the changing needs of the parent and child (Tarleton et al, 2006).

Participants retained the information they had learned over a period of two weeks. This highlights the importance of using reinforcement strategies such as over learning techniques when teaching people with ID. The may be achieved using the booklet along with sessions in which the person would be expected to apply their learning, offering clients the opportunity to implement, generalise and maintain their learning.

1.6 Conclusions

The current study aimed to investigate whether young adults with ID understand the importance of parent-infant relationships and whether this can be taught using a DVD. The study also aimed to explore how much information is retained over a period of two weeks.

The results showed that there were significant increases in participants' knowledge of parent-infant relationship after watching the DVD in that most participants demonstrated some or substantial improvement in the post-intervention condition. Intervention effects were not maintained at follow up across the group, and the majority of participants either showed some signs of deterioration at follow up or stayed the same. The results highlight the importance of offering regular sessions that serve to reinforce learning when teaching parenting concepts to support clients to maintain their learning.

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Trainee Number:

Public Domain Briefing Paper

Teaching Young Adults with Intellectual Disabilities about Early Attachment Behaviours using a DVD

Tanya Pearson

Overview

This research was carried out by Tanya Pearson as partial fulfilment of the Doctorate in Clinical Psychology at the University of Birmingham. Research supervision was provided by Dr. Biza Stenfert Kroese (University of Birmingham).

Background

Parenting is a basic human right for all adult citizens (The Human Rights Act, 1998). A recent national survey conducted in England found that in a sample of almost 3,000 adults with intellectual disabilities one in fifteen had children (Emerson, Malam, Davis & Spencer, 2005). However, many parents with ID lack the support they need to fulfil their parenting roles despite research evidence showing that parents with ID can be good parents with the right support (MacIntrye & Stewart, 2011).

Parents with ID are often criticised as inadequate and neglectful by social services (Murphy & Feldman, 2002). Research has found that in 50% of child protection cases a parent's ID was considered a risk factor to their child's well-being. In addition, parents with ID have been found to be over-represented in care proceedings and are more likely to have their children removed from their care than any other group of parents (Booth, Booth & McConnell, 2005).

Several reviews demonstrate the effectiveness of parenting interventions for parents with ID (e.g. Feldman, 1994; Coren, Thomae & Hutchfield, 2011). These findings offer social workers and court feasible alternatives to placing children in care (Feldman, 1994). Such interventions have typically focused on teaching practical skills (e.g. Feldman, 1994).

The importance of enhancing attachment between typically developing mothers and infants is increasingly being recognised in pre- and post-natal services (Haworth & Hickson, 2010). Yet there is as yet no research investigating the understanding of attachment between parents

and infants among young adults with ID, who, in later stages of their lives, will be a vulnerable group of parents to have their children taken into care (Booth et al, 2005).

In order to achieve good psychological well-being children need a close and consistent relationship with their primary caregiver. Over time, children learn that their parent is consistently and reliably available and responsive and thus become securely attached (Bowlby, 1988). Attachment-based parenting groups for adoptive parents and foster carers have reported some success, with results showing some improvement following intervention (Holmer & Silver, 2010).

Details of the study

Aims

The aim of this research is to explore whether young people with ID understand the importance of positive parent-infant relationships for later psychological well-being and whether this can be taught using a DVD. The study also aims to examine how much and what information is retained at follow-up. Thus, the primary research question is, what do young people with ID understand about positive parent-infant relationships and the second question is, how much of this taught information is recalled immediately and retained over a period of time?

Participants

Sixteen participants with ID (IQ = 55 to 70) aged between 18 and 25 years from a diverse range of backgrounds took part.

Measures

ID was assessed using the WASI-II (Wechsler, 2011), a standardised assessment of intellectual functioning of individuals aged between 6 and 90 year-old. Understanding of parent-infant relationships was assessed using a questionnaire the authors developed based on theoretical and empirical evidence.

The 'Attachment in Practice' DVD (Siren Films, 2009) (see Appendix 13) was adapted by the authors to teach individuals with ID about attachment behaviours between parents and infants.

Procedure

There were three test conditions conditions; pre-intervention (condition 1), post-intervention (condition 2) and follow up (condition 3). Before the administration of the measures, participants were briefed about the research using a participant information sheet and asked if they would like to take part. Those that said yes were then asked to complete an informed consent procedure (adapted by Arscott et al, 1999) to assess their capacity to consent. Participants assessed as not having capacity were excluded from the research. All participants interviewed met the inclusion criteria.

Summary of findings

Knowledge of parent-infant relationships significantly increased across the group after the DVD had been presented. Individual response to the training materials at post-intervention showed that of the sixteen participants, five participants (a third) showed no change or some deterioration. Eleven (two thirds) participants showed either some improvement or substantial improvement. Knowledge of parent-infant relationships at follow up showed a non-significant increase. That is, follow up scores were higher than pre-intervention scores but not statistically significant suggesting that treatment effects were not maintained. Individual responses at follow up compared to pre-intervention scores showed that nine participants (just over half) showed either no change or some deterioration. Seven participants (just under half) showed either some or substantial improvement.

Discussion

The results suggest that young adults with ID can be taught about attachment behaviours between parents and infants using a DVD. However, they would benefit from on-going support to maintain tratement effects and reinforce learning over time. The results must be intrepreted in the context of the methodological limitations of the study. More research is needed to draw firm conclusions about the effectiveness of the DVD in teaching concepts related to parent-infant relationships to young adults with ID.

Limitations

The study has several methdological limitations that are important to consider when interpreting the results. Due to difficulties recruiting participants, only 16 participants were recruited which is a small sample size. This study did not include a control (comparison)

group consisting of participants without ID on knowledge and learning. Although across the group a significant increase in post-intervention scores was observed following the intervention, just over half did not retain this improvement at follow up. Thus whilst the intervention demonstrated some promising results in improving knowledge of parent-infant relationhips in people with ID, it did not seem to offer participants the right support to allow them to hold on to this change.

Implications

There are no clinical tools for assessing the understanding of the concept of attachment in people with ID. The semi-structured interview and the training materials developed for this study offer clinicians a potential tentative resource to assess understanding of attachment and offer appropriate interventions.

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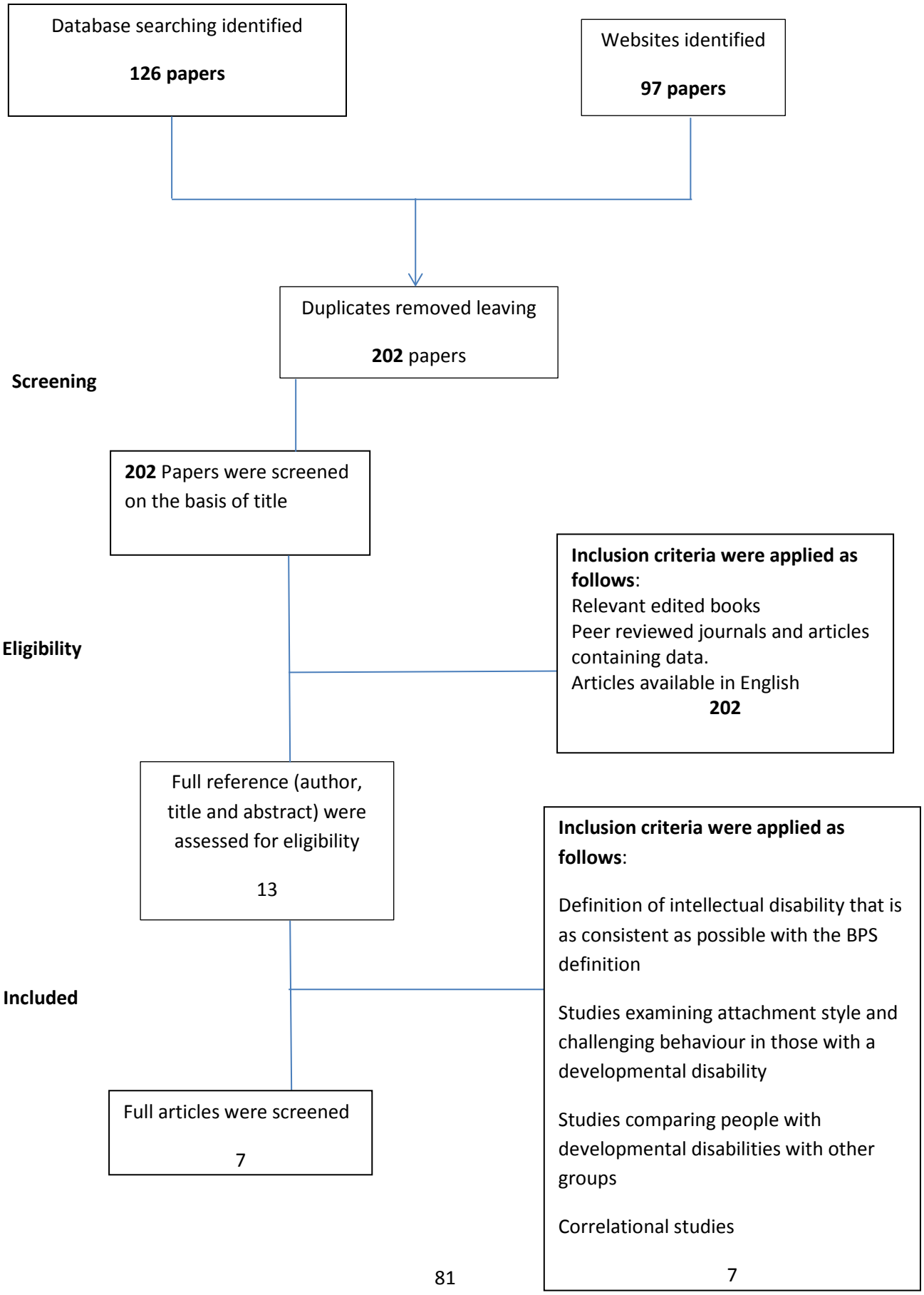
Appendices

Trainee Number:

Appendix A: Flow diagram



Appendix B: Flow diagram representing selection of articles

Table 2: Quality Assurance Rating of Single Case Experimental Designs (adapted from Tate, McDonald. Perdices, Togher, Schulz and Savage, 2008)

	Sterkenburg et al (2008)	Sterkenburg et al (2008)	Schuengel et al (2008)
1. Is there sufficient clinical history to allow for reader to assess applicability of treatment to another individual?	2	2	2
2. Is the problem adequately identified?	2	2	2
3. Does the study design allow for examination of cause and effect relationship to demonstrate treatment efficacy?	1	1	1
4. Has an adequate baseline measure been provided?	0	0	0
5. Was sufficient sampling of behaviour/target behaviour taken during treatment to differentiate treatment response from natural fluctuations	1	1	2
6. Is there a raw data record to illustrate variability of target behaviour problem?	1	1	1
7. Is there inter-rater reliability?	2	2	2
8. Were independent assessors used to reduce assessment bias?	1	1	1
9. Was statistical analysis			

used to analyse the results over the study phases?	2	2	2
10. Was the treatment replicated with other individuals to demonstrate treatment not limited to individual or setting?	2	0	2
11. Generalisation demonstrated? Was the functional utility of the treatment extended beyond target behaviours or therapy environment into other areas of individual's life?	2	2	2
Total	**16/22 (definite evidence)**	**14/22 (some evidence)**	**17/22 (definite evidence)**

Cut offs: 1-7 little evidence 8-14 some evidence 15 – 22 – Definite evidence

Trainee Number:

Appendix D: School Information Sheet

My name is Tanya Pearson and I'm a Trainee Clinical Psychologist at the University of Birmingham. I am currently doing research for my doctoral research thesis to find out what young adults with an Intellectual Disability (ID) can be taught about attachment behaviours between parents and babies using a DVD. The project is being supervised by Dr Biza Kroese and Dr Peter Corr.

What will the study involve?
Young adults will be asked questions about parent-infant relationships and shown a DVD of parents interacting with their babies, to help us understand how we can teach young adults about looking after young babies.

If you choose to take part, what will happen?
I will arrange a time to visit the college to introduce myself to the staff team and students. Following this I will arrange some dates to come in to complete the research.

Who would be suitable to take part in the research?
Males and females, aged between 18 and 25 years, who have a significant ID (IQ=55-70), from all different types of backgrounds will be suitable to take part.

Who would be unsuitable to take part?
Those who do not have an ID, have a developmental disorder (e.g. Autism, ADHD etc), a severe of enduring mental health problem (e.g. psychosis), or do not have capacity to give informed consent will not be able to take part in the research.

How will the recruitment process work?
I would be very grateful if you could identify potential participants and ask them if they would like to take part in the research using the participant information sheet.

Will I need to access student files?
No, I will not have to access any files. I will identify participants with a significant learning disability by asking them to complete a brief assessment called the Weschler Abbreviated Scale of Intelligence (WASI).

How will I obtain informed consent?
Those who would like to take part will be asked to complete a capacity to consent assessment (Arscott, Dagnan and Stenfert Kroese, 1998) to check that they have understood the study and what is being asked of them. Those who would like to take part but do not have capacity to consent will not be able to take part in the research.

Are there any risks?
We will make sure that this study does not interfere with the participants' education. If participants' become upset following the research, I will put them in contact with someone they can talk to. The research will not affect any support participants currently receive or might require in the future.

What if participants change their mind?
Participants will be able to withdraw from the study at any point before the data is analysed.

What information will the college receive once the study has been completed?
All participants responses will be kept confidential. However once the research has been completed, a copy of the report will be made available to the colleges that took part.

Thank you
I am grateful for your support and I hope this project will be of benefit to young people with learning disabilities.

Trainee Number:

Appendix E: Participant information sheet

My study on Parent-baby relationships

Hi, my name is Tanya and I am a psychologist from University of Birmingham. I work with people who have a Learning Disability and I have to write a report about a study for my university course.

What is the study about?
I want to find out what young people with a learning disability understand about parent-baby relationships and how we can teach people about looking after young babies.

If I chose to take part, what will happen?
I will introduce myself to you at your college. I will be happy to answer any questions you may have.

What will I be asked to do?
If you choose to take part, you will be asked to attend 3 short meetings lasting between 30 to 45 minutes. You will be asked a few questions about parent-baby relationships. You will be shown a short DVD of parents looking after their babies, then asked a few questions straight away and again a few weeks later.

Are there any risks?
We will make sure that my study does not interfere with your education. If, after you have taken part, you feel you would like to talk to someone, let me know and I will put you in contact with Dr Biza Kroese, Senior Lecturer and Clinical Psychologist (please see her details at the bottom of this sheet). Your decision to take part or not to take part in the study will not change the support you get now or in the future.

Where will we meet?
We will always meet at your college at a time that is best for both of us.

Who will find out what I say?
Everything you say will be private, only I will know what you say. At the end of the research, I will come back to your college and let you know what I have written in my report but I will not tell anyone what you said.

What if I change my mind?
If you change your mind and decide you do not want to take part, just let us know. It is okay if you say you do not want to come back, we will not use any of your answers in the study. You will be able to pull out up until I start writing my report in January 2013. If you decide you do not want to take part in the study, you can still watch the DVD.

Who shall I contact if I have any questions or would like to speak to someone after I have taken part in the study?
You can contact Dr Biza Kroese at the University of Birmingham on or by email

Trainee Number:

Appendix G: Participant consent form

Participant Consent Form

Parent-baby relationships

Meeting with Tanya and watching the DVD

- The DVD has been explained to me and I would like to watch it. ☐
- I know I can stop watching the DVD whenever I want to ☐

Taking part in the study

- I have had the research explained to me and **I want** to take part ☐
- I have had the research explained to me and **I do not want** to take part ☐
- If I decide to take part I know I can change my mind ☐
- If I change my mind during the research, I know I can still watch the DVD. ☐
- Everything I say will be kept private, unless I tell Tanya that I am in danger or someone I know is in danger ☐
- I give my consent for the sessions to be tape recorded ☐

Name_____

Signature_____

Trainee Number:

Appendix H: Parental consent letter

Dear Parent/Guardian,

My name is Tanya Pearson and I am a Trainee Clinical Psychologist at the University of Birmingham. As part of my doctoral qualification I will be exploring how young people with learning difficulties/intellectual disabilities can be taught about parents bonding and communicating with their babies. The project is supervised by Dr Biza Kroese, Senior Lecturer, and Dr Peter Corr, Consultant Clinical Psychologist, and has been approved by the head of (name of college), Ms/Mr (surname).

The aim of the research is to find out what young people understand about parent-baby relationships, what can be taught and what can be learned and remembered over a few weeks. The research will not involve asking participants questions about their relationship with their own parents but will ask them about what they have seen on a DVD (which is about parents interacting with young babies).

The research will involve three meetings which will take place at (insert name of college) and will last no more than one hour. Every effort will be made to ensure this does not interfere with your son's/daughter's education. In the very unlikely event that participants become upset when watching the DVD, a professional trained in listening to people's difficulties will be able to offer support and you will be informed. The content of the DVD is all about parents and young babies, showing only positive and caring scenes so we think there is little risk of it upsetting your son/daughter.

Once the research has been completed all the young people who take part will be given a summary of the findings.

Thank you for taking the time to read this letter. I am grateful for your support.

Tanya Pearson
Chief Investigator
Supervised by Dr Biza Kroese and Dr Peter Corr

Trainee Number:

Please complete and return the slip below if you **do not** want your son/daughter to take part in the research

- -

I Parent/Guardian of _____**do not** give consent for my son/daughter to take part in this research which aims to explore young people's understanding of parent-baby relationships.

Signature_____

Date_____

Trainee Number:

Appendix I: Demographic sheet

Demographic information sheet

Participant initials:

Participant number:

Please circle the college from which the participant has been recruited**:**

WC WCr Qu

Age: years months or Date of Birth

Number of brothers and sisters: 0 1 2 3 4 5 6 6+

Does anyone in your family have learning difficulties?

Yes No

If yes, who:

Mother Father Brother Sister Grandparent Uncle/Aunty

Who raised you as a young baby?

Mum Dad Relative Foster carer Adoptive parent(s)

Have you had any teaching on parent-infant relationships in the past?

Yes No Unsure

Trainee Number:

Appendix J: Pre-assessment semi-structured questions

Participant response sheet
Pre-assessment (1)

Participant initials:
Participant number:
College code:

Question	Response	Score
1. What do we mean when we say a parent and their baby have a good attachment? (Question assesses participants conceptual understanding of attachment)		
2. What are the good things about a parent and their baby having a good and strong attachment? (Assess participants understanding of the benefits a secure attachment)		
3. What problems do you get if the parent and child don't have a good attachment? (Assesses participants' understanding of the problems that can emerge from an insecure attachment)		
4. Why is it important that a parent goes to the baby as quickly as possible when the baby cries?		
5. Babies do lots of things to keep their parents close, can you tell me what some of these things are? (Assesses understanding of some of the behaviours babies exhibit to get parents attention).		
6. What does a parent do to show the baby they are listening to them? (Assess understanding of attunement)		
7. What does a child learn to do if their parent responds quickly and sensitively when they are upset? (Assesses understanding of emotional regulation).		

Trainee Number:

Appendix K: Post-intervention semi-structured questions

Participant response sheet
Intervention (2)

Participant initials:
Participant number:
College code:

Question	Response	Score
1. What do we mean when we say a parent and their baby have a good attachment? (Question assesses participants conceptual understanding of attachment)		
2. What are the good things about a parent and their baby having a good and strong attachment? (Assess participants understanding of the benefits a secure attachment)		
3. What problems do you get if the parent and child don't have a good attachment? (Assesses participants' understanding of the problems that can emerge from an insecure attachment)		
4. Why is it important that a parent goes to the baby as quickly as possible when the baby cries?		
5. Babies do lots of things to keep their parents close, can you tell me what some of these things are? (Assesses understanding of some of the behaviours babies exhibit to get parents attention).		
6. What does Jess do to show Leila she understands? (Assess understanding of attunement)		
7. What does a child learn to do if their parent responds quickly and sensitively when they are upset? (Assesses understanding of emotional regulation).		

Trainee Number:

Appendix L: Follow up semi-structured questions

Participant response sheet
Follow-up (3)

Participant initials:
Participant number:
College code:

Memory question	**Response**
Can you remember my name?	
Can you remember what we did when we last met?	
Can you remember what I asked you to do in between our sessions?	

Booklet related questions	**Response**
Did you read the booklet?	
How many times did you read the booklet?	
Which parts of the booklet did you understand/which part made most sense to you/which parts did you get? (ask participant to point to section or tell you which page. Encourage the participant to tell you why they found it easy to understand).	
Which parts of the booklet were harder to understand (ask participant to point to section or tell you which page. Encourage participant to tell you why they found it difficult to understand)	
Did you speak to anyone about the DVD?	
What did the person say about the DVD?	

Question	**Response**	**Score**
1. What do we mean when we say a parent and their baby have a good attachment? (Question assesses participants conceptual understanding of attachment)		
2. What are the good things		

about a parent and their baby having a good and strong attachment? (Assess participants understanding of the benefits a secure attachment)		
3. What problems do you get if the parent and child don't have a good attachment? (Assesses participants' understanding of the problems that can emerge from an insecure attachment)		
4. Why is it important that a parent goes to the baby as quickly as possible when the baby cries?		
5. Babies do lots of things to keep their parents close, can you tell me what some of these things are? (Assesses understanding of some of the behaviours babies exhibit to get parents attention).		
6. What does Jess do to show Leila she understands? (Assess understanding of attunement)		
7. What does a child learn to do if their parent responds quickly and sensitively when they are upset? (Assesses understanding of emotional regulation).		

Trainee Number:

Appendix M: DVD

DVD

Trainee Number:

Appendix N: Summary booklet

Summary booklet

Trainee Number:

Appendix O: Effects of Intervention

Participant	Pre-Intervention	Post-Intervention	Change	Comment
1	79	53	-26	No Change
2	15	88	73	Significant improvement
3	67	79	12	No Change
4	25	67	42	Significant improvement
5	38	99	61	Significant Improvement
6	38	67	29	No Change
7	94	67	-27	No Change
8	67	88	21	No Change
9	2	15	13	No Change
10	38	79	41	Significant improvement
11	79	97	18	No Change
12	67	94	27	No Change
13	8	25	17	No Change
14	38	38	0	No Change
15	88	79	-9	No Change
16	79	79	0	No Change

Trainee Number:

Appendix P: Effects of Intervention at follow up

Participant	Pre-Intervention	Follow-up	Change	Comment
1	79	53	-26	No Change
2	15	94	79	Significant improvement
3	67	88	21	No Change
4	25	53	28	No Change
5	38	94	56	Significant Improvement
6	38	8	-30	Significant deterioration
7	94	88	-6	No Change
8	67	67	0	No Change
9	2	4	2	No Change
10	38	94	56	Significant improvement
11	79	67	-12	No Change
12	67	99	32	Significant improvement
13	8	53	45	Significant improvement
14	38	25	-13	No Change
15	88	88	0	No Change
16	79	67	-12	No Change

Trainee Number:

Appendix Q: Pilot Protocol

Pilot Protocol

1. Explain the research using the participant information sheet
2. Ask the potential if they would like to take part
3. Assess capacity to consent using Interview Procedure developed by Ascrott et al, 1998).
4. Ask participants to complete a participant consent form
5. Administer 2 subtests of the WASI-II (vocabulary and matric reasoning)
6. Conduct pre-intervention questions
7. Play DVD
8. Ask post-intervention questions
9. Ascertain what participants' thought about each phase of the research including booklets