Decision-making skills, memory and 'borderline features' in Looked After Children
A case control study

Ibrahim, Jeyda

Awarding institution:
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Jeyda Ibrahim-Ozlu

Department of Psychology, Institute of Psychology, Psychiatry and Neuropsychology

King's College London

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Childhood maltreatment and its link to borderline features in children: A systematic review approach

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Abstract

Borderline personality disorder has repeatedly been associated with a history of maltreatment in childhood; however, research on maltreatment and its link to borderline features in children is limited. The aim of this review is to synthesise the existing data on the association between maltreatment and borderline features in childhood. In total, ten studies were included in this systematic review. Results of the studies indicated that children with borderline features were more likely to have a history of maltreatment, and children who had been maltreated were more likely to present with borderline features. Other risk factors such as cognitive and executive functioning deficits, parental dysfunction and genetic vulnerability were also identified across studies. This review adds to the literature by highlighting maltreatment as a risk factor for borderline features in childhood. Longitudinal research is required to establish the link between childhood borderline features and adult borderline features. Implications for early identification, prevention and intervention services are discussed.

1. Introduction

Borderline personality disorder (BPD) affects between 1 to 6% of the population and is characterised by interpersonal difficulties, impulsivity, affective instability and difficulties with the concept of self (Grant, Goldstein, Huang, Stinson, Saha, Sharon, Smith, Dawson, Pulay, Pickering & Ruan, 2008; Lenzenweger, 2008; Torgersen, Kringlen, & Cramer, 2001). Due to the nature of intense emotional pain and self-harming behaviour present in individuals with BPD, it impacts on both physical and mental health (Zanarini, Frankenburg, Hennen, Reich, & Silk, 2005; Zanarini, Frankenburg, Reich, Fitzmaurice, Weinberg, & Gunderson, 2008) and is economically costly to treat (Bender, Dolan, Skodol, Sanislow, Dyck, McGlashan, Shea, Zanarini, Oldham, & Gunderson, 2001; Zanarini, Jacoby, Frankenburg, Reich, & Fitzmaurice, 2009). Recently, researchers have suggested that effective prevention and early intervention of BPD is possible; however, improved pathways of identifying children at risk are required (Chanen, Jovev, McCutcheon, Jackson, & McGorry, 2008b).

Adults diagnosed with BPD have repeatedly reported higher levels of maltreatment compared to individuals without BPD; however, most studies continue to be retrospective and are based on self-report questionnaires. Therefore they are susceptible to misinterpretation of past experiences by individuals with BPD (Winsper, Zanarini, & Wolke, 2012). The literature highlights the similarities of particular symptoms/clinical features between children who have been maltreated and adults with BPD, such as: affective instability; relationship difficulties; negative self-concept; increased risk for suicidal ideation and suicidal behaviour; and development of psychopathology (Rogosch & Cicchetti, 2005). There are still a limited number of prospective studies exploring whether children who have been maltreated present with borderline features and even though early intervention for BPD is now widely accepted, there are still only a limited number of studies exploring the developmental trajectory of the disorder (Hawes, 2014).

1.1 History of Borderline Features in Childhood

Early literature on children with borderline features did not use this label. Instead these children have been described as suffering from a milder version of childhood psychosis (Geleerd, 1945; 1946) and a benign version of childhood psychosis with a ''neurosis-like defence mechanism'' (Mahler, Ross & Fries, 1948). Similar to these studies borderline children were also described as living in a fantasy world, with impaired reality testing, rapid changes in symptoms, heightened anxiety, and dysfunctional interpersonal relationships (Weil, 1953a; 1953b). In 1956 Anna Freud also described 'Borderline cases' (Freud, 1969). She recommended a developmental assessment for these children that included exploration of withdrawal from reality, an inability to be comforted by others, poor reality testing and lack of development of age-appropriate defences (Freud, 1969). In later years it was emphasised that although 'borderline' children were similar to those with psychosis they were more able to show their level of anxiety with realistic stories (Engel, 1963) and that these children were like 'toddlers whose mothers were permanently out of the room' (Frijling-Schreuder, 1970).

Over three decades ago 'borderline syndromes in childhood' were defined as major areas of dysfunction including; shifting between different emotional states; level of anxiety; thought content and processes; relationships with others; and lack of control. Researchers concluded that 'borderline syndromes' were caused by a number of different experiences including organicity, deprivation and exposure to chaotic family environments (Bemporad, Smith, Hanson & Cicchetti., 1982).

More recently, because of stigmatisation, there has been a shift from trying to diagnose children with BPD to exploring borderline features (Cicchetti & Crick, 2009a, 2009b; Hinshaw & Cicchetti, 2000). The Borderline Personality Features Scale for Children (BPFS-C) is a recently developed validated self-report measure used to conceptualise these features in children as young as nine years old (Crick, Murray-Close, & Woods, 2005). The subscales forming a total score for the BPFS-C are Affective Instability, Identity Problems, Negative Relationships and Self-harm (Crick et al., 2005). The domains assessed in this measure are in line with the

adult diagnosis of BPD but the term borderline features is less stigmatising for children early in their development (Hawes, 2014).

1.2 Borderline Personality Disorder (BPD) and Maltreatment

1.2.1 Adults

Experience of trauma and adversity during childhood has repeatedly been associated with BPD and similar personality features in adulthood (Allen, Cramer, Harris & Rufino, 2013; Amstadter, Aggen, Knudsen, Reichborn-Kjennerud & Kendler, 2013; Pietrek, Elbert, Weierstall, Muller & Rockstroh, 2013). As high as 71% of individuals diagnosed with BPD report a history of severe maltreatment in childhood (Cicchetti & Valentino, 2006; Lieb, Zanarini, Schmahl, Linehan, & Bohus, 2004; Widom, Czaja, & Paris, 2009). In addition, maltreatment has been shown to predict borderline features independent of family environment and parental psychopathology (Bradley, Jeneai, & Westen, 2005). Maltreatment has been highlighted as a causal factor for developing BPD (Ball & Links, 2009).

Although most of these studies have been retrospective and therefore at risk of memory bias, a recent prospective study by Widom and colleagues (2009) has shown that physically abused and neglected children were at heightened risk of meeting criteria for BPD as adults. Having a parent with substance misuse, not being in employment, not graduating from high school, and having a diagnosis of another clinical mental health problem (substance misuse, depression, and post-traumatic stress disorder (PTSD)) were mediators in the relationship between physical abuse and neglect and BPD in adulthood (Widom et al., 2009). To date, compared to other personality disorders BPD has been the most widely associated with childhood maltreatment (Cicchetti & Valentino, 2006; Zanarini, 2000).

There have also been a number of studies that have shown that as the dose of maltreatment increases, the symptoms of BPD become more severe (Ball & Links, 2009). Silk and colleagues (1995) showed that if sexual abuse was experienced over a longer period of time, this increased particular BPD features such as parasuicidal behaviour, difficulties in therapy and total scores on diagnostic

criteria suggesting more severe BPD (Silk, Lee, Hill & Lohr, 1995). Similarly, another study showed that the severity of sexual abuse was significantly associated with the severity of symptoms of BPD and deficits in psychosocial functioning (Zanarini, Yong, Frankenburg, Hennen, Reich, Marino, & Vujanovic, 2002). In addition, a study comparing those with BPD and those without in an inpatient setting, found that those with BPD reported significantly more types of childhood adversity, increased use of health services and higher incidents of self-harm behaviours (Sansone, Songer, & Miller, 2005). These studies indicate that as childhood adversity becomes more severe (frequency and intensity) the outcome of BPD symptoms also becomes potentially more severe (Ball & Links, 2009).

In addition, recent reviews have also highlighted that there may be similarities between brain structure in individuals who have experienced childhood adversity and those with a diagnosis of BPD. For instance, reduced volumes have been shown in hippocampus, amygdala and the prefrontal cortex. A few researchers have argued that some of these structural changes could be due to long-lasting childhood adversity (Nahas, Molnar, & George, 2005; Rinne, 2005; Schmahl & Bremner, 2006). Overall, there is consistent evidence to suggest that childhood abuse can increase the risk of adult BPD (Ball & Links, 2009).

1.2.2 Adolescents

A recent literature review by Newnham and Janca (2014) on childhood maltreatment and BPD focusing on adolescence (Newnham & Janca, 2014), found that experience of trauma, in particular sexual abuse before or during adolescence increased the risk of developing BPD. Although these symptoms appear to decline during adulthood, the social and vocational deficits continue. They suggest that perhaps impulsivity, affective instability and suicidal ideation are features of BPD during adolescence, in contrast to negative affect and functional deficits which appear to be more stable features of the disorder in adulthood (Newnham & Janca, 2014). A recent study looking at adolescent female youth offenders showed that borderline features mediated the relationship between childhood physical abuse and violent offending (Burnette & Reppucci, 2009).

The review by Newnham and Janca (2014) also highlights genetic vulnerability in developing borderline features in adolescence; the Minnesota Twin Family Study demonstrated that genetic factors had a greater influence on borderline features from mid to late adolescence (Bornovalova, Hicks, Lacono, & McGue, 2013). Although the review also highlights emotional dysregulation as a part of BPD and makes recommendations for treatment, the studies reported were not completed with adolescents. This clearly highlights the need for future research to aid understanding of borderline features in adolescence and its associated factors. Further, the need for the development of evidence-based treatment approaches for adolescence presenting with borderline features.

1.2.3 Children

Recent studies have looked at 'borderline features' in maltreated children compared to non-maltreated children. Studies have found that maltreated children are more likely to present with 'borderline features' than children who have not been maltreated (Belsky et al., 2012; Cichetti, Rogosch, Hetch, Crick & Hetzel, 2014; Gratz, Latzman, Tull, Reynolds & Lejuez, 2011; Hetch, Cicchetti, Rogosch & Crick, 2014; Rogosch & Cicchetti., 2005; Winsper, Zanarini & Wolke, 2012).

Co-morbidities between BPD in childhood and other clinical presentations have also been found. This emphasises the idea that borderline features can be associated with a number of different diagnoses similar to that found in maltreated children (DeJong, 2010). One study has shown that children with BPD also met criteria for Attention Deficit Hyperactivity Disorder (ADHD; 67.5%), Oppositional Defiant Disorder (ODD; 47.5%), depression (22.5%) and anxiety (30%; Guzder, Paris, Zelkowitz & Feldman, 1999).

There is clear evidence suggesting a role of childhood adversity in the development of personality disorders (Belsky, Caspi, Arseneault, Bleidorn, Fonagy, Goodman, Houts & Moffitt, 2012); however, to date there are still only a limited number of studies that have explored this phenomenon and the developmental trajectory of the development of BPD. Early studies starting from late 1950's had begun making an association between borderline features in

children and maltreatment. Geleerd (1950) explored risk factors associated with borderline features in children and linked these presentations to a disturbance in the early relationship between mother and child (Geleerd, 1958), having a chaotic family, neglect and physical abuse (Bemporad et al., 1982). Most families described in the study by Bemporad and colleagues (1982) had frequent separations, witnessed violence, and their mothers were frequently unstable (Bemporad et al., 1982). They concluded that development in this type of environment would impair a child's sense of self and limit their ability to contain their own anxiety.

Early theorists (Bemporad et al., 1982) highlighted that these children showed disturbance in a variety of different fundamental areas that may not be evident at initial assessment but become evident after continuous contact over a period of time. They further argue that this is why borderline features only become apparent during treatment. These children may have difficulty with developmentally appropriate tasks, forming relationships with peers, and engaging in activities within the real world. Researchers posited that future research can build on this existing knowledge then earlier identification and early intervention would be possible (Bemporad et al., 1982).Early studies found that children with BPD were more likely to have experienced maltreatment compared to children with other clinical presentations (Bemporad et al., 1982; Goldman, D'Angelo, DeMaso, & Mezzacappa, 1992; Guzder et al., 1999; Guzder, Paris, Zelkowitz & Marchessault, 1996; Zelkowitz, Paris, Guzder, & Feldman, 2001).

This early research highlights that maltreated children present with very broad symptoms (DeJong, 2010) that may not fit into one particular clinical diagnosis, or are sub-threshold for multiple diagnoses, and these symptoms relate to borderline features. Borderline features are not often considered in assessments provided by children's services. Furthermore, even if they were considered it is unlikely they would be evident in one assessment (Bemporad et al., 1982).

1.3 Risk factors for developing BPD/borderline features in childhood

1.3.1 Cognitive and Executive Functioning

A meta-analysis exploring the neuropsychological profile of individuals with BPD showed that individuals with BPD performed worse across a number of different neuropsychological functions compared to controls. These domains included: attention, cognitive flexibility, learning and memory, planning, processing speed and visuo-spatial abilities (Ruocco, 2005).

An early study also reported neurological soft signs and high level of organic impairment in most of the children with borderline features compared to children with other clinical presentations. The most frequently found deficits were lack of coordination and perceptual motor difficulties, limited ability to focus attention, and non-specific EEG tracings (Bemporad et al., 1982). More recently, it has been shown that children with borderline features showed deficits in executive functioning (Paris, Zelkowitz, Guzder, Joseph & Feldman, 1999) and deficits in executive functioning made significant contributions in regression models of risk factors associated with borderline features (Zelkowitz et al., 2001). Furthermore, adults with BPD (Posner, Rothbart, Vizueta, Thomas, Levy, Fosella, Silbersweig, Stern, CLarking & Kernberg 2003) and children with borderline traits (Rogosch & Cicchetti, 2005) have shown reduced performance on the conflict resolution tasks (a measure of ability to resolve conflict) compared to matched controls.

1.3.2 Parental Dysfunction and Attachment

An early study showed that consistent exposure to a chaotic family was more prevalent in children with borderline syndromes (Bemporad et al., 1982). Exposure to domestic violence and conflict between parents have also been linked to BPD (Herman, Perry, & van der Kolk, 1989; Weaver & Clum, 1993).

Further, research has suggested that low parental affection/nurturing and aversive parental behaviour (i.e. harsh punishment) heightened the risk of BPD and other personality disorders during adolescence, which continued into

adulthood (Johnson, Cohen, Chen, Kasen & Brook, 2006). A recent study has shown that aversive parenting during pre-school significantly predicted heightened borderline features in adolescent girls. In contrast, authoritative parenting was a protective factor for adolescent boys (Nelson, Coyne, Swanson, Hart & Olsen, 2014).

Individuals diagnosed with personality disorders have reported disruptions in forming a secure attachment during childhood, in particular with the mother (Cohen, 2008). A review of literature looking at attachment with individuals diagnosed with BPD concluded that individuals with BPD are more likely to have insecure attachment styles (Agrawal, Gunderson, Holmes, & Lyons-Ruth, 2004). Early literature also described that children diagnosed with borderline syndromes were more likely to have experienced early separation from carers than those with other psychiatric problems (Bradley 1979; Geleerd, 1958). A more recent prospective study showed that extended separations from the mother prior to the age of five heightened the risk of BPD symptoms during early adolescence and mid adulthood (Crawford, Cohen, Chen, Anglin & Ehrensaft, 2009).

1.4 Current review

The aim of this systematic review is to explore research looking at associations between maltreatment and BPD or borderline features in childhood. As far as we are aware, there has been no other study that has examined this data in this population. Literature reviews have been completed for adults (Johnson, Bromley & McGeoch, 2005) and recently for adolescence (Newnham & Janca, 2014).

1.4.1 Hypotheses

1. Children who have experienced maltreatment will be more likely to have BPD/borderline features than those who have not experienced maltreatment

2. Children with BPD/borderline features are more likely to have a history of maltreatment than those without

3. Studies will show that other risk factors are associated with the development of BPD/borderline features, such as genetic vulnerability, cognitive/executive deficits and parental dysfunction (for example substance misuse or domestic violence)

2. Method

A protocol was developed based on recent guidelines for systematic reviews (Harms, 2009; Harris, Quatman, Manring, Siston, & Flanigan, 2013; Higgins & Green, 2006). The protocol included background literature, review questions, planned search terms, inclusion and exclusion criteria for studies, databases to be searched, and quality assessment method. A panel of experts within the field reviewed the protocol and amendments were made to address any questions proposed to the author.

2.1 Criteria of inclusion and exclusion

Studies making an association between any type of maltreatment (physical abuse, sexual abuse, verbal abuse, emotional abuse and neglect) with borderline features in children or children diagnosed with a BPD were included. Studies looking at children who were 12 years or below only were included in the study selection as above 12 years old they would be within the adolescent phase of development and therefore this would answer a different research question. Case control, cross-sectional and longitudinal cohort studies were included. Descriptive studies without a statistical analysis were not included and only studies published in peer-reviewed journals were included.

2.2 Data Sources and Search Terms

Both an internet-based search and a manual search were used to identify relevant studies. Firstly, three online databases (OvidSP, Pubmed and Scopus) were searched for articles with no restriction on publication date. Based on the research question the primary identified search terms were *maltreatment, borderline disorder* or *borderline features* and *child*. In order to identify a further set of related search terms an information specialist was consulted. In addition, the online-database Psych Info was used to map the primary search terms. This generated an additional list of search terms that were used to search databases for appropriate articles. Search terms identified and used were *borderline* AND *child* AND *features* OR *state* OR *personality* OR *traits* OR *disorder* AND *maltreatment* OR *physical abuse* OR *sexual abuse* OR *verbal abuse* OR *emotional*

abuse OR *neglect* OR *foster* OR *in care* OR *looked after* OR *adopted* OR *institution* OR *children's home*. Secondly, Google Scholar was used as a backup to check for any unidentified articles through the three online databases. The search terms *borderline* AND *children* were explored within the title of journal articles. Finally, further articles were identified by a search of reference lists from the obtained articles from the online databases. If the identified articles were appropriate databases were used again to retrieve the abstracts and full-text articles.

2.3 Study Selection

All titles identified through the three databases and Google Scholar were reviewed on screen and any articles that did not meet the study criteria were removed (stage one-identification). Duplicates were also removed at this stage. For all the remaining titles thought to meet inclusion and exclusion criteria, abstracts were retrieved and read (stage two-screening). If after reading the abstracts the study was still considered to meet inclusion and exclusion criteria the full text article was retrieved from the database and read (stage three-eligibility). If the independent raters agreed on the quality rating using the Critical Appraisals Skills Programme (CASP; 2014) for case control studies the study was included and the references of the full text articles were manually screened to identify any further relevant articles (stage four-included). If any further relevant articles were identified, stages one to three were applied to these articles. The search strategy employed aimed to be sensitive as opposed to specific. Thus, many of the articles identified by databases initially did not meet criteria for this review. Figure 1 shows the summary of the study selection process.
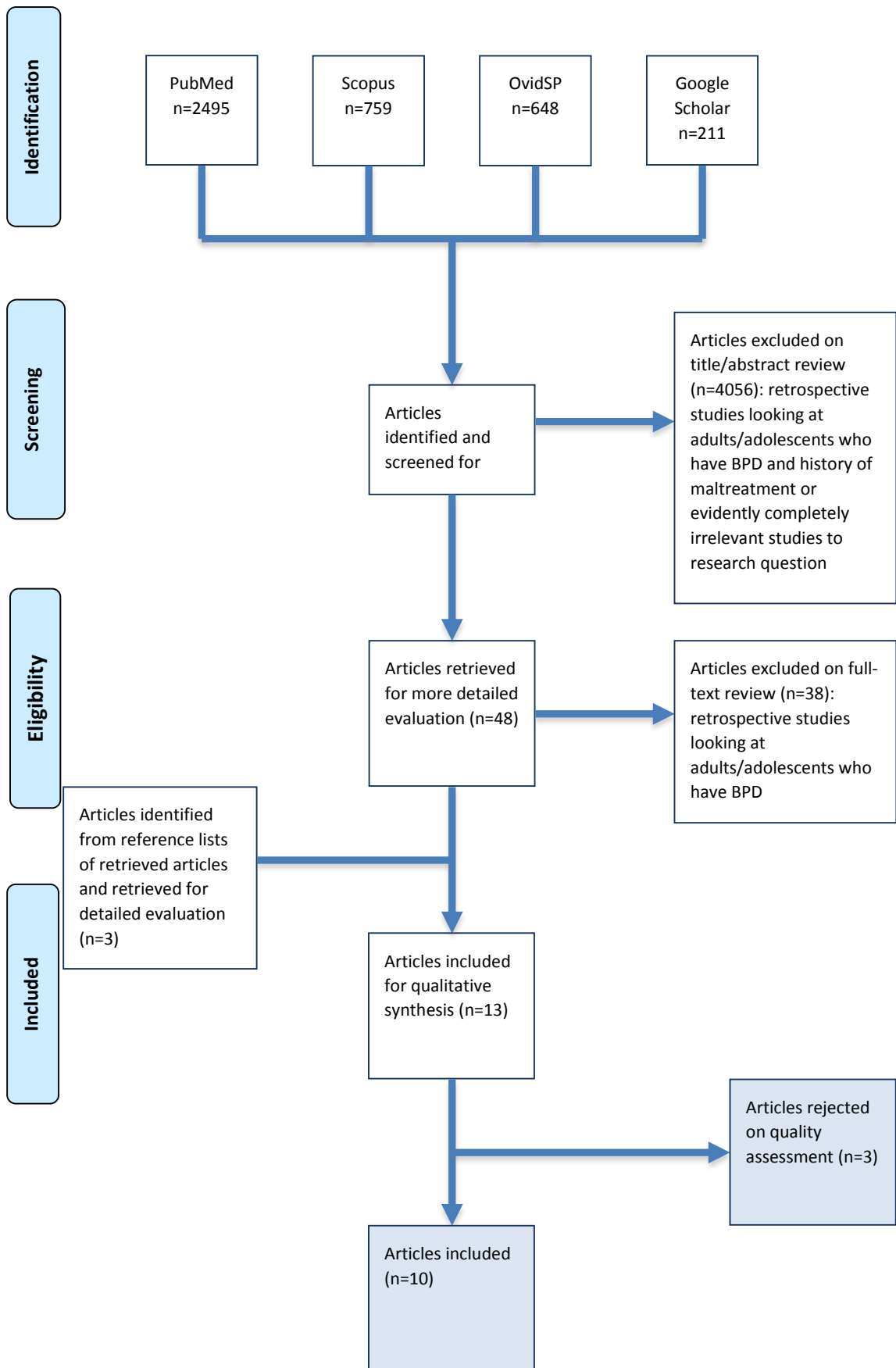
Figure 1. Summary of Study Selection Process

2.4 Data extraction

For each article that met the study criteria, two reviewers read and extracted relevant information as recommended by a recent systematic review guideline (Harris et al., 2013). Data was extracted on study information (authors, year of publication, published journal, design, purpose, hypotheses and funding), study population (inclusion criteria, sample size, age and gender), statistical analysis, confounding factors, results, conclusions, limitations and generalisability. The data extracted were entered into a database. The summaries of characteristics of articles that have been included are presented in Table 1. The table presented includes a description of the sample, the measure for borderline features or diagnosis of BPD, maltreatment type, other factors correlated, confounding factors adjusted for and study results. All relevant information was included in the articles and if there was no statistical analysis reported the study was not included.

2.5 Quality Assessment

The CASP (2014) appraisal tool for case control studies was used to assess the quality of the studies identified and which data was extracted for.

Three broad areas considered for case control studies using this tool are:

      Are the results valid? (Section A)

      What are the results? (Section B)

      Will the result help locally? (Section C)

In total there are 11 questions that support the consideration of all three areas. Prompts are also provided for each question to assist you in answering the question. The first two questions are considered screening questions: 'Did the study address a clearly focused issue?' and 'Did the authors use an appropriate method to answer their question?' Only if both the answers to these questions are 'Yes' it is recommended continuing. Once all questions have been answered the reviewer considers whether the study should be included. Two reviewers independently completed the appraisal tool for each identified study.

2.6 Procedure

Recent guidelines (Higgins & Green, 2006) for systematic reviews recommend

that two independent researchers complete study selection, data extraction and quality assessment. Evidence suggests that evaluation of all articles by at least two researchers may reduce bias and errors. Further, the likelihood that significant studies would be dismissed.

The two independent reviewers rated thirteen studies that were included in the final stage of study selection and data extraction using the CASP. Disagreements on three studies occurred between the two reviewers. The disagreements were resolved by consensus that was obtained by discussion between the two reviewers after re-considering the article and systematic review protocol (Higgins & Green, 2006). Furthermore, another expert in the area and a non-expert in the area but expert in writing systematic reviews were consulted. One of the disagreements was due to the study not reporting a statistical analysis for the data they describe (Bemporad et al., 1982). It was decided not to include this study in the systematic review but consider it for the literature review and discussion. As statistical analysis was not provided this would make it difficult to compare it to the other included studies that have provided a statistical analysis of their results. The two other studies that created disagreement were due to maltreatment not clearly being defined. One study considered early maternal separation (Crawford et al., 2009) and the other aversive parenting (Nelson et al., 2014). Although it was initially thought that early separation could be considered neglect and aversive parenting could be considered as maltreatment, review of the protocol and discussion between reviewers resulted in the consensus that these studies should not be included, as they do not explicitly state maltreatment or abuse as their key exploratory factors. Furthermore, including these studies would have created another search area in which other studies exploring similar factors should be considered.

Figure 1 presents a summary of the study selection process using the PRISMA flow chart (Liberati, Altman, Tetzlaff, Mulrow, Gotzsche, Ioannidis, Clarke, Devereaux, Kleijnen & Moher, 2009; Moher, Liberati, Tetzlaff & Altman, 2009). During stage one a total of 4113 articles were identified from online databases,

PubMed 2495, Scopus 759, OvidSP 648, and Google Scholar 211. Three articles were identified through the manual search of reference lists. Forty-eight articles were retrieved for more detailed evaluation and thirteen met inclusion criteria. Of these, one did not meet quality criteria based on the CASP (2014) and two were no longer thought to be appropriate after careful re-consideration of the review protocol. Ten studies were included in this systematic review (Table 1).

2.7 Data analysis

The results of the studies that have been included in this review were not combined in a meta-analysis. This was due to the heterogeneity of the studies included. For instance, in terms of the setting (participants were included from normal (non-clinical) settings, from clinical settings, and from social care settings (children who have been maltreated and are looked after), the broad definition of maltreatment (for example hostility and resentment, and negative expressed emotion) and the identification of BPD or borderline features using different assessment methods and different assessors. Previously, it has been suggested that meta-analyses of epidemiological studies could create invalid and therefore deceptive overall statistics (Altman, 2001; Egger, Schneider, & Smith, 1998).

For internal consistency of definitions of BPD or borderline features, subscales for each instrument used were considered. Overlap of subscales for operational definitions of BPD or borderline features were considered to achieve consensus of the construct of BPD or borderline features within the studies (Hindley et al., 2006).

3. Results

The results of the ten studies included in this systematic review are synthesised in Table 1.

3.1 Study Heterogeneity

As described in the method there is significant variability in the studies included in this review. The greatest variability within the studies is the method of assessing the association between maltreatment and borderline features/BPD. For example, assessing borderline features in clinical versus non-clinical populations. Six of the studies included in this study assessed borderline features within identified maltreated children compared to non-maltreated children, which are both non-clinical populations (Belsky et al., 2012; Cichetti et al., 2014; Gratz et al., 2011; Hetch et al., 2014; Rogosch & Cicchetti, 2005; Winsper et al., 2012). The remaining four studies assessed whether there was a history of maltreatment for children who were already clinically diagnosed with BPD compared to a clinical population who were not diagnosed with BPD (Goldman et al., 1992; Guzder et al., 1999; Guzder et al., 1996; Zelkowitz et al., 2001). The different types of maltreatment assessed and the different methods or measures used to identify borderline features/BPD are described in detail below. These diverse ranges of methods exploring the link between maltreatment and borderline features/BPD would suggest that a meta-analysis should not be undertaken (Altman, 2001; Egger, Schneider, & Smith, 1998).

3.2 Methodological Quality

The methodological quality of each study was assessed using the CASP (2014) by two independent raters. In the first section of the CASP (2014) the validity of the scores are explored. All studies included were given a 'yes' answer to the first two screening questions of the measure by both independent raters ('Did the study address a clearly focused issue?' & 'Did the authors use an appropriate method to answer their questions?'). All studies were thought to have recruited their sample in an acceptable way and considered confounding factors to minimise bias. In the second section of the CASP (2014) the results are explored in more detail. All

studies had significant *p* values (p<.05); only one study did not report *p* values; however, odds ratios were reported and results were significant (Winsper et al., 2012). Both independent raters reported believing the results of all studies. In the final section of the CASP (2014) the generalisability of the results is explored. Both independent raters thought all study results could be applied to the local population and that the results are in consensus with each other, particularly as all studies had large sample sizes (ranging from 86-6050). In conclusion, both independent raters agreed that all studies had good methodological quality.

3.3 Descriptive Factors

3.3.1 Study population

Six of the studies selected were conducted in United States (US; Cicchetti et al., 2014; Goldman et al., 1992; Gratz et al., 2011; Hetch et al., 2014; Rogosch & Cicchetti, 2005), three in Canada (Guzder et al., 1999; Guzder et al., 1996; Zelkowitz et al., 2001) and two in United Kingdom (UK; Belsky et al., 2012; Winsper et al., 2012). Two of the studies included were longitudinal (Belsky et al., 2012; Winsper et al., 2012), seven case control (Cichetti et al., 2014; Goldman et al., 1992; Guzder et al., 1999; Guzder et al., 1996; Hetch et al., 2014; Rogosch & Cicchetti, 2005; Zelkowitz et al., 2001) and one cross-sectional (Gratz et al., 2011). Studies were published between 1992 and 2014. The age range included across all studies was between 6-12 years old. The mean age for samples was only reported for eight studies. The mean age range reported was between 9.8 and 12.15.

3.3.2 Assessment of Borderline Features or BPD

The ten studies included in this systematic review used a variety of different methods to assess either borderline personality features or BPD. Shedler-Westen Assessment Procedure 200-item Q-Sort for Adolescents was used by one study (Westen et al., 2003; Belsky et al., 2012); BPFS-C was used by two studies (Cicchetti et al., 2014; Crick et al., 2005; Hetch et al., 2014); the UK childhood interview for DSM-IV BPD was used by one study (Winsper et al., 2012; Zanarini et al., 2004); Diagnostic Interview for Borderlines-Revised (DIB-R) used by three

studies (Greenman et al., 1986; Guzder et al., 1999; Guzder et al., 1996; Zelkowitz et al., 2001); one study developed their own measure of BPD precursors (Rogosch & Cicchetti., 2005); one study used the adapted version of DSM-III-R criteria for BPD (Goldman et al., 1992) and one study used the The Coolidge Personality and Neuropsychological Inventory for Children (CPNI; Coolidge, 2005; Gratz et al., 2011). Subscales included across studies were; affective instability; interpersonal dysfunction/disturbed relatedness/negative relationships; identity problems; self-harm/suicidal ideation; inappropriate anger; emptiness/boredom; paranoid ideation/psychosis; abandonment; and impulsivity. The common subscales used across all the studies were a subscale of affective instability and a measure of negative relationships. There appeared to be considerable overlap between the assessment tools used to identify borderline personality features and therefore it was concluded that all ten studies were considering the same symptoms. The symptoms were namely affective instability and difficulties in interpersonal functioning.

3.3.3 Assessor Information

The studies summarised used three different informants to assess the presence of borderline features or BPD. Five of the studies used clinician ratings to diagnose children with BPD (Goldman et al., 1992; Guzder et al., 1996; 1999; Winsper et al., 2012; Zelkowitz et al., 2001). Two studies used carer report of borderline features (Belsky et al., 2012; Gratz et al., 2011) and two studies used a self-report measure (Cicchetti et al., 2014; Hetch et al., 2014). One study used a mixture of informants including clinician, peer, teacher and self-report (Rogosh & Cicchetti, 2005).

Table 1. Shows the details of the ten studies included in the systematic review

Author (year) & Title	Study Design & Setting	Subjects	Diagnoses/measure used to identify borderline features	Abuse type/s	Confounding factors	Statistical results for maltreatment and other associated factors with BPD or Borderline Features
Belsky et al. (2012) Etiological features of borderline personality related characteristics	Longitudinal Cohort Study within UK	1116 pairs of same sex twins followed from birth to 12 years (Borderline features assessed at age 12)	Mothers responses to questions from dimensional assessment of borderline features from the Shedler-Westen Assessment Procedure 200-item Q-Sort for Adolescents (Westen et al., 2003) Subscales: affective instability/dysregulation, impulsivity/behavioural dysregulation and disturbed relatedness/interpersonal dysfunction	Physical Emotional (maternal negative expressed emotion)	Family background (e.g. social class) Genotypes	Compared to his/her non-maltreated twin, the physically maltreated twin exhibited more Borderline Personality Related Characteristic's (r=.06, p=.023*) Maternal negative expressed emotion (r=.39, p<.001***) Family psychiatric history (r=.17, p<.001***) IQ, (r=-0.11***) Executive function (r=-0.06*), Theory of Mind (r=-0.11***), temperament (r=0.10***), impulsivity (r=0.34***) externalising (r=0.44***) and internalising problems (r=0.29***)
Cicchetti et al. (2014) Moderation of maltreatment effects on childhood borderline personality symptoms by gender and oxytocin receptor and FK506 binding protein 5 genes	Case control study within US	1051 maltreated and non-maltreated children (age 8-12 year olds, mean=10.37, SD=1.30)	Borderline Personality Features Scale-Child (BPFS-C) (Crick et al, 2005) is a self-report questionnaire used to measure borderline personality features. The scale was developed based on consultation with author of Personality Assessment Inventory (Morey, 1991) a measure used to assess borderline personality pathology in adults Subscales: affective instability, identity problems, negative relationships & self-harm	Neglect Emotional Physical Sexual	Age Gender Socio-economic status	More maltreated children (21.7%) than non-maltreated children (13.7%) were represented in the high borderline symptoms group (Chi-Square (1)=11.37, p<.001) Maltreated girls in the OXTR genotype AG-AA group had significantly (p=.016) BPFS-C scores than girls in GG group; opposite effect was found for boys (p<.000) Maltreated girls with one or two copies of the CATT haplotype had significantly higher BPFS-C scores than did non maltreated girls (p=.003); Among non-maltreated boys those with one or two CATT copies had significantly higher scores than did those with zero copies (p=.04) The three way interaction separately for each gene (maltreatment status, gender, and OXTR/FKBP5 was significant (F(1, 1,014)=5.75, p=.017 & F(1, 1,012)=5.75, p=.008 respectively)
Winsper et al. (2012) Prospective study of family adversity & maladaptive parenting in	Longitudinal Cohort Study within UK	6050 children followed from birth to 11 years (mean 11.74 years)	Borderline features were assessed using a face-to-face semi-structured interview: the UK Childhood Interview for DSM-IV Borderline Personality Disorder (Zanarini et al., 2004) based on the borderline module for the DSM-IV Personality Disorders (1996)	Physical (hitting) Emotional (shouting, hostility & resentment)	Age Gender DSM Diagnoses IQ	Experience during Preschool of hitting OR=1.43 (1.10-1.86); shouting OR=1.22 (0.94-1.58); hostility OR=1.49 (1.07-2.08); resentment OR=1.17 (0.81-1.67) Experience during School of hitting OR=1.43 (1.10-1.86); shouting OR=1.22 (0.94-1.58); hostility OR=1.56 (1.06-2.29)

childhood and borderline personality disorder			Subscales: intense inappropriate anger, affective instability, emptiness, identity disturbance, paranoid ideation, abandonment, suicidal or self-mutilating behaviours, impulsivity & intense unstable relationships.			Suboptimal parenting index (hostility, resentment, shouting/hitting) OR=1.13 (1.05-1.23) Family adversity includes more than 2 items out of hitting & shouting, parental attitude, domestic violence or conflict in partnership between parents OR=1.99 (1.34-2.94)
Guzder et al. (1996) Risk Factors for Borderline Pathology in children	Case control study within Canada	98 children assessed for day treatment: n=41 for borderline and n=57 for non-borderline (age 7 to 12 year olds)	Diagnostic Interview for Borderlines (C-DIB-R), an assessment used to classify borderline children through chart review (Greenman et al., 1986) Subscales: Impulsivity, Affect, Psychosis, & Interpersonal Relations	Sexual Physical Verbal Neglect	Age Gender	Only two types of abuse were independently significant: sexual abuse (B=1.7, SE=0.8, p<.05, OR=5.5) & severe neglect (B=1.2, SE=0.5, p<.01, OR=3.6) Children with more types of abuse were more likely to be in the borderline group (Chi-square=18.9, df=4, p<.001); Correlation between cumulative abuse scores & C-DIB-R score r=.36, p<.001) Children with high cumulative parental dysfunction (histories of substance abuse or criminality) scores were more likely to be in borderline group (Chi-square=17.3, df=4, p<.01); Correlation between cumulative parental dysfunction & C-DIB-R score r=.23, p<.05) Other significant outcomes: PTSD (Chi-Square= 12.3, p<.001), Referred to youth protection (Chi-Square=16.2, p<.0001), Hospitalised (Chi-Square=10.2, p<.01), Ever in foster placement (Chi-square=8.4, p<.01), Age (r=.27, p<.01) & Gender (t=-3.2, df=96, p<.002)
Guzder et al. (1999) Psychological Risk Factors for Borderline Pathology in School-Age Children	Case control study within Canada	94 children assessed for day treatment: n=41 for borderline and n=53 for non-borderline (age 9-12 year olds, mean=9.8)	Diagnostic Interview for Borderlines (C-DIB-R), an assessment used to classify borderline children through chart review (Greenman et al., 1986) Subscales: Impulsivity, Affect, Psychosis, & Interpersonal Relations	Sexual Physical Verbal Neglect	Age Gender	Physical abuse (Chi-square=6.8, p<.01), sexual abuse (Chi-Square=10.6, p<.001) & severe neglect (Chi-Square=7.4, p<.01) was significantly more common in the borderline group Witnessed violence (Chi-square=11.5, p<.001), Chronic parental separations (Chi-square=5.0, p<.05), Parental divorce (Chi-square=8.7, p<.01) & Parental criminality (Chi-Square=9.0, p<.01) were significant risk factors associated to the borderline group The above 7 variables were assessed in a logistic regression with group as dependant variable, only sexual abuse (OR=4.5, p<.02) & parental criminality (OR=2.8, p<.05) remained significant

| Rogosch & Cicchetti (2005) Child maltreatment, attention networks, and potential precursors to borderline personality disorder | Case control study within US | 185 maltreated and 175 non-maltreated children attending summer camp research program (age 6-12 year olds) | Authors developed a BPD precursors composite using features indicative of high vulnerability for later BPD

Features included: intense negative affect & emotional volatility, temperamental construct of effortful control & diminished effortful control, interpersonal relationship difficulties, representation of self & other, self-harming behaviours & suicidal behaviour | Neglect

Emotional

Physical

Sexual | Age

Gender | Maltreated children presented with a significantly elevated level of BPD precursors compared to non-maltreated children (t(347.85)=4.10, p=.000)

High BPD precursors group differed significantly only on the conflict network score (F(1, 359)=10.66, p=.001) |
| Goldman et al. (1992) Physical and Sexual Abuse Histories Among Children With Borderline Personality Disorder | Case control study within US | 44 children diagnosed with borderline personality disorder (mean age=10.8, SD=3.6) and 100 comparison children (mean age=10, SD-4.3) | DSM-III-R criteria for BPD was adapted to account for developmental difference across childhood; children who met at least four of the eight symptoms were considered to have a diagnosis of BPD

Symptoms: unstable & intense interpersonal relationships, impulsiveness, affective instability, inappropriate intense anger & lack of control of anger, recurrent suicidal threats or self-mutilating acts, marked disturbance in self-perception, chronic feelings of emptiness or boredom & frantic efforts to avoid or major preoccupation with real or imagined abandonment | Physical

Sexual | Age

Gender

Family Occupation | Children with BPD had a significantly greater frequency of abuse than did the comparison group (Chi-square=25.5, df=3, p<.001)

Children with BPD had a significantly greater frequency of physical abuse than did the comparison group (z=2.1, p<.05) but not for sexual abuse |

| Zelkowitz et al. (2001)

Diatheses and Stressors in Borderline Pathology of Childhood: The Role of Neuro-psychological Risk and Trauma | Case control study within Canada | 86 school ages children referred for psychiatric day treatment: 35 met criteria for borderline pathology (age 7-12 years, mean age=9.8) | Diagnostic Interview for Borderlines (C-DIB-R), an assessment used to classify borderline children through chart review (Greenman et al., 1986)

Subscales: Impulsivity, Affect, Psychosis, & Interpersonal Relations | Sexual | Age

Gender | Sexual abuse independently contributed to the logistic regression analyses of borderline pathology (OR=3.98, p=.04)

Other independently associated significant risk factors: witnessing violence (OR=4.92, p=.02), Wisconsin card sorting test (OR=6.17, p=.002), Child Behaviour Checklist-Thought Problems Score (OR=1.08, p=.004) & Continuous performance test (OR=1.09, p=.05)

The combined model of all 5 factors explains 48% of variance in group assignment (Chi-Square=37.9, p<.0001), only CBCL was no longer significant, the other 4 factors continued to make significant contribution to the regression |
|---|---|---|---|---|---|---|
| Hecht et al. (2014)

Borderline personality features in childhood: The role of subtype, developmental timing, and chronicity of child maltreatment | Case control study within US | 314 maltreated and 285 non-maltreated children (age 10-12, mean age=11.3, SD=0.94) | Borderline Personality Features Scale-Child (BPFS-C) (Crick et al, 2005) is a self-report questionnaire used to measure borderline personality features. The scale was developed based on consultation with author of Personality Assessment Inventory (Morey, 1991) a measure used to assess borderline personality pathology in adults

Subscales: affective instability, identity problems, negative relationships & self-harm | Physical

Neglect

Emotional

Physical

Sexual | Age

Gender

Race

Socio-economic status | Maltreated children reported significantly higher levels of borderline features than did non-maltreated children (F(1, 590)=28.3, p<.001)

Physically neglected children had significantly higher scores than did non-maltreated children on all four sub-scales: affective instability (p<.001), identity problems (p=.003), negative relationships (p=.005) & self-harm (p=.001)

Physically abused children had significantly higher scores than did non-maltreated children on: negative relationships (p=.01) & self-harm (p<.001)

Children who had experienced three of four subtypes of maltreatment compared to one or two subtypes presented with an increased level of borderline features (F(2, 589)=14.9, p<.001)

The number of developmental periods the maltreatment occurred (chronicity) significantly predicted higher borderline features (B=2.892, SE=0.544, p<.001)

Logistic regression was used to test if patterns of onset and recency of maltreatment significantly predicted whether a participant would meet criteria for the high risk group (individuals who score 1SD higher than the mean on BPFS-C)- Chi-Square=10.116, df=3, p<.05); Inclusion in the early onset, not recent group significantly predicted whether a participant would meet criteria for high-risk group (B=0.958, SE=0.434, p<.05, OR=2.607); Inclusion in the early onset, recent group was also significant predictor (B=1.166, SE=0.437 p<.01, OR=3.208) |

Gratz et al. (2011) Exploring the Association Between Emotional Abuse and Childhood Borderline Personality Features: The Moderating Role of Personality Traits	Cross sectional study within US	225 children employed from a larger sample (age 11-14 years, mean=12.15, SD=0.82)	The Coolidge Personality & Neuropsychological Inventory for Children (CPNI; Coolidge, 2005) is a 200 item, caregiver respondent measure of DSM-IV Axis I & II pathology and related difficulties among children & adolescents. This study combined the borderline features scale and the trait of affective dysfunction scale. Subscales: inappropriate anger, affective instability, emptiness/boredom, identity problems, transient paranoia or dissociation, efforts to avoid abandonment, self-harm/suicidality, impulsive actions & unstable relationships	Emotional	Depression symptom severity Anxiety symptom severity Delinquent behaviours Oppositional Defiant Disorder Conduct Disorder	Significant correlation observed between BP features and Emotional Abuse (r=.27, p<.01) Emotional abuse accounted for a significant amount of independent variance above and beyond personality traits (F(1,215)=8.69, p<.01) Two way interactions of emotional abuse with both affective dysfunction and impulsivity accounted for a significant amount of additional variance in BP features above and beyond the main effects of these factors (F(2,213)=3.67, p<.05)

3.4 Associations between maltreatment and BPD/borderline features

3.4.1 Study methodology

The studies included in this systematic review used a variety of different populations to investigate the association between maltreatment and BPD or borderline features. Despite different populations and different assessment methods of BPD or borderline features, there was significant convergence across studies: all studies showed a significant association between BPD/borderline features and maltreatment ($p < .05$).

3.4.1.1 Clinical Populations (Children with BPD and children without BPD)

The earliest four studies used clinical populations to assess whether there was a link between BPD and maltreatment (Goldman et al., 1992; Guzder et al., 1996; 1999; Zelkowitz et al., 2001). They compared children who were diagnosed with BPD to children who had other clinical presentations. They all found significant differences between the two groups on a variety of different types of abuse. Children diagnosed with BPD were more likely than those with another psychiatric disorder to have a history of maltreatment.

Two of these studies looked at all four types of abuse (Guzder et al., 1996; 1999), one looked at sexual abuse and physical abuse (Goldman et al., 1992), and one only looked at sexual abuse (Zelkowitz et al., 2001). Three out of the four studies looking at sexual abuse independently (Guzder et al., 1996; 1999; Zelkowitz et al., 2001) found that sexual abuse was significantly more prevalent in children with BPD. One study found that sexual abuse was the only type of abuse that remained significant in a logistic regression (Guzder et al., 1999). One study found that sexual abuse independently was not more prevalent in children with BPD (Goldman et al., 1992).

The two studies looking at severe neglect independently found that severe neglect was more common in children with BPD (Guzder et al., 1996; 1999). Further, two studies looking at physical abuse independently also found that physical abuse was independently more prevalent in children with BPD (Goldman

et al., 1992; Guzder et al., 1999). The two studies exploring emotional abuse did not find that it was independently more prevalent in children with BPD (Guzder et al., 1996; 1999).

3.4.1.2 Maltreated and non-Maltreated children

More recently, three studies have looked at maltreated and non-maltreated children and compared them on the prevalence of borderline features (Cicchetti et al., 2014; Hetch et al., 2014; Rogosch & Cicchetti, 2005). All three studies showed that maltreated children were significantly more likely to present with borderline features compared to non-maltreated children.

These studies looked at all four types of abuse. One study showed that there were no significant differences in prevalence of different types of abuse in the maltreated group, suggesting that all types of abuse may contribute to the risk of having borderline features (Rogosch & Cicchetti, 2005). One study showed that physically neglected children scored significantly higher on borderline features, and physically abused children scored significantly higher on only two out of four of the borderline features (Hetch et al., 2014). The remaining study did not explore any differences between maltreatment types (Cicchetti et al., 2014).

3.4.1.3 Cohort Studies

Three studies used children from larger cohort studies (Belsky et al., 2012; Gratz et al., 2011; Winsper et al., 2012). Children in these studies were followed from birth until 11 or 12 years old. All three studies showed that children who had early experiences of maltreatment were more likely to be diagnosed with BPD or present with borderline features at age 11 or 12.

Two of these studies looked at physical and emotional abuse (Belsky et al., 2012; Winsper et al., 2012). Both studies showed that physical and emotional abuse were both independently positively associated with borderline features. One study only looked at emotional abuse (Gratz et al., 2011) and found significant correlations between emotional abuse and borderline features.

3.4.2 Summary of Maltreatment type across studies

Across the studies, all types of abuse and neglect were found to be significantly associated with borderline features or BPD. Physical abuse was independently associated with BPD/borderline features in five studies (Belsky et al., 2012; Goldman et al., 1992; Guzder et al., 1999; Hetch et al., 2014; Winsper et al., 2012); contrary to this however, one study showed that physical abuse was not more prevalent in children with BPD (Guzder et al., 1996) and one study showed that children with higher levels of borderline features did not have higher levels of physical abuse compared to other types of abuse (Rogosch & Cicchett, 2005). Therefore, five out of seven studies (71%) showed that physical abuse was independently associated with BPD or borderline features compared to other types of abuse or neglect.

Sexual abuse was independently associated with BPD/borderline features in three studies (Guzder et al., 1999; Guzder et al., 1996; Zelkowitz., 2001); however, one study showed that sexual abuse was not more prevalent in children with BPD (Goldman et al., 1992) and two studies showed that children with higher levels of borderline features did not have higher levels of sexual abuse compared to other types of abuse (Hetch et al., 2014; Rogosch & Cicchetti, 2005). Therefore, three out of six studies (50%) showed that sexual abuse was independently associated with BPD or borderline features compared to other types of abuse or neglect.

All three cohort studies showed that emotional/verbal abuse was independently associated with BPD or borderline features (Belsky et al., 2012; Gratz et al., 2011; Winsper et al., 2012); however, two studies showed that emotional abuse was not more prevalent in children with BPD (Guzder et al., 1996; 1999) and two studies showed that children with higher levels of borderline features did not have higher levels of emotional abuse compared to other types of abuse (Hetch et al., 2014; Rogosch & Cicchetti, 2005). Therefore, three out of six studies (50%) showed that emotional abuse was independently associated with BPD or borderline features compared to children who have not been maltreated.

Three out of four studies looking at neglect showed that neglect was independently associated with BPD/borderline features (Guzder et al., 1999;

Guzder et al., 1996; Hetch et al., 2014); although another study looking at maltreatment subtypes showed that the highest prevalence of BPD precursors was within the neglected group they did not find significant differences across subtypes of maltreatment (Rogosch & Cichetti, 2005). Therefore, three out of four studies (75%) showed that neglect was independently associated with BPD or borderline features compared to other types of abuse.

In summary, all types of abuse and neglect have been found to be significantly associated with borderline features or BPD. These results suggest that any one type of abuse is not necessarily significantly more associated with borderline features/BPD compared to other types of abuse. Although in the adolescent review (Newnham & Janca, 2014) sexual abuse appeared more prevalent compared to other types of abuse in adolescents with borderline features, the same pattern has not been observed in this review.

3.4.3 Dose of Maltreatment

Two studies also explored whether more types of abuse has an increased association with BPD/borderline features; children with more types of abuse were more likely to be in the BPD group (Guzder et al., 1996) and more likely to show an increased level of borderline features (Hetch et al., 2014). Furthermore, children who had experienced maltreatment across more developmental periods presented with a significantly higher level of borderline features (Hetch et al., 2014). Higher odds ratios were also observed when two types of abuse were factored rather than one for association between abuse and borderline features (Winsper et al., 2012).

3.4.4 Genetic vulnerability

Research looking at genetic vulnerability (Belsky et al., 2012) and specific genotype associations (Cicchetti et al., 2014) were also reported. Results showed that family history of psychiatric problems did contribute to presentation of borderline features (Belsky et al., 2012) contributing to the idea of a diathesis-stress model. Cicchetti and colleagues (2014) investigated two genotype groups (OXTR and FKBP5) and did not find any main effects of borderline features;

however, moderation of maltreatment effects was found. A three-way interaction between gender, environment and genotype was reported (Cicchetti et al., 2014). This is in line with the adolescent literature highlighting that genetic factors can also influence the risk of developing borderline features in adolescence (Boornovalovo et al., 2013).

3.4.5 Cognitive and executive functioning

Four studies explored cognitive and executive functioning and its association with borderline features in maltreated children (Belsky et al., 2012; Gratz et al., 2011; Rogosch & Cicchetti., 2005; Zelkowitz et al., 2001). All four studies found a significant association between borderline features and cognitive or executive functioning difficulties. Lower levels of intellectual functioning (Belsky et al., 2012) and deficits in executive functioning skills (Belsky et al., 2012; Rogosch & Cicchetti., 2005; Zelkowitz et al., 2001) were associated with increased risk of borderline features. Children with borderline features were also found to have difficulties with Theory of Mind (Belsky et al., 2012) and temperament/impulsivity (Belsky et al., 2012; Gratz et al., 2011).

3.4.6 Parental risk factors

Other parental risk factors in addition to maltreatment were also considered in five studies. All five studies found significant associations between borderline features and other parental risk factors. Domestic violence (Guzder et al., 1999; Winsper et al., 2012; Zelkowitz et al., 2001) and parental dysfunction (including substance misuse, criminality or family psychiatric history) were all linked to a heightened risk of BPD/borderline features (Belsky et al., 2012; Guzder et al., 1999; Guzder et al., 1996). Parental divorce was also associated with higher risk of developing borderline features in one study (Guzder et al., 1999). This is in line with early research suggesting that children diagnosed with BPD were more likely to have chaotic family lives (Bemporad et al., 1982).

3.4.7 Other factors associated with borderline features or BPD

One study looked at externalising and internalising problems (Belsky et al., 2012) and one study looked at Post Traumatic Stress Disorder (PTSD; Guzder et al.,

1996). Children who were reported by their carers as having higher levels of borderline features also had higher levels of externalising and internalising problems (Belsky et al., 2012). Further, PTSD was significantly associated with diagnosis of BPD (Guzder et al., 1996). The adolescent review also highlights the difficulties in disentangling BPD from PTSD (Newnham & Janca, 2014).

In addition one study looking at negative outcomes in maltreated children with borderline features found that children who had a diagnosis of BPD were more likely than those without to have been referred to youth protection, to be hospitalised, and to have been in foster care (Guzder et al., 1996).

4. Discussion

This systematic review aimed to summarise the association between maltreatment and borderline features in children; it was predicted that there would be a significant association between maltreatment and borderline features. The ten studies included in this review are in consensus that there is a link between maltreatment and borderline features in childhood despite different methodologies used to assess this. Four of the ten studies looked at histories of children with borderline features to explore any evidence of maltreatment and six studies explored whether maltreated children presented with borderline features. From the ten studies, four studies showed that children with BPD/borderline features were more likely to have a history of maltreatment compared to children with other clinical presentations (Goldman et al., 1992; Guzder et al., 1999; Guzder et al., 1996; Zelkowitz et al., 2001). The more recent six studies showed that maltreated children compared to non-maltreated children were more likely to present with borderline features (Belsky et al., 2012; Cichetti et al., 2014; Gratz et al., 2011; Hetch et al., 2014; Rogosch & Cicchetti., 2005; Winsper et al., 2012). This supports the current adult literature showing links between maltreatment and adult BPD (Allen, et al., 2013; Amstadter et al., 2013; Pietrek et al., 2013). Further, it suggests a link between borderline features in childhood and adult BPD.

Across the studies there was some evidence that all types of abuse and neglect were independently associated with borderline features; physical abuse (Belsky et al., 2012; Goldman et al., 1922; Guzder et al., 1999; Hetch et al., 2014; Winsper et al., 2012), sexual abuse (Guzder et al., 1999; Guzder et al., 1996; Zelkowtiz., 2001), emotional/verbal abuse (Belsky et al., 2012; Goldman et al., 1991; Gratz et al., 2011), and neglect (Guzder et al., 1999; Guzder et al., 1996; Hetch et al., 2014). Children who had experienced more than one type of abuse (Hetch et al., 2014; Guzder et al., 1996; Winsper et al., 2012) and that there was evidence of a cumulative effect of maltreatment, such that those who had experienced maltreatment across more developmental periods showed significantly higher levels of borderline features (Hetch et al., 2014). This is somewhat in contrast to the adolescent literature showing that sexual abuse as a more specific risk factor

for development of borderline features in adolescence compared to other types of abuse (Newnham & Janca, 2014). These conclusions add to the existing literature suggesting that maltreatment in general is a risk factor for borderline features in children and BPD in adults (Ball & Links, 2009); however, are in contrast with the recent review on adolescents shower higher prevalence of borderline features in adolescent who have experienced sexual abuse (Newnham & Janca, 2014). Furthermore, the severity (multiple types of abuse over multiple time periods) heightened the risk of developing borderline features (Hetch et al., 2014) similar to the adult literature (Sansone et al., 2005). Therefore children who have been maltreated have a heightened risk of developing borderline features in childhood compared to non-maltreated children and children with other psychiatric disorders. The more severe the maltreatment the higher the risk of developing borderline features.

While the effects of environmental and especially abuse have long been indicated in the development of BPD, studies have also shown an emerging role for biological risk factors. For instance, findings also highlight genetic vulnerability (Belsky et al., 2012) and specific genotype associations (Cicchetti et al., 2014) in pre-adolescent maltreated children. Belsky and colleagues (2012) concluded that family psychiatric history was an independent risk factor for borderline features. Although Cicchetti and colleagues (2014) did not find any main effects of genotype groups (OXTR and FKBP5) with borderline features, a moderation of maltreatment effects was found when the two-genotype groups were considered. A three-way interaction between gender, environment and genotype was reported (Cicchetti et al., 2014). These findings contribute to the diathesis stress model of borderline features in children (Belsky et al., 2012). This is in line with the adolescent literature showing a genetic vulnerability to developing borderline features in adolescence (Bornovalova et al., 2013).

Consistent with adult literature, this review has identified various factors in addition to maltreatment that are associated with the development of borderline features in childhood. Deficits in cognitive and executive functioning skills (Belsky et al., 2012; Rogosch & Cicchetti., 2005; Zelkowitz et al., 2001) and

difficulties with temperament/impulsivity (Belsky et al., 2012; Gratz et al., 2011) were found. Externalising and internalising difficulties (Belsky et al., 2012) and PTSD (Guzder et al., 1996) were also associated with borderline features.

Parental factors such as domestic violence, parental divorce (Guzder et al., 1999; Winsper et al., 2012; Zelkowitz et al., 2001) and parental dysfunction (including substance misuse, criminality or family psychiatric history) were all linked to an increased risk of BPD/borderline features (Belsky et al., 2012; Guzder et al., 1999; Guzder et al., 1996). This is in line with early literature showing that children with a diagnosis of BPD were more likely to have chaotic family lives (Bemporad et al., 1982).

In summary children who have experienced maltreatment such as physical, sexual, emotional abuse and/or neglect have an increased risk of developing borderline features compared to those who have not been maltreated. Genetic vulnerability and parental dysfunction such as chaotic family lifestyle, insecure attachment styles and substance misuse in parents are also likely to impact on the risk of developing borderline features. Further, executive functioning difficulties and other internalising and externalising difficulties are associated with borderline features. Future research is required to disentangle these factors and their developmental pathways to borderline features.

4.1 Limitations of studies reviewed

One of the limitations of the studies is that they use different populations to explore the link between maltreatment and borderline features. The earlier studies explore the histories of children with BPD whereas the more recent studies explore whether maltreated children present with borderline features. Furthermore, they all use different methods to diagnose BPD or identify borderline features. Some used subjective measures that were fairly new and had not been validated. Others used self-report measures that are subject to informant bias. Despite these differences it is important to note that all studies have found an association between maltreatment and borderline features, and there is evident overlap between the subscales of the instruments used to measure borderline features. Furthermore, most of the studies have very large

sample sizes adding to the power and significance of the findings. These results show a convergence across studies and robustness of effect regardless of methodology.

Another limitation of the studies included is that the majority use different definitions and classifications of abuse/neglect. In addition, studies that have attempted to show an independent association between one type of abuse or neglect should be interpreted with caution. Often, children would have experienced more than one type of maltreatment (Rogosch & Cicchetti, 2005). Studies also did not reliably consider the severity of maltreatment experienced and how this could have impacted on borderline features. There is currently limited research looking at the individual types of abuse/neglect associated with borderline features, and so this review was unable to expand on this.

4.2 Strengths and Weaknesses of Methodology

The systematic review was conducted in line with recent systematic review guidelines (Higgins & Green, 2006). In particular, the use of two independent raters for the selection process reduces selection bias. Furthermore, three separate databases were used to identify papers, in addition to Google Scholar and reference lists. This reduced the likelihood of studies not being identified. The results of the review are in line with existing literature linking borderline features in childhood with maltreatment. All studies were in consensus that children with borderline features were more likely to have been maltreated; and children who have been maltreated were likely to have borderline features. The studies are also in line with current research showing that there is a link between maltreatment and BPD in childhood and adulthood (Balls & Links, 2009).

One of the limitations of the methodology used in this review is the search terms used for borderline features. Although 'borderline' was used as a search term along with 'disorder, traits, personality, state and features' in particular early research may have used different terminology to describe this construct in children such as 'multiple complex developmental disorder' (Cohen, Paul & Volkmar, 1987; Lincoln, Bloom, Katz, & Boksenbaum, 1998). Thus, early studies using this terminology may have not been identified during the selection process.

Nevertheless, it is felt that this would have been identified through reference lists that refer to this different terminology; therefore it is not a high level of concern.

Another limitation of this review is that only ten studies were identified through the selection process and included; however, it is felt that the search strategy was thorough. Thus, this suggests that further research is needed in this area. In particular, longitudinal studies showing the link between borderline features and later pathology is crucial.

4.3 Clinical implications

This review suggests that in children who have been maltreated, borderline features do emerge in childhood and that children suffer from symptoms such as affective instability, negative relationships and difficulties with self-concept. These symptoms may be pre cursors o the development of BPD in adolescence and adulthood. BPD is unlikely to suddenly develop in adulthood (Winsper et al., 2012). Although the trajectory between borderline features in childhood and BPD in adulthood still requires exploration, the risk factors associated with both are very closely linked (Ball & Links, 2009). Furthermore, the borderline features described in these studies are closely linked to the sub-threshold presentations described in children who have been maltreated (DeJong, 2010). A critical problem reported is that maltreated children do not get referred to psychological services (Dimigen, Del Priore, Butler, Evans, Ferguson & Swan, 1999; McCann, James, Wilson, & Dunn, 1996). Although it is not favoured to diagnose children of such a young age with BPD an understanding of a construct such as borderline features, which includes some of these sub-threshold presentations, identifies a clinically significant unmet need in these children. Thus, this may be a way that these children could gain access to services. Early identification and tailored interventions can be a fundamental way to reduce the risk of severe and enduring mental health difficulties in adulthood such as BPD (McAuley & Davis, 2009).

History of childhood maltreatment has also been associated with insecure attachment and BPD (Stalker & Davies, 1995; Zanarini, Yong, Frankenburg, Hennen, Reich, Marino & Vujanovic, 2002); however, the studies reviewed have not considered attachment as a moderator or mediator between maltreatment

and borderline features. There is some emerging research that has shown that extended early maternal separations independently predicted borderline features during development (Crawford et al., 2009). The quality of attachment needs further exploration in relation to borderline features and its development in childhood. Depending on the type and quality of attachments formed post maltreatment these could act as a risk or protective factor in the development of borderline features.

Although verbal abuse (Guzder et al., 1996; 1999) and mothers' negative expressed emotion (Belsky et al., 2012) was explored, parenting styles have also not been considered in any of these studies. Exploring parenting styles and its link to borderline features could help identify protective as well as risky styles of parenting in relation to the development of borderline features. A recent study has shown that aversive parenting (i.e. authoritarian, permissive, and psychologically controlling) significantly contributed to the development of borderline features in female adolescents. The same study showed that authoritative parenting was a protective factor against borderline features in adolescent males (Nelson et al., 2014).

Although all studies have reported an association between maltreatment and borderline features only two of the studies within this review are longitudinal. More studies need to be conducted to assess whether the borderline features observed in these studies are later developed into BPD (Rogosch & Cicchetti, 2005) or indeed if they may be a generic factor for other disorders. This would not only support understanding of developmental pathways between maltreatment and BPD but also understanding resilience factors for those whose borderline features diminish with age. These identified protective factors would support development of early intervention services for maltreated children presenting with borderline features or at risk of developing these features.

In order to be able to develop early interventions for maltreated children presenting with borderline features a clear assessment pathway is also necessary. As these symptoms are very broad and do not fit a particular clinical diagnosis for children they can often be undetected. Furthermore, it has been highlighted that

these particular features only become evident over a long periods of time as opposed to during one assessment (Bemporad et al., 1982). This is an important concept to hold in mind; if these features are difficult to identify they are likely to develop into more enduring problems in the future and become harder to treat. Another reason that these symptoms may not be identified early on is a lack of appropriate measures to assess them, or clinical professionals are dismissive of the features because they don't meet threshold and are therefore not considered priority to treat. The results of this study should be interpreted with caution as 'borderline features' is a relatively new concept being explored in children and replication of findings using validated measures is necessary (Belsky et al., 2012). A critical remaining question is whether 'borderline features' in childhood is most usefully conceptualised as a construct or individual features as research is largely based on the construct of BPD in adults. Evidently, the lack of treatment for children presenting with 'borderline features' is rooted in a history of resistance to identify differences between 'borderline features' in childhood and adult BPD (Hawes, 2013). Further, the risk factors associated with 'borderline features' may be tapping into a broader risk profile for later psychopathology (Belsky et al., 2012).

In line with these considerations a recent review has highlighted that BPD is a priority for developing evidence based prevention and early intervention pathways for a number of different reasons. Some of the highlighted reasons are that BPD is highly prevalent in clinical practice amongst mental health problems, it can cause the most impairment in vocational and social functioning, and it is linked to high levels of suicidality. They also argue that it can be diagnosed in the early stages of the disorder and that borderline features in adolescence are flexible thus, this developmental period is a good stage to intervene (Chanen & McCutcheon, 2013). Research highlights the types of interventions that have been successful in treating BPD in adults such as dialectical behavioural therapy (DBT) and mentalization-based therapy (MBT; Bateman & Fonagy, 2008; Bateman, Ryle, Fonagy & Kerr, 2007; Chiesa, Fonagy, & Holmes, 2006; Linehan, Comtois, Murray, Brown, Gallop, Heard, Korslund, Tutek, Reynolds & Lindenboim, 2006; Linehan, Dimeff, Reynolds, Comtois, Wlch, Heagerty & Kivlahan, 2002). There are also

some new early intervention programmes that have shown to be effective with young people who have borderline traits such as cognitive analytical therapy (CAT) and emotional regulation group training (Chanen, Jackson, McCutcheon, Jovev, Dudgeon, Yuen, Germano, & McGory, 2008a; Chanen, McCutcheon, Germano, Nistico, Jackson, & McGorry, 2009; Schuppert, Giesen-Bloo, van Gemert, Wiersema, Minderaa, Emmelkamp, & Nauta, 2009). Further research is needed to develop universal early intervention and prevention programmes. Identifying risk factors can be an important step in these developments.

If there are novel treatment methods being developed for young people with borderline features (Chanen et al., 2008a; Chanen et al., 2009; Schuppert et al., 2009) and there is a considerable overlap between maltreated children presenting with sub-thresholds diagnoses and children with borderline features; then the same novel practices can be used as a first step in developing early intervention services for maltreated children. This may reduce the likelihood of these children developing severe and enduring mental health problems during adulthood.

4.4 Conclusions

This systematic review showed convergence across all ten studies reviewed. All ten studies show significant associations between maltreatment and borderline features despite methodology. This review further adds to the literature that borderline features are closely related to experiences of childhood maltreatment, but also highlights other factors such a genetic vulnerability. Further, that these borderline features are present in childhood and methods of identifying these features should be developed. Although there are only a limited number of studies showing the link between maltreatment and borderline features in children the clinical implications are fundamental in shaping early intervention services. In particular as these features can be risk factors for later severe and enduring mental health difficulties (Belsky et al., 2012). Future research should explore the link between borderline features in childhood and later pathology through longitudinal studies. The severity of maltreatment by number of types experienced and duration should be considered in these studies. Standardised

classification systems such as the Maltreatment Classification System (MCS; Barnett, Manly & Cicchetti, 1993) could be used to define maltreatment. This research would also help identify and develop early intervention services.

5. References

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Decision-Making Skills, Memory and Borderline Features in Looked After

Children: A case control study

Jeyda Ibrahim

Supervisor: Dr Matt Woolgar & Dr Nicola Cosgrave

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Abstract

Aim: To identify specific decision-making processes and 'borderline features' in pre-adolescent Looked After Children (LAC), which may have implications for the risk for increased mental health problems, educational challenges and general social dysfunction that has reliably been identified in this population.

Method: The subjects were children who were LAC (n=29; eighteen males, eleven females) or non-LAC (n=38; eleven males, twenty-seven female), who were all pre-adolescents (range: 9-12, mean: 10.4 years). All children completed tests of intellectual functioning (WASI-II), decision-making skills and memory (CANTAB). Further, children completed self-report measures on mood (MFQ) and 'borderline features' (BPFS-C).

Results: LAC had significantly poorer decision-making skills compared to non-LAC regardless of their age and level of intellectual functioning. No significant differences were found for memory between the two groups. Contrary to predictions, there was some evidence of lower 'borderline features' and lower levels of low mood in the LAC group. Weak associations found between poorer decision-making skills and higher levels of 'borderline features'.

Conclusions: Although LAC presented with deficits in decision-making skills compared to non-LAC, contrary to predictions, this did not appear to be directly related to 'borderline features'. 'Borderline features' require further investigation within this population using other forms of assessment such as clinician assessment or carer/teacher report.

1. Introduction

'Looked after children' (LAC) are children who are in care of local authority social services departments, either on a voluntary basis or as a result of a court order under the Children Act 1989. Most children who are in care within the United Kingdom (UK) are placed in foster care; others may be placed in a residential setting, kinship care or remain with their biological parents whilst still being subject to a care order (DfES, 2005b). In the UK, LAC are acknowledged by both the *National Service Framework* (Department of Health, 2004) and *Every Child Matters* (Chief Secretary to the Treasury, 2003), as a population who are at high risk of psychological difficulty (Ford, Vostanis, Meltzer & Goodman, 2007). In spite of their complex difficulties there is increasing evidence showing limited access to mental health services (Rao, Ali & Vostanis, 2010).

1.1 Profiles of Looked After Children

In their review, Oswald, Heil and Goldbeck (2010) showed that LAC experience high rates of maltreatment, mental health problems and developmental delay. Mental health problems included a broad range of both externalising and internalising symptoms. Further, a wide variety of psychiatric diagnoses have been identified, including depression (Allen, Combs-Orme, McCarter & Grossman, 2000), post-traumatic stress disorder (PTSD; Dubner & Motta, 1999), substance abuse (Pilowsky & Mu, 2006), eating disorders (Tarren-Sweeney, 2006), attention deficit hyperactivity disorder (ADHD) and conduct disorder (Oswald et al., 2010; Shin, 2005).

Similar findings have also been shown by a national survey within the UK. LAC had higher levels of psychopathology, educational difficulties and neuro-developmental disorders compared to normal sample of children living with their birth families, and even with a group of low socio-economic private household children (Ford et al., 2007). Moreover, two fifths of LAC diagnosed with a mental health disorder were not in contact with an appropriate service and two thirds

with enduring mental health disorder had not been in contact with child and adolescent mental health services over three years (Ford et al., 2007).

LAC experience problems beyond mental health. For example, in comparison to the general population, LAC achieve much lower levels of educational attainment than the national cut off of 5 A*-C GCSE's, 12% compared to 53% respectively (DfES, 2010). In addition, LAC are nine times more likely to hold a statement of special educational needs compared to non-LAC children and three times more likely to be cautioned or convicted for a criminal offence (McAuley & Young, 2006). LAC are found to show difficulties in adjusting to school in terms of academic achievement (Pears, Fisher, Bruce, Kim & Yoerger, 2010) and peer relationships (Hodges & Tizard, 1989).

A significant proportion of children that are looked after within the UK have been exposed to abuse (physical, sexual and emotional) and/or neglect (DHSSPS, 2004; Scottish Executive, 2004; National Assembly for Wales, 2005; DfES, 2005b). Due to the high rate of maltreatment experienced by LAC, the effects of maltreatment are also relevant to their profile of difficulties. The detrimental effects of child maltreatment have been well documented and include high rates of deficits in cognitive, emotional and psychosocial functioning (Bolger & Patterson, 2001; Bolger, Patterson, & Kupermidt, 1998; English, Upadhyaya, Litrownik, Marshall, Runyan, Graham, & Dubowitz, 2005; Manly, Cichetti, & Barnett, 1994; Pears, Kim & Fisher, 2008). In their review, Cicchetti and Valentino (2006) reported that maltreatment in childhood is linked to poor cognitive outcomes, difficulties with adapting to school, externalizing problems, maladaptive development of self-concept, and diagnoses of most Axis 1 disorders (Jaffee & Maikovich-Fong, 2012).

More recently, Rees (2013) also showed significantly poorer outcomes on mental health, intellectual functioning, emotional literacy, and cognitive functioning in LAC. Despite the listed impairments in functioning in multiple domains, LAC also show very high rates of resilience in particular when they are removed from environments of adversity and are placed with carers who provide stability and supportive care (Fisher, 2015). This further emphasizes the significance of early

identification and prevention to give LAC an opportunity to fulfil their potentials as adults.

A number of studies have also described factors such as low self-esteem (Fernandez, 2008), relationship problems and impulsivity in LAC (Bruce, Tarullo & Gurnar, 2009; Pears, Bruce, Fisher, & Kim, 2010) factors which are closely related to 'borderline personality features'. DeJong (2010) described a case example showing the atypical presentation of a looked after child. The child had symptoms comprising of difficult peer relationships, struggles with education, impulsive outbursts and challenging behaviour despite having a normal level of intellectual functioning. A meta-analysis has also shown that these deficits are not associated with lower levels of intellectual functioning (van IJzendoorn, Juffer, Klein, & Poelhuis, 2005). Further assessment showed that he had executive functioning difficulties, low self-esteem, poor affect regulation, mild low mood at times, and that he was susceptible to experiencing feelings of abandonment and rejection. This child only met diagnosis for Conduct Disorder but sub-threshold diagnoses in other areas of functioning such as cognitive, social, behavioural and emotional (DeJong, 2010).

In addition to frank maltreatment, having multiple foster placement can be a risk factor in difficulties with secure attachments and has also been found to be associated with a low self-esteem (Fernandez, 2008). It has been suggested that these insecure attachments could impede the development of positive identities, as found in 'borderline features' (Lasson, 2002). LAC have also been observed to show social disinhibition, especially inappropriate friendliness to strangers (Fisher, 2015), which has been linked to difficulties with inhibitory control (Bruce et al., 2009; Pears et al., 2010). Winter and Cohen (2005) have also argued that the limited available knowledge of a child's history and the associated loss can also have an impact on identity development in LAC (Madigan, Quayle, Cossar & Paton, 2013).

1.1.1   Cognitive and Executive Functioning

Several studies have shown specific cognitive and executive functioning deficits in LAC. Delays have been shown in cognitive, language and emotional development (Fisher, 2015). Deficits have been observed in expressive and receptive language, visuospatial processing, verbal/performance related cognitive skills (Pears & Fisher, 2005a); visual memory, attention, visual learning, inhibitory control (Pollack, Nelson, Schlaak, Roeber, Wewerka, Wiik, & Gunnar, 2010); emotional understanding and theory of mind (Pears & Fisher, 2005b). Further research supporting these findings has shown that LAC perform poorly on neuropsychological tests measuring executive functioning skills such as memory and inhibitory control (Lewis, Dozier, Ackerman, & Sepulveda-Kozakowski, 2007; Pears, Kim, & Fisher, 2008).

Given the high prevalence of maltreatment in LAC (Oswald et al., 2010), the profiles of maltreated children could aid in our understanding of the gaps in LAC data. Thus delays have been found for a variety of cognitive processes in addition to intelligence including short-term memory, language, executive function and theory of mind within the maltreated population (Carrick, Quas, & Lyon, 2009, Cicchetti, Rogosch, Maughan, Toth, & Bruce, 2003). A recent systematic review concluded that children who experience maltreatment perform poorly on tasks assessing verbal episodic memory, working memory, attention and executive functions (Irigaray, Pacheco, Grassi-Oliveira, Fonseca, Leite & Kristensen, 2013).

There have been no studies to date looking at decision-making skills in LAC; however, a few studies have looked at the decision-making processes of children who have been maltreated. Studies have shown that children who have been maltreated were quicker to select a risky option (Guyer, Kaufman, Hodgdon, Masten, Jazbec, Pine, & Ernst, 2006) and slower to make choices (Weller & Fisher, 2012) in decision making tasks. The role of impaired decision making is important given the large body of research on negative outcomes associated with maltreatment, which is associated with decision-making processes that are issues in the LAC population, such as sexual activity at a younger age (Tapert, Aarons,

Sedlar, & Brown, 2001) and elevated substance misuse (Fergusson, Horwood, & Lynskey, 1994).

A few studies have looked at the role of memory in maltreated children. A recent review concluded that maltreatment in childhood is associated with especially robust memory for emotionally distressing material but that maltreatment can impair memory for such material in individuals who have an avoidant coping style. Paz-Alonso and colleagues suggested investigating the possibility of increased memory errors in maltreated children, not least because an understanding of the errors in memory processes for LAC could provide clear, precise, and practical recommendations to legal, clinical and policy professionals for these children (Paz-Alonso, Larson, Castelli, Alley, & Goodman, 2009).

1.2 Borderline Personality Disorder (BPD) and Maltreatment

To date, BPD has been the most documented personality disorder associated with childhood maltreatment (Cicchetti & Valentino, 2006; Zanarini, 2000). BPD effects between 1 to 6% of the population and is characterised by interpersonal difficulties, impulsivity, affective instability and difficulties with the concept of self (Grant, Goldstein, Huang, Stinson, Saha, Sharon, Smith, Dawson, Pulay, Pickering & Ruan, 2008; Lenzenweger, 2008; Torgersen, Kringlen, & Cramer, 2001).

Current theories of BPD are diathesis-stress models that suggest an interaction between a child's genetic vulnerability and maltreatment within the family environment (Crowell, Beauchaine, & Linehan, 2009; Fonagy, Target, & Gergely, 2000; Gunderson & Lyons-Ruth, 2008; Linehan, 1993; Paris, 2005; Zanarini & Frankenburg, 2007). There is evidence that both inherited and environmental factors influencing the development of BPD. Studies of adults diagnosed with BPD show it is familial (Zanarini, Barison, Frankenburg, Reich, & Hudson, 2009) and twin cohort studies show it is heritable (Distel, Trull, Derom, Thiery, Grimmer, Martin, Willemsen & Boomsma, 2008; Kendler, Aggen, Czajkowski, Roysamb, Tambs, Togersen, Neale, Reichborn-Kjennerud, 2008; Torgersen, Czajkowski, Jacobson, Reichborn-Kjennerud, Roysamb, Neale & Kendler 2008; Torgersen,

Lygren, Oien, Skre, Onstad, Edvardsen, Tambs, & Kringlen, 2000). A recent study showed that borderline personality related characteristics were heritable in children as young as 12 and were mediated by environmental factors such as harsh punishment and mother's negative expressed emotion (Belsky, Caspi, Arseneault, Bleidorn, Fonagy, Goodman, Houts & Moffitt, 2012).

Experience of trauma and adversity during childhood has repeatedly been associated with BPD and similar personality features in adulthood (Allen, Cramer, Harris & Rufino, 2013; Amstadter, Aggen, Knudsen, Reichborn-Kjennerud & Kendler, 2013; Pietrek, Elbert, Weierstall, Muller & Rockstroh, 2013). As high as 71% of individuals diagnosed with BPD report a history of severe maltreatment in childhood (Cicchetti & Valentino, 2006; Lieb, Zanarini, Schmahl, Linehan, & Bohus, 2004; Widom, Czaja, & Paris, 2009). In addition, maltreatment has been shown to predict borderline features independent of family environment and parental psychopathology (Bradley, Jeneai, & Westen, 2005). Maltreatment has been highlighted as a causal factor for developing BPD (Ball & Links, 2009). Although most of these studies have been retrospective, a recent prospective study by Widom and colleagues (2009) has shown that physically abused and neglected children were at heightened risk of meeting criteria for BPD as adults.

Recently, researchers have suggested that effective prevention and early intervention of BPD is possible. However, improved pathways to identify children at risk are required (Chanen, Jovev, McCutcheon, Jackson, & McGorry, 2008). This could be particularly important for children who are at risk of later psychopathology such as those who are maltreated or LAC. Literature has highlighted the similarities of particular features between children who have been maltreated and adults with BPD such as affective instability, difficult relationships, negative self-concepts, increased risk of suicidal ideation and suicidal behaviour as well as development of psychopathology (Rogosch & Cicchetti, 2005). Whilst not all maltreated or LAC will develop borderline features or BPD the link between BPD in retrospective studies and the relatively high prevalence of maltreatment suggests that maltreated children would be a high-

risk group for developing BPD compared to children who have not been maltreated (Rogosch & Cicchetti., 2005).

1.2.1 Maltreatment and Borderline Personality Features in Children

Similar links have been made between children who have been maltreated and children presenting with 'borderline personality features'. 'Borderline features' can now be detected in children as young as 9 years old. Recently, studies have shown that maltreated children compared to non-maltreated children were more likely to present with borderline features (Belsky et al., 2012; Cichetti, Rogosch, Hetch, Crick & Hetzel, 2014; Gratz, Latzman, Tull, Reynolds & Lejuez, 2011; Hetch, Cicchetti, Rogosch & Crick, 2014; Rogosch & Cicchetti., 2005; Winsper, Zanarini & Wolke, 2012). Earlier studies showed that children with BPD/borderline features were more likely to have a history of maltreatment compared to children presenting with other clinical disorders (Goldman, D'Angelo, DeMaso & Mezzacappa, 1992; Guzder, Paris, Zelkowtiz & Feldman, 1999; Guzder, Paris, Zelkowitz & Marchessault, 1996; Zelkowitz, Paris, Guzder & Feldman, 2001). This supports the current adult literature showing links between maltreatment and adult BPD (Allen, et al., 2013; Amstadter et al., 2013; Pietrek et al., 2013). Further, it suggests a possible link between borderline features in childhood and adult BPD although longitudinal studies are required to clarify developmental pathways.

A more recent prospective study showed that extended separations from the mother prior to the age of five heightened the risk of BPD symptoms during early adolescence and mid adulthood (Crawford, Cohen, Chen, Anglin & Ehrensaft, 2009), which could be a frequent factor for LAC. Other parent risk factors in addition to maltreatment associated were; domestic violence (Guzder et al., 1999; Winsper et al., 2012; Zelkowitz et al., 2001) and parental dysfunction (including substance misuse, criminality or family psychiatric history). These were all linked to a heightened risk of BPD/'borderline features' (Belsky et al., 2012; Guzder et al., 1999; Guzder et al., 1996) and common in the LAC population.

1.2.2 Cognitive and Executive Functioning associated with BPD and Borderline Features

Executive functioning skills have also been explored as risk factors, which may heighten levels of borderline features in children. It has been shown that children with 'borderline features' showed deficits in executive functioning (Paris, Zelkowitz, Guzder, Joseph & Feldman, 1999) and deficits in executive functioning made significant contributions to regression models of risk factors associated with 'borderline features' (Zelkowitz et al., 2001). Difficulties on a variety of executive functioning tasks (Belsky et al., 2012; Rogosch & Cicchetti., 2005; Zelkowitz et al., 2001) and temperament/impulsivity (Belsky et al., 2012; Gratz et al., 2011) were also reported to be associated with BPD/borderline features. Furthermore, adults with BPD (Posner, Rothbart, Vizueta, Thomas, Levy, Fosella, Silbersweig, Stern, CLarking & Kernberg 2003) and children with borderline traits (Rogosch & Cicchetti, 2005) have shown reduced performance on the conflict resolution tasks (a measure of ability to resolve conflict) compared to matched controls. Similar executive functioning difficulties have been observed in LAC (Fisher, 2015).

A meta-analysis exploring the neuropsychological profile of adults with BPD showed that individuals with BPD performed worse across a number of different neuropsychological functions compared to controls. These domains included: attention, cognitive flexibility, learning and memory, planning, processing speed and visuo-spatial abilities (Ruocco, 2005). Bringing this together, one study found that adults with BPD, including those whom had been explicitly maltreated, performed significantly worse on decision-making, short-term recall, and cognitive control tasks. Indeed, a history of maltreatment was also significantly correlated with executive dysfunction, including decision-making and at a trend level with impaired recall (Minzenberg, Poole, & Vinogradov, 2008).

1.3 Current Study

The aim of this study is to identify the cognitive factors that underlie difficulties with executive processes such as decision-making skills and memory in the LAC population. Deficits in these areas have been shown related groups, including

maltreated children (Fisher, 2015), adults with BPD (Ruocco, 2005) and children with borderline features (Paris et al., 1999). Some of the complex difficulties of LAC described are very similar to those of adults with BPD and maltreated children with 'borderline features'. To our knowledge, previous research has not explored the presence of 'borderline features' in pre-adolescent LAC. The study will explore whether 'borderline features' and the specific executive difficulties of decision-making skills and memory are present in LAC, and whether executive difficulties can account for borderline features.

1.3.1 Hypotheses

I. LAC will show lower scores in decision-making skills and verbal recall compared to non-LAC whilst controlling for intellectual functioning (IQ).

II. LAC will show higher levels of 'borderline features' compared to non-LAC, even whilst controlling for mood.

III. Lower scores on decision-making skills and verbal recall will be correlated with higher levels of 'borderline features'.

2. Method

2.1 Study Design

This study employed a between-groups design to explore the relationship between the independent variable of group status (LAC vs. non-LAC) and a number of dependant variables (executive functioning skills and 'borderline features'). IQ and mood were also ascertained to rule out a potential confounding effect of general intellectual functioning on executive functioning skills and mood on 'borderline features'.

This study also employed a within groups design to explore the correlation between executive functioning skills (decision-making skills and verbal memory) and 'borderline features'.

2.2. Power Analysis

An online power/sample size calculator (http://www.stat.ubc.ca/~rollin/stats/ssize/n2/html.) was used to compute power.

2.2.1 Hypothesis I

To our knowledge no study has looked at decision-making skills within LAC, but given the high number of LAC who have been maltreated, sample size was calculated using a study by Weller and Fisher (2013), which looked at decision-making in maltreated children. The maltreated group made more risk choices (75% of trials) compared to the non-maltreated group (62% of trials). A sample size for a t test was calculated by employing a beta value of 0.8 and an alpha of 0.05. This suggests that a sample size of 21 per group would be needed to detect differences with sufficient power.

Similarly, no studies have looked for other cognitive aspects in LAC vs non-Lac, but Rees (2013) looked at cognitive functioning between LAC and non-LAC and

found significant differences. Children in the LAC population had an IQ (87.59 SD: 15.52) of almost one standard deviation below the non-LAC group. Cognitive functioning was measured using the British Abilities Scale II that includes assessment of memory. A sample size for a t-test was calculated by employing a beta value of 0.8 and an alpha of 0.05. This suggests that a sample size of 23 per group would be needed to detect differences.

2.2.2 Hypothesis II

To our knowledge no study has looked at 'borderline features' within the LAC population for any age group. Considering the features of 'borderline features' as affective instability, negative relationships, negative self-concept and self-harm there is an overlap with the measure of emotional literacy explored by Rees (2013). Specifically their emotional literacy measure (emotional literacy: assessment and intervention inventory) looked at self-awareness, self-regulation, motivation, empathy and social skills. They found that LAC showed high levels of difficulty compared to non-LAC with emotional literacy as rated by their carers and teachers. A sample size for a t test was calculated by employing a beta value of 0.8 and an alpha of 0.05. This suggests that a sample size of 13 per group would be needed to detect differences with sufficient power.

2.2.3 Hypothesis III

Correlations have been reported in the adult literature between BPD and executive functioning (0.3-0.45; Ayduk, Zayas, Downey, Cole, Shoda, & Mischel, 2008). A sample size for a Pearsons correlations was calculated by employing a beta value of 0.8 and an alpha of 0.05. This suggests that a total sample size of 46 would be needed to observe correlations with sufficient power (for example, 23 in each group).

In summary in order to have sufficient power to test all hypotheses at least 23 children in the LAC group and 23 children in the non-LAC group were needed.

2.3 Participants

The current study was focused on 9-12 year olds. A total of 32 young people were recruited into the LAC group and 38 were recruited in the non-LAC group. The LAC group comprised of young people living with foster carers (n=27), other family members (n=3) or residential homes (n=2). Young people from the non-LAC group were either living with both of their birth parents (n=26), one of their birth parents (n=11) or were adopted from birth (n=1). At the time of assessment either both or one of their parents had full parental responsibility. Only LAC whose parental responsibility was held by social services or kinship carers were included. A summary of demographic variables including age, gender, and race/ethnicity for each group are presented in Table 1.

The two groups were matched on age; however, the LAC group had a 62% male and a 31% white British sample compared to the non-LAC group, which had a 28% male and 58% white British sample. The LAC group had a larger number of males and black British participants compared to the non-LAC group.

Table 1. Demographic characteristics

Variable	LAC group (n=29)	Non-LAC group (n=38)
Age mean (SD)	10.66 (1.1)	10.13 (1.2)
Gender (% male)	62%	28%
Race/ethnicity (%)		
White British	31%	58%
Black British	48%	18%
Asian British	0%	11%
Other	21%	13%

Note: The three children on kinship orders were removed from the LAC group so are not included within these demographic variables; see results section for statistical analysis.

2.3.1 Recruitment

The LAC group were recruited via two avenues: local LAC social services and Child and Adolescent Mental Health Teams within South London and Maudsley NHS foundation trust. Three local LAC social service boroughs were contacted through liaison with team managers: only two boroughs responded and only one of those boroughs engaged in recruitment and referred participants. Clinical Psychologists within the National and Specialist teams (Child Care Assessment Team; CCAT and Conduct, Adoption and Fostering Team; CAFT) along with local LAC Child and Adolescent Mental Health Services (CAMHS) within South London and Maudsley were contacted via email about the study. Either the social worker or clinician made contact with the young person and their carers and informed them of the study. The carer and young person were given a separate information sheet (one for young person see appendix 1.1 and one for carers/those with parental responsibility see appendix 1.2) by the social worker or clinician working with them. If the young person and carer were happy to take part contact details were provided to the researcher via their social worker or clinician. Regardless of the service, consent (see appendix 1.3) was sought from the person holding parental responsibility for the young person before contact was made with their carer. Following telephone contact with the researcher if the young person and carer agreed to participate, then the young person was assessed either in the local service from which they were referred or within their home. The young person was also asked to complete an assent form (see appendix 1.4).

The non-LAC were recruited through three different schools (two primary schools and one secondary school). Schools within local boroughs of South East London were contacted and the head teacher/deputy head was informed of the study and asked to participate. Three schools were sufficient to meet the sample size required for the study. The non-LAC recruited were thought to present with similar cultural and socio-economic demographics one would expect within the LAC population; two of the schools were from a low socio-economic status borough which is also culturally diverse compared to other boroughs within

London. Parents were sent a cover letter (see appendix 1.5) and information sheet (see appendix 1.6) detailing the study. An information sheet was also provided for the young person (see appendix 1.7). If the parents agreed for the young person to take part they were asked to complete the consent form (see appendix 1.8) and return it to the school. The young person was also asked to complete an assent form (see appendix 1.9).

Recruitment was completed over one year and Figure 1 presents numbers of participants recruited through the different avenues. See appendix 1.10 for further details of recruitment.
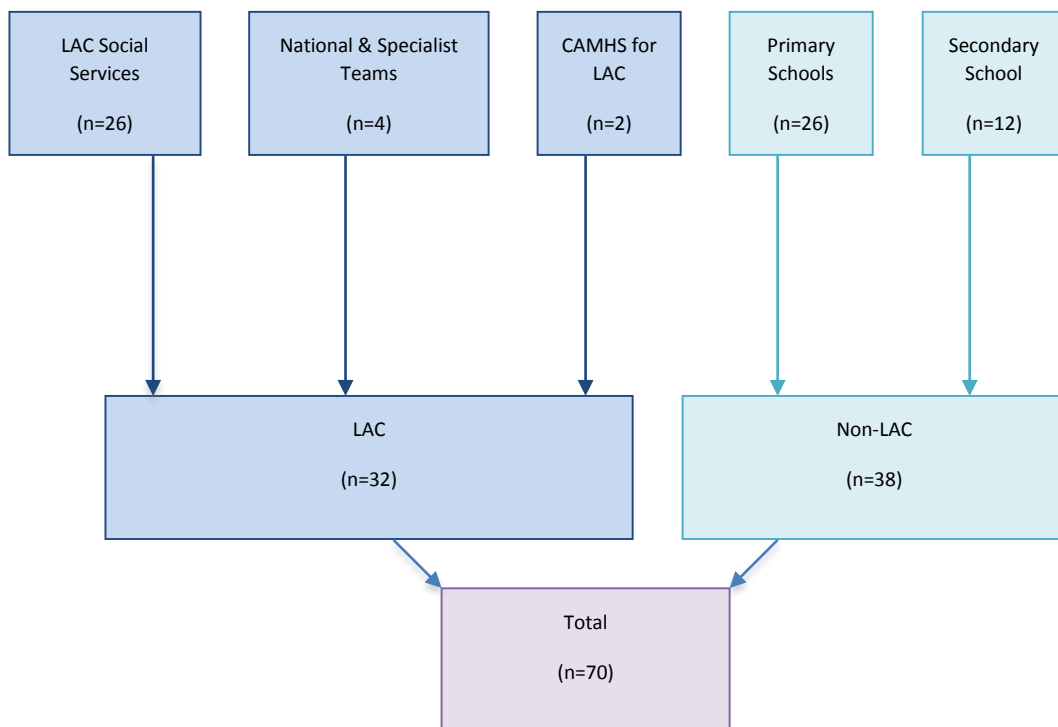
Figure 1. Avenues of Recruitment

2.3.2 Inclusion and Exclusion Criteria

All young people from each group needed to be between 9-12 years old. Any young person with an identified moderate or severe learning or physical disability was not included. Further, any young person who had migrated to the

UK within the last five years were not included to rule out any possible effects of migration on mental health and language skills.

Within the non-LAC group any young person who had a history of child protection issues and had been known to social services were not included.

2.4 Measures

2.4.1 Weschler Abbreviated Scale of Intelligence-Second Edition (WASI-II)

The WASI-II is an individually administered assessment of general intellectual ability for individuals aged between 6 to 90 year olds. The WASI-II is formed of four subtests: Block Design, Vocabulary, Matrix Reasoning, and Similarities. Due to time limitations and wanting to keep the length of assessment brief, only two of the subtests were administered for this study. A correlation coefficient of .94 between the four subtests general level of intellectual functioning score (FSIQ-4) and two subtest general level of intellectual functioning score (FSIQ-2) has been reported. Vocabulary and Matrix Reasoning are sufficient to provide an estimate of general cognitive functioning in approximately 15 minutes or less. Normative data for the WASI-II was established using a sample of 2300 individuals who were stratified on key demographic variables (i.e. age, sex, race/ethnicity, self or parent education level, and geographic region). Reliability coefficients from a child sample for Vocabulary range from .85 to .89 and for Matrix Reasoning range from .85 to .91. For the general level of intellectual functioning score derived from two subtests, the reliability coefficient is .93 (Weschler, 2011).

2.4.2 The Cambridge Neuropsychological Testing Automated Battery (CANTAB)

The CANTAB is a neuropsychological assessment, which is completed on a portable computer that has touch screen technology. Initially the CANTAB was developed to diagnose dementia in elderly individuals (Fray, Robbins, & Sahakian, 1996). The battery is formed of 6 subtests including; memory, attention, executive function, decision-making, social cognition and induction tests. The CANTAB is suitable to be used with ages 4 to over 90 years old without

the need for any modifications. The CANTAB has been used to look at neuropsychological functioning in children successfully in a number of different studies and in general children have found the computer based testing exciting and motivating (Hughes, Russel & Robbings, 1994; Leonard, Milovan, Paus, Watkins, & Evans, 2001; Luciana, Lindeke, Mills, Georgieff, & Nelson, 1999; Luciana & Nelson, 1998, 2000, 2002; Luciana, Sullivan & Nelson, 2001; Ozonoff, 2001). Internal consistency coefficients for 4-12 year olds range from .73 for a measure of reaction time latency to .95 for performance on the self-ordered search task (Luciana, 2003). Although test-retest reliability research in children has not yet been published, stability coefficients in adult samples are at a moderate level generally ranging from .60 to .70 (Lowe & Rabbit, 1998). Normative data is usually available for many of the subtests in the CANTAB; however, for the subtests used in this study there was no normative data available and therefore a comparison group were recruited. The three subtests used in the current study are described in more detail below. The Cambridge Gambling Task (CGT) and the Affective Go/No-go (AGN) are from the decision-making subtests. The Verbal Recognition Memory (VRM) is from the Memory subtest.

2.4.2.1 Decision-making skills tasks

2.4.2.1.1 CGT

The CGT was developed to evaluate decision-making and risk-taking behaviour outside of a learning environment. All relevant information is presented to the participant before they start the task therefore there is no need to learn or retrieve information over consecutive trials. On each trial, the participant is presented with a row of ten boxes across the top of the screen, some of which are red and some of which are blue. The participant is required to guess whether a yellow token is hidden under a red box or a blue box by tapping on either the rectangle containing the word 'Red' or 'Blue' at the bottom of the screen. During the gambling stages, participants are given 100 points to start with, which is displayed on the screen. Every time the participant makes a bet they are given an

opportunity to select a proportion of their total points, displayed in either ascending or descending order in a box on the right hand of the screen, to gamble on their confidence in their decision. If their bet is right the number of points they betted gets added on to their total, however, if their answer is incorrect the number of points they betted gets subtracted from their total. A box on the left hand of the screen displays their number of points throughout the trial. The goal for the participant is to collect as many points as possible.

The CGT is different from other 'Gambling' tests as it differentiates risk taking from impulsivity: during the ascending trials the participant who wants to make a risky bet is required to wait for the number of points to increase (Manes, Sahakian, Clark, Rogers, Antoun, Aitken, & Robbins 2002). The total administration time is approximately 30 minutes (see appendix 2.3 for description of outcome variables).

2.4.2.1.2 AGN

This test assesses information processing biases for positive and negative stimuli. The test is formed of several blocks and in each block a series of words from two affective categories are presented: positive (for example, joyful, warmth, courage) and negative (for example, hopeless, mistake, burden). Each block the participant is given a target category and asked to press the press pad when they see a word matching this category. The other category is presented as a distracter and the participant is told to ignore this category. Each word is displayed individually in the middle of the screen for 300ms. There is a 900ms interval between each word. The total administration time is approximately ten minutes (see appendix 2.2 for description of outcome variables).

2.4.2.2 Memory Task- VRM

The VRM assesses verbal memory and new learning. It measures the ability to encode and subsequently retrieve verbal information. During the VRM test the participant is shown a list of words and asked to read them aloud whilst trying to remember them. They are then asked to immediately try and retrieve as many of

the words from the list as possible. In the second part of the assessment participants are presented with a new list of words some from the original list and some new words. Participants are asked to respond either by tapping on 'Yes' or 'No' as to whether they had seen a word in the original list. Total administration time is approximately six minutes (see appendix 2.1 for description of outcome variables).

2.4.3 Short Mood and Feelings Questionnaire- Short Version (SMFQ)

The SMFQ was developed from the Mood and Feelings Questionnaire (MFQ), which is a 33 item self-report measure for ages 8 to 18 (Angold, Costello, Messer, Pickels, Winder & Silver, 1995) to screen depressive symptoms in young people. Items were developed to reflect the diagnostic criteria of depression and dysthymia from the Diagnostic and Statistical Manual of Mental Disorders (3rd ed., revised; DSM-III-R; American Psychiatric Association, 1987). The items cover affective, dysphoric, behavioural, cognitive and suicidal ideation symptoms of depression (Angold, 1989). It has three-week reliability of 0.84 and a three-month reliability of 0.80 (Sund, Larsson, & Wichstrom, 2001).

The SMFQ was developed from the highest loading 13 items from the MFQ and only takes a few minutes to complete (Angold et al., 1995). The young person responds to each statement using a Likert scale based on how true the statement is to them from ''not true'' (0 points), ''sometimes'' (1 point) or ''true'' (2 points). A score of 12 or higher may indicate that a child is suffering from depression. It has high correlations with the Children's Depression Inventory (CDI; r=.67) and the Diagnostic Interview Schedule for Children (DISC) depression scale (r=.65; Angold et al., 1995; Angold, Erkanli, Silberg, Eaves, & Costello, 2002) and dissociates well between depressed and non-depressed patients (Angold et al., 1995; Costello & Angold, 1988). The MFQ also has high internal consistency α =0.85 (Angold et al., 1995). The internal consistency for this study was α=0.81.

2.4.4 BPFS-C

Borderline features were measured using the BPFS-C (Crick et al., 2005), which is a self-report measure assessing borderline personality features in young people. The measure was developed from the Personality Assessment Inventory (PAI; Morey, 1991), which is a measure of borderline personality traits in adults and is formed of the same four subscales: affective instability, identity problems, negative relationships, and self-harm. The items were tailored by Crick and colleagues (2005) to be age appropriate indicators (e.g. 9 years and above) of borderline features. They report the measure has established construct validity and that it has demonstrated reliability and validity. It has a test-retest reliability across nine months of 0.47, p<.001 (Crick et al., 2005).

There are six items in each scale giving a total of 24 items forming the measure. Young people are asked to rate each statement based on how true the statement is of themselves, from one (not at all true) and 5 (always true). Examples of questions in the affective instability scale are *"I go back and forth between different feelings, like being mad or sad or happy"* and *"when I'm mad, I can't control what I do."* Examples of questions for the identity problems scale are *''I get upset when my parents or friends leave town for a few days"* and *"I feel that there is something important missing about me, but I don't know what it is.''* Examples of questions in the negative relationships scale are *"I do things that other people consider wild or out of control"* and *"I've picked friends who have treated me badly."* Finally examples of questions in the self-harm scale are *"I'm careless with things that are important to me"* and *"when I get upset I do things that aren't good for me".* The Likert scores for all items are added (with some reverse scores) to give a borderline personality features score. Higher scores are indicative of higher levels of borderline features. The mean score on the BPFS-C within a normal population of children between 9-12 years old was 59.39 (SD=13.05). In a recent study with maltreated and non-maltreated children the internal consistency for this measure was α=0.88 (Cicchetti et al., 2014). The internal consistency within this study was α=0.89.

It should be noted that maltreatment was not measured in this study. Several reasons for this include: the complications of measuring maltreatment in terms of different types of maltreatment and overlaps (Cicchetti & Valentino, 2006), and complications with consent to get access to the history of the child. As reported previously however, the high prevalence of maltreatment in LAC is well documented (Oswald et al., 2010).

2.5 Procedure

All participants regardless of group were assessed using the same order of administration. Each participant was assessed individually and completed the assessments in the following order: WASI-II, AGN, VRM, CGT, SMFQ and BPFS-C. It was felt that the cognitive and executive tasks would help build up rapport with the young person before asking them to answer questions related to their mental health. It was thought that this would aid the honesty of the answers provided by the young person. For the SMFQ and BPFS-C participants were given an option of completing the questionnaires themselves or the researcher talking the questions through with them and noting their answers. The total session took approximately 50 minutes and each participant was given a £10 Amazon voucher for participating. A brief report (see appendix 3 for sample report) including scores for WASI-II, SMFQ and BPFS-C and recommendations if appropriate for each young person was provided to the person holding parental responsibility.

2.6 Data Analysis Plan

All statistical analyses were carried out using SPSS version 20 (IBM, 2011). Data was initially assessed for normality via visual inspection of histograms and Q-Q plots, and consideration of skewness and kurtosis scores. If outliers were identified they were removed from the main analysis. An *a priori* hypothesis was that children who were on kinship orders within the LAC group might present with different results to those who are within the remainder, for example, in foster care or residential accommodation, as they may continue to be exposed to

the maltreated environment. If a significant difference were identified within the LAC group between those with kinship orders and those without they would be excluded from the main analysis. Descriptive statistics were employed to establish means and standard deviations for each group.

Independent sample t-tests were employed to compare means for scores on WASI-II, AGN, VRM, CGT, SMFQ and BPFS-C between the two groups. T- tests were also employed to compare means on different scales of the BPFS-C measure between groups. A multivariate analysis of covariance (MANCOVA) was used to compare AGN, VRM, and CGT scores for each group whilst controlling for WASI-II, age and gender. An analysis of covariance (ANCOVA) was also used to compare BPFS-C scores between each group whilst controlling for SMFQ scores and age. Further a MANCOVA was employed to look at individual subscales of the BPFS-C whilst controlling for SMFQ, age and gender. Pearsons correlation coefficients were conducted to explore correlations between the WASI-II, AGN, VRM, CGT, SMFQ and BPFS-C. The boundary for significance was held at *p=0.05* for all hypotheses.

2.7 Ethical Approval

Ethical approval was sought and granted from National Research Committee London-Riverside (reference number: 14/LO/0508). Ethical Approval was also sought and granted from the Research and Development department at King's College London (see appendix 1.11 for both approval letters).

3. Results

A preliminary analysis of the descriptive data was initially employed to explore whether any significant differences existed between the two groups in terms of demographic data. IQ and mood was included to ascertain whether these factors significantly impacted upon any of the associations observed. A between-group design was then employed to explore the impact of group status and the executive functioning measures and group status and the BPFS-C. The IQ and executive functioning scores were continuous and normality assumptions for the recall data were not violated according to visual inspections of histograms and QQ-plots, however; normality assumptions for the BPFS-C measure were slightly violated for the LAC group and this was addressed in the preliminary analysis. ANCOVAs and MANCOVAs were used to analyse the first and second hypothesis. Bivariate correlations were employed to test the third hypotheses.

3.1 Preliminary Analysis

A preliminary analysis of the descriptive data was employed to look at associations between the two samples in terms of age, gender, ethnicity, IQ and mood. Normality tests of the BPFS-C data identified a significant outlier in the LAC group. This participant was found to be expressing a high level of borderline features and was identified as a child on a kinship order. Their BPFS-C score was 4 standard deviations above the mean. The hypothesis that LAC on a kinship order would have a different profile than those living with foster carers or within residential homes was explored. A t-test was employed to analyse whether there was a significant difference on the BPFS-C score for LAC on kinship orders (n=3) and those not on kinship orders (n=29). Table 2 presents the results.

Significant differences between LAC who were on kinship orders and those without were found and possible reasons for this will be considered in the discussion. Hence, the three children who were on kinship orders were removed from the remainder of the analyses.

Table 2. BPFS-C scores within LAC group

Group	Mean (SD)	t	df	Sig. (2-tailed)
LAC without kinship order (n=29)	50.48(14.7)	-4.7	30	0.000
LAC on kinship order (n=3)	92.33(14.7)			

3.2 Demographic variables

Independent samples t-tests were employed to detect systematic differences between age, IQ and mood; and chi-Squared tests were employed to test differences between the two groups on ethnicity and gender (Table 3).

Table 3. Age, gender, ethnicity, IQ and SMFQ by group status (LAC vs. non-LAC)

	Mean (SD)		t	χ^2	df	Sig. (2 tailed)
	LAC	Non-LAC				
Age	10.66(1.1)	10.13(1.2)	1.82		65	.071
Ethnicity				11.68	3	.009*
Gender				6.57	1	.010*
IQ	92.48(13.9)	112.11(12.4)	-6.10		65	.000*
SMFQ	3.21(2.8)	5.16(4.5)	-2.06		65	.044*

*Significant differences p<0.5

No significant differences were observed between groups on age; however, significant differences were observed between groups on gender, ethnicity, IQ and mood. There were a significantly higher percentage of males in the LAC group and the LAC group had a higher number of Black British ethnicity than the non-LAC. As expected the LAC had significantly lower IQ's then the non-LAC but unexpectedly reported significantly lower levels of low mood than the non-LAC. For correlations between these variables refer to Appendix 4.

3.2.1 Correlations between demographic and outcome variables

Bivariate and point biserial correlations were employed between demographic variables (age, gender, ethnicity, IQ and mood) and outcome variables (executive functioning skills-EF, BPFS-C and BPFS-C sub-scale scores). Table 4 shows the results of these correlations and significance levels.

3.2.1.1 Gender

Gender was not notably related to the outcome variables. Thus, there were only a few small associations between gender and some EF tasks [2/10] and borderline features [2/4]. Females were more likely to report identity problems and negative relationships compared to males. Males were more likely to bet higher proportions of their points than females on the CGT. Gender was significantly correlated with overall proportion bet score within the CGT task (r=-.290, p=.017) and the identity problems (r=.279, p=.022) and negative relationships (r=.307, p=.011) sub-scales of the BPFS-C. Gender will not be used as covariate in the following analyses.

3.2.1.2 Age

There were some small associations between age and some EF tasks [4/10] and borderline features [3/4]. Age was significantly correlated with memory (free recall, r=.294, p=.016), decision-making skills (positive omissions, r=-.251, p=.041; negative omissions, r=-.244, p=.047; risk adjustment, r=.299, p=.014) and BPFS-C (r=-.339, p=.005) scores. Age will be used as covariate in the EF tasks and BPFS-C scores analyses.

Table 4. Correlations between demographic and outcome variables

	Gender	Age	Ethnicity	IQ	MFQ
CANTAB					
Decision-Making Skills Tasks					
CGT					
Delay Aversion	-.061	-.222	-.061	-.339**	.027
Deliberate Time	.196	-.171	-.113	-.239	.266*
Overall Proportion Bet	-.290*	-.085	-.058	-.025	.170
Quality of Decision Making	.183	.042	.107	.438**	.160
Risk Adjustment	.025	.299*	.099	.196	.015
Risk Taking	-.222	-.164	.000	.156	.035
ACT					
Positive Omissions	-.151	-.251*	.045	-.371**	.062
Negative Omissions	-.277*	-.244*	-.042	-.451**	.151
Memory Task					
VRM					
Free Recall	.234	.294*	.039	.522**	-.079
Recognition	.010	.027	-.002	.293*	-.214
BPFS-C	.221	-.339**	.004	.195	.682**
Affective Instability	.060	-.395**	-.047	.216	.446**
Identity Problems	.279*	-.294*	-.065	.253*	.569**
Negative Relationships	.307*	-.188	.108	.125	.676**
Self-Harm	.066	-.248*	-.043	-.017	.509**

*Significant at the level of 0.05
**Significant at the level of 0.01

3.2.1.3 Ethnicity

There were no significant associations between ethnicity and EF tasks or ethnicity and borderline features. Ethnicity will not be used as covariate in the following analyses.

3.2.1.4 Intellectual Functioning

Unsurprisingly, there were some significant associations (r=.29 to .52) between IQ and EF tasks [6/10] but only a minor association between IQ and borderline features [1/4]. Children with higher IQ's performed better on memory and decision-making skills tasks. IQ scores were correlated significantly with memory (free recall, r=.522, p=.000; recognition, r=.293, p=.016) and decision-making skills scores (positive omissions, r=-.371, p=.002; negative omissions, r=-.451, p=.000; delay aversion, r=-.339, p=.005; quality of decision making, r=.438, p=.000). IQ will be used a covariate in the analyses involving the EF tasks only.

3.2.1.5 Mood

There was only a single minor association between mood and EF [1/10]; however, mood was significantly associated (r=.44 to .68) with borderline features [4/4]. Children who reported higher levels of borderline features also reported lower mood. Mood was significantly correlated with BPFS-C scores (r=.682, p=.000) and all of the sub-scales of the BPFS-C (affective instability, r=.446, p=.000; identity problems, r=.569, p=.000; negative relationships, r=.676, p=.000; self-harm, r=.509, p=.000). Mood will be used as a covariate in the analyses of the BPFC-S.

3.3 Hypothesis I

Hypothesis I predicted that LAC would have poorer decision-making skills and poorer memory compared to non-LAC. A one-way between-groups MANCOVA

was employed to observe whether there were any significant differences on memory and decision-making skills. Consistent with this hypothesis a statistically significant difference between LAC and non-LAC on decision-making skills was observed, $F(10,56)=3.15$, p=.003, Wilks' Lamba=.640, partial eta squared=.360. Several subtests were significant (see appendix 4.1.1 for details): significant differences were observed in the CRT task on delay aversion and quality of decision-making scores and on the ACT task for the negative omissions score. An unexpected difference was observed on age between the two groups so therefore in the first multivariate analysis of covariance only age was used as a covariate (see appendix 4.1.2 for details). Significant differences between the two groups were observed, $F(10,56)=4.48$, p<.001, Wilks' Lamba=.551, partial eta squared=.449. Significant findings were observed on free recall, positive omissions, negative omissions, delay aversion, quality of decision-making and risk adjustment.

IQ was considered an *a priori* covariate to control for, along with age which was found to be associated with several of the EF tasks (see Table 4). Hence, a further one-way between-groups multivariate analysis of covariance was run controlling for IQ and age, which also revealed a significant overall effect, $F(10, 54)=2.30$, *p*=.025; Wilks' Lamba=.702; partial eta squared=.298 was found (see appendix 4.2 for output table). Table 5 shows group means, standard deviations and results of ANCOVA's for each variable.

Table 5 shows that these effects were due to significant differences between LAC and non-LAC on quality of decision-making ($F(1,63)=8.773$, *p*=0.004) and overall proportion bet ($F(1,63)=4.555$, *p*=0.037). An inspection of the mean scores suggests that overall LAC (*M*=.73, *SD*=.21) were worse at making decisions than non-LAC (*M*=.91, *SD*=.10) and that LAC took more risks (*M*=.52, *SD*=.16), betting higher proportions of their available points than non-LAC (*M*=.46, *SD*=.13).

Due to there being a significant correlation between overall proportion bet scores and gender a further ANCOVA was employed to compare scores on overall proportion bet between the two groups (LAC vs. non-LAC) whilst controlling for age, IQ and gender. There were no significant differences observed between the

two groups $F(1,62)=2.093$, $p=.153$, suggesting that the LAC differences may have been influenced by the effects of more males in the LAC group.

Table 5. ANCOVA's, means and standard deviations (SD) for LAC vs. Non-LAC on executive skills, controlling for IQ and Age

	Mean (SD)		*F*	Sig. (2 tailed)
	LAC	Non-LAC		
Decision-Making Skills				
CGT				
Delay Aversion	.6521(.22)	.4921(.26)	3.247	.076
Deliberation Time	2907.9(1024.35)	2950.93(1298.76)	1.907	.172
Overall Proportion Bet	.52(.16)	.46(.13)	4.555	.037*
Quality of Decision Making	.73(.21)	.91(.10)	8.773	.004**
Risk Adjustment	.35(.76)	.68(.97)	2.023	.160
Risk Taking	.50(.42)	.50(.14)	1.874	.176
ACT				
Positive Omissions	15.24(9.81)	11.34(8.60)	.199	.657
Negative Omissions	15.38(9.01)	9.61(8.87)	1.165	.285
Memory Task				
VRM				
Free Recall	5.55(1.80)	6.24(1.36)	.249	.620
Recognition	21.90(2.77)	22.37(2.12)	.594	.444

*Significant at the level of 0.05
**Significant at the level of 0.005

3.4 Hypothesis II

Hypothesis II predicted that LAC would report a higher level of 'borderline features' compared to non-LAC. An independent sample t-test was employed to observe whether there were any significant differences on BPFS-C scores. Contrary to the hypothesis, a statistically significant difference between LAC and

non-LAC on BPFS-C scores was observed in the *reverse* direction (t(67)=2.787, Cohen's d=.686, p=.007). LAC (M=50.48, SD=14.70) reporting *fewer* borderline features than non-LAC (M=60.45, SD=14.35).

Nevertheless, mood was considered an *a priori* covariate, and age was found to be associated with BPFS-C, so the test was re-run as a MANCOVA controlling for mood and age. There were no significant differences observed for BPFS-C scores between the two groups F(1, 63)=2.513, *p*=.118 (see Appendix 4.2.2 for output table). As mood and BPFS-C scores were significantly correlated this suggests that LAC reporting low levels of 'borderline features' were also less likely to report symptoms of low mood.

Finally, as suggested by Cicchetti and colleagues (2014), subscales of the BPFS-C scores were looked at independently. A one-way between-groups multivariate analysis of variance was employed to observe whether there were any significant differences on the four sub-scales of the BPFS-C (affective instability, identity problems, negative relationships and self-harm). There was a significant effect overall, F(4,62)=4.68, p=.002, Wilks Lambda = .768, partial eta squared=.232 (see appendix 4.3.1 details). As above, mood and age were used as covariates, but Table 4 also revealed that gender was associated with the BPFS-C subscales, and so this was also used as a covariate in a MANCOVA. In this model, there was no longer an effect of group F(4,59)=1.758, p=.149, Wilk's Lamda=.893, partial eta squared=.107(see Appendix 4.3.2 for output table). Table 6 shows group means, standard deviations and results of ANCOVA's for each variable.

Table 6. ANCOVA's, means and standard deviations (SD) for LAC vs. Non-LAC on BPFS-C subscales

	Mean (SD)		F	Sig. (2 tailed)
	LAC	Non-LAC		
Affective Instability	14.55(4.56)	16.39(3.73)	.039	.845
Identity Problems	12.34(4.48)	16.16(4.95)	1.316	.256
Negative Relationships	10.14(4.25)	13.45(4.55)	.984	.325
Self-Harm	13.52(4.56)	13.97(4.30)	1.701	.197

3.5 Hypothesis III

Hypothesis III predicted that poorer decision-making skills and poorer memory would be significantly correlated with a higher report of borderline features. Bivariate correlations were conducted to detect any differences between the executive functioning scores and the BPFS-C scores and its sub-scales.

Table 7 reports these correlations. The BPFS-C score was of main interest and the subscales were used as supplementary information. One significant correlation was observed between deliberation time on the CGT and BPFS-C score (r=.265, p=.031).

Within the BPFS-C subscales, further significant correlations were observed between deliberation time on CGT and identity problems (r=.340, p=.005) and negative relationships (r=.335, p=.006). This suggests that young people reporting higher levels of 'borderline features' in particular higher scores on the subscales identity problems and negative relationships were more likely to spend longer deliberating before making a decision on the CGT. However, these were exploratory analyses, and caution should be taken when interpreting these results, as only one score on the executive functioning tasks out of ten was weakly significant with the BPFS-C score which could be due to Type II error. No other significant correlations were observed. See appendix 5.1 for outputs of correlations between variables.

Table 7. Correlations between decision-making and memory and BPFS-C and its sub-scales (N=67)

	BPFS-C	Affective Instability	Identity Problems	Negative Relationships	Self-Harm
Decision-Making Skills					
CGT					
Deliberation Time	.265*	.028	.340**	.335**	.193
Overall Proportion Bet	.049	.065	.053	.050	-.027
Quality of Decision Making	.164	.143	.168	.098	.069
Risk Adjustment	-.132	-.229	-.114	-.124	-.039
Risk Taking	-.086	-.032	-.031	-.169	-.064
Delay Aversion	-.026	.086	-.008	-.051	-.099
ACT					
Positive Omissions	.025	.097	-.105	.018	.131
Negative Omissions	-.040	.045	-.175	-.024	.094
Memory Task					
VRM					
Free Recall	-.015	-.067	.049	.067	-.128
Recognition	-.136	-.142	-.194	-.011	-.055

*Significant at the level of 0.05
**Significant at the level of 0.01

3.6 Summary

Hypothesis I predicted that LAC would have poorer decision making skills and memory compared to non-LAC. Consistent with this hypothesis, significant differences on quality of decision-making scores were observed between LAC and non-LAC. LAC were more likely to make poor decisions compared to non-LAC

even when age and IQ were controlled for. These findings were specific to decision making as contrary to the hypothesis no significant differences were observed on memory skills.

Hypothesis II predicted that LAC would report higher levels of 'borderline features'. Contrary to this hypothesis, LAC scored lower on the BPFS-C suggesting less 'borderline features' than non-LAC. However, this result was not statistically significant when accounting for age and mood; and specifically, the effect could be accounted for by low mood reporting in the LAC group.

Hypothesis III predicted that there would be significant associations between poor decision-making skills and memory with 'borderline features'; however, only one dimension of the decision-making skills task was found to be weakly associated with 'borderline features', for the group as a whole and within the LAC group. Children within the group as a whole and within LAC who presented with 'borderline features' took longer to make a decision compared to those who did not have any 'borderline features'.

4. Discussion

The aim of this study was to explore differences in decision-making skills, memory, and 'borderline features' between LAC and non-LAC, and to explore whether the presence of these executive functioning difficulties correlated with a higher level of reported 'borderline features'.

The first hypothesis was that LAC would show poorer decision-making skills and poorer memory compared to non-LAC whilst controlling for age and intellectual functioning (IQ). Prior to this analysis when only age was used as a covariate significant results were observed on a number of different memory and decision-making skills tasks, however, these could be described due to differences in IQ. When IQ was controlled for a lower amount of variables were significant. LAC were significantly poorer at making decisions compared to non-LAC, specifically when LAC were given the opportunity to pick the more or less likely outcome they picked the more likely outcome significantly less frequently than non-LAC. These findings are similar to those observed in maltreated children (Guyer et al., 2006; Weller & Fisher, 2012). The results of this study show that LAC have a vulnerability to selecting the more risky option without a sensitivity to the hypothetical loss (Weller & Fisher, 2012). Further, this decision-making process is not just a result of impulsivity. Unlike other 'gambling tasks', the CGT dissociates risk taking from impulsivity because in the ascending bet condition the participant who wants to make a risky bet has to wait patiently for it to appear (Manes et al., 2002). This is a novel finding and may relate to the developmental pathways between early decision-making skills and later negative outcomes found in LAC associated with risky decisions, such as being convicted of a criminal offence (McAuley & Young, 2006), teenage pregnancy, self-harm, school failure (Mental Health Foundation, 2002) and substance misuse (Pilowsky & Mu, 2006).

To date there have been no studies that have explored 'borderline features' in LAC. Given the emerging literature reporting 'borderline features' in maltreated children (Belsky et al., 2012; Cichetti et al., 2012; Gratz et al., 2011; Hetch et al.,

2014; Rogosch & Cicchetti., 2005; Winsper et al., 2012) and similar features described in the clinical presentation in LAC (e.g. DeJong, 2010), it was hypothesised that LAC would report higher levels of 'borderline features'. In contrast to expectations, a negative hypothesis was observed in our study. LAC reported *fewer* 'borderline features' than non-LAC; however, when mood was controlled for this significant difference became non-significant. This is an unusual and unexpected finding in contrast to studies exploring 'borderline features' in maltreated children of similar age using the same measure, which have reported opposite effects (Cicchetti et al., 2014; Hetch et al., 2014). Further, LAC have also reported higher levels of depressed mood compared to non-LAC (Ford et al., 2007), yet in this study LAC reported significantly lower levels of depressed mood. Indeed when mood was controlled for, the negative effect disappeared and in this study low mood was significantly correlated with 'borderline features'. Hence in the current sample the LAC group were reporting both lower levels of 'borderline features' and mood contrary to previous studies. Indeed, when mood was controlled for the association disappeared, which suggests a mediating role for mood.

This unexpected finding could be explained in a number of ways, from the perspective of this representing a significant under-reporting of 'borderline features'. Firstly there is some evidence to support the avoidance and numbing of emotions in children with traumatic experiences. It has been found that children with PTSD tend to report a high level of avoidance/numbing of emotions and this has been found to increase with time (Scheeringa, Zeanah, Myers, Frank, & Putnam, 2005). Evidence from neuro-psychology suggests that LAC may have more blunted affect than non-LAC as a result of maltreatment. For example recent findings looking at functioning of hypothalamic-pituitary-adrenal (HPA) axis in LAC has shown different alterations in comparison to other populations when they experience stress (Lupian, McEwen, Gunnar, & Heim, 2009). Generally, elevated levels of cortisol levels indicating heightened activation of HPA axis are observed in individuals experiencing different types of adversity. Several studies have reported this elevated basal cortisol level in maltreated children (e.g. Cicchetti & Rogosch, 2001), however different findings have been observed in

LAC. LAC have frequently displayed blunted cortisol production (Kertes, Gunnar, Madsen, & Long, 2008). Normally developing individuals' cortisol levels reach their ultimate peak shortly after awakening and reduce throughout the day, however; in LAC cortisol levels are low in the morning and remain low throughout the day (Bruce, Fisher, Pears, & Levine, 2009). The specific function of reduced levels of cortisol remains limited; however, researchers have hypothesised that a 'down regulation' of the system may be a protective reaction to the lack of appropriate care (van der Vegt, van der Ende, Kirschbaum, Verhulst, & Tiemeier, 2009). These findings support the hypothesis that some LAC may find it difficult to recognise difficulties with interpersonal functioning because of blunted affect.

Another possible speculation is that LAC may not have wanted to report these difficulties even if they were able to recognise them. The measure used to explore presence of 'borderline features' was a self-report measure and a recent study has demonstrated significant differences on self and carer report on similar features. Rees (2013) explored emotional literacy (self-awareness, self-regulation, motivation, empathy and social skills) within the LAC population and found that there was a significant difference in children's self-report of literacy and their carers reported these difficulties. Although both reported difficulties carers report of these deficits were significantly higher than self-report (Rees, 2013). Other studies exploring 'borderline features' which found effects for maltreated children using the same measure did so over a summer camp (Cicchetti et al., 2014; Hetch et al., 2014), and thus children would have had a chance to build up more rapport with researchers and perhaps felt more comfortable disclosing difficulties.

The final hypothesis was that there would be an association between difficulties with decision-making and memory and 'borderline features'. In line with previous research both in children (Belsky et al., 2012; Paris et al., 1999; Rogosch & Cicchetti., 2005; Zelkowitz et al., 2001) and adults (Minzenberg et al., 2008; Monarch, Saykin, & Flashman, 2004) it was hypothesised that deficits in executive functioning would be associated with increased reports of 'borderline features'.

Only one relatively weak association was found between the overall 'borderline features' score and a decision-making skills score: deliberation time. Observations were made for the sample as a whole (including both LAC and non-LAC) that 'borderline features' were associated with longer deliberation times in the decision-making task. Some caution needs to be exercised about this result in the light of 10 other non-significant associations and therefore the possibility of Type II errors, but it is consistent with other research that has shown similar results in maltreated children (Weller & Fisher, 2012). Children with 'borderline features' can spend longer making a decision in comparison to children with a lower level of 'borderline features'. Analysis of the BPSF-C subscales revealed significant associations between deliberation time, and identity problems and negative relationships subscales. Further indicating that children who have difficulties with identity and relationships took longer to make a decision on the CGT task. No significant differences were observed between memory and 'borderline features', similar findings were observed in a study with adults who had BPD (Minzenberg et al., 2008). Despite some weak associations it should be noted that this was an exploratory hypothesis and future research is needed to support this hypothesis further.

4.1 Limitations

The first limitation of the study was that there were no independent assessments of 'borderline features', for example from carer, teacher or clinician. Rees (2013) reported significant differences between carer, teacher and child report of emotional literacy that explores similar difficulties to the 'borderline features' scale such as self-regulation and social skills.

In addition, as mentioned above, LAC may not want to report difficulties with interpersonal functioning to a researcher they have only met once. A recent study exploring the experiences of young people in foster care showed that they often feel that others perceive them differently and they do not want others to know they are in care (Madigan et al., 2013). LAC may find it difficult to admit or discuss difficulties they are having due to fear of receiving another 'label' or 'diagnosis'

which is also stigmatising and highlights their differences from others. They may also have a fear of their placement breaking down if they talk about the difficulties they are experiencing. These factors may have also impacted on LAC reporting 'borderline features'. Future research should try and use reports from individuals in the child's system that knows them well such as their social worker to measure 'borderline features'. Summer camps can be unrealistic in clinical research and perhaps as an alternative, 'borderline features' could be assessed over a longer assessment period by clinicians. It would be interesting to observe whether there would be an increase in self-report of 'borderline features' as therapeutic relationships develops. Further, ideally a blind independent assessor would have been recruited to conduct the measures to reduce the risk of bias.

The second limitation of this study was that there was no measurement of how long LAC had been in foster care, how many placements they had had since being in foster care or their history of maltreatment, as indicators of the degree or dose of adversity they had been exposed to and how recent these experiences were. There was some evidence that remaining in kinship care had a significant impact on the report of 'borderline features'. Other studies have shown that placement breakdown has been associated with difficulties in executive functioning, particularly inhibitory control tasks (Pears et al., 2010); however, the direction of this association still remains unclear (Fisher, 2015). Hetch and colleagues (2014) reported that higher levels of 'borderline features' were significantly associated with longer time periods of experienced maltreatment and more types of maltreatment. Further, the previously mentioned blunted diurnal cortisol has been found to be most common in LAC who have been exposed to high levels of neglect (Bruce et al., 2009; Dozier, Manni, Gordon, Peloso, Gunnar, Stovall-McClough, & Levine, 2006). More generally, research has shown that the number of placements and being placed in a residential home compared to foster care placements increases the likelihood of the child having a mental disorder (Meltzer, Gatward, Corbin, Goodman & Ford, 2003). Children who have a higher number of placements are likely to present with higher levels of mental health problems and developmental delays (Newton, Litrownik, & Landsverk, 2000).

The third limitation of this study related to the difficulty of accessing a balanced sample (see appendix 1.10 for further details). There were a significantly higher proportion of males in the LAC group than in the non-LAC, which have some impact on the generalisability of results. For example, at a trend level LAC reported lower levels of 'borderline features' compared to non-LAC when gender was controlled for the statistical differences observed for two of the subscales became insignificant. This may suggest that the differences observed between the two groups could be explained partially by gender differences. However, it should be noted that previous studies looking at 'borderline features' using the BPFS-C in maltreated children have not found any significant gender differences (Cicchetti et al., 2014; Hetch et al., 2014). As this has not been explored previously within LAC future studies should match samples on gender. This balance of gender will help dissociate whether observed differences in 'borderline features' are due to gender or being 'looked after'.

As expected there were also significant differences in IQ between the two groups. LAC had significantly lower IQ's compared to non-LAC. When IQ was not considered a covariate there were far more significant differences observed in the memory and decision-making tasks, on the other hand when IQ was controlled for no significant differences were observed in memory and fewer on the decision-making skills task. Miller and Chapman (2001) suggest that expected differences between groups such as IQ in the case of LAC and non-LAC should not be used as covariates as this could remove a lot of the variance observed on the executive functioning tasks. They suggest that one way to address this may be to try and match the samples prior to starting the research on this variable (Miller & Chapman, 2001). In this study this would mean recruiting non-LAC with lower average IQ's to match the LAC who generally have lower IQ's compared to the normal population (Fisher, 2015).

Finally, only omission scores were analysed for the AGN task due to the unavailability of the commission scores by the CANTAB. If commission scores were made available this may have provided further insight into whether LAC children were more likely to respond to positive or negative stimuli when they

were not meant to compared to non-LAC. Given the data on impulsivity in LAC children (Fisher, 2015), it may be expected that they would have a higher tendency to make commission errors. Further, if this was only for negative stimuli this may suggest that commission errors are not a result of impulsivity but rather a heightened response to threatening stimuli due to their negative life experiences.

4.2 Future Directions

The findings regarding decision-making deficits are especially interesting because LAC have been reported to be vulnerable to real-life risk taking behaviour away from psychological testing, for example, early and unprotected sexual activity, self-harm, and substance misuse (Dfes, 2006; Meltzer et al., 2003). Previous studies have shown that risky decision-making in childhood and adolescence indicates that, as individuals develop into adulthood, they shift towards more risk-averse preferences (see Boyer, 2006; Reyna & Farley, 2006). Developmental pathways would need to be explored to establish the link between decision-making skills and risky behaviour in LAC. Further, research needs to be conducted to also assess how the CGT task maps onto real-life decision-making skills. If these poor decision-making skills are associated with real-life decision-making skills and are identified early then with appropriate interventions the chances of LAC engaging in risk taking behaviour as adolescents and adults may reduce (Weller & Fisher, 2012). At present there has been very limited research and development of interventions targeting difficulties with decision-making skills. Weller and Fisher (2012) recommend giving children the opportunity to practice decision-making in scenarios where there is a high probability of hypothetical losses. Although they recommend it could be a standalone intervention, they suggest that embedding it in existing evidence based approaches for maltreated children could be more effective (Weller & Fisher, 2012).

The results of this study should be interpreted with caution as 'borderline features' is a relatively new concept being explored in children and replication of

findings using is necessary before firm conclusions can be drawn (Belsky et al., 2012). A critical remaining question is whether 'borderline features' in childhood is most usefully conceptualised as a construct or individual features as research is largely based on the construct of BPD in adults (Hawes, 2014). In particular, the negative findings of this study highlight that there may be individual differences between how 'borderline features' present clinically and adult BPD. Symptoms may not be as distinctly evident in children and may require more thorough assessments compared to those done with adults.

'Borderline features' is also a construct previously unexplored in the LAC population; although these are similar to other symptoms and diagnoses (Carlson, 1998; Rees, 2013, van der Kolk, 2005) described in the literature such as low-self-esteem or negative relationships. To test the speculation that the low levels of 'borderline features' may be due to blunted affect or not wanting to disclose difficulties to a stranger, future research could use clinician, carer or teacher report. Another approach to increasing the possible identification of 'borderline features' may be to use a mood induction task. For example, Woolgar and Tranah (2009) showed that looked after young people in secure accommodation who received a negative mood induction reported significantly increased negative self-schemas. LAC could be given an idiosyncratic low mood induction salient to the young person. For example, asking them to think of a negative life event whilst listening to sad music. This mood induction would test the hypothesis in relation to whether LAC scored particularly low on 'borderline features' compared to non-LAC due to blunted affect.

The current study is in line with previous reports of the presentation of LAC being complex. Previous research has shown that LAC who have experienced abuse have high levels of PTSD symptoms (Dubner & Motta, 1999). However, it has been reported that these symptoms observed in maltreated children compared to adult PTSD are different (Scheeringa, Zeanah, Myers, & Putnam, 2003). For example children with PTSD tend to avoid or numb their emotions (Scheeringa et al., 2005) and clinicians should adapt criteria for children and adolescents (Oswald et al., 2010). There have been long debates in literature about whether 'Complex

PTSD' can be dissociated from BPD presentations as they share very similar symptoms (e.g. Cloitre, Garvert, Weirss, Carlson, & Bryant, 2014). Research has shown that childhood experiences more than trauma in adulthood influence symptoms of 'Complex PTSD' (Cloitre, Stolbach, Herman, van der Kolk, Pynoos, Wang, & Petkova, 2009). The links between 'borderline features' and trauma should be explored in LAC to establish whether trauma plays a mediating role in for 'borderline features'.

A few of the children from the LAC group were on kinship orders. There were significant differences in report of 'borderline features' between LAC on kinship orders and those with foster carers or within residential homes. LAC on kinship orders as hypothesised reported a high level of 'borderline features'. Future research is needed to understand the differences with the LAC population in terms of report of 'borderline features' and the factors that might make some children more likely to report them and others not (for example, placement factors; numbing of PTSD; the genetic risks in the diathesis stress model). A possible hypothesis may be that LAC on kinship orders are still close to the adverse environment and have not received the support and care they require from the system. There is some emerging research which has shown that children who are placed in long-term foster care have more positive outcomes in general compared to children who return to their adverse environments (Wade, Biehal, Farrelly, & Sinclair, 2011).

Finally, despite the current model of BPD and 'borderline features' being a diathesis-stress model, no measure was used to explore genetic or familial vulnerability (Belsky et al., 2012). LAC often come from families where parents have a major mental illness or substance misuse (Department of Health, 1995). Previous research has identified that maternal psychiatric disorders are one of the risk factors for childhood mental disorders in LAC (Garmezy, 1987). Future research should look at genetic and familial as well as environmental risk factors of 'borderline features' in LAC.

4.3 Clinical Implications

Various executive functioning difficulties have now been explored in the LAC population. Many studies have now shown deficits in these areas within LAC (Lewis et al., 2007; Pears & Fisher, 2005a, 2005b; Pears et al., 2008, Pollack et al., 2010), and one study found lower levels of activation in the prefrontal cortex during an error monitoring task (Bruce, McDermott, Fisher, & Fox, 2009). The results on decision-making skills from this study adds to the literature and has shown that LAC have a vulnerability to making poor decisions, specifically with choosing the less likely option when given an opportunity to pick the more or less likely outcome compared to non-LAC. Despite these difficulties there has been limited attempts to support LAC improve their executive functioning difficulties and indeed there are currently limited evidence based approaches that would address these difficulties (Fisher, 2015).

Another approach could be to adapt existing approaches aimed at improving cognitive difficulties such as cognitive remediation therapy (CRT) for maltreated or 'looked after' children presenting with executive functioning difficulties. CRT helps individuals evaluate their cognitive styles by undertaking simple cognitive tasks reflecting real life situations; it supports the individual to explore alternative strategies, think about advantages and disadvantages of strategies and if appropriate apply these new skills and strategies in real life to reach their goals. CRT has been found to improve working memory, planning skills and flexibility (Wykes, Reeder, Williams, Corner, Rice, & Everitt, 2003). It is hypothesised that CRT works by training basic brain processes via the production and refining of neural connections and teaching adaptive strategies (Tchanturia, Davies, & Campbell, 2007). A number of randomised controlled trials have supported its efficacy with individuals who have a diagnosis of Schizophrenia (for example, Twamley, Jeste, & Bellack, 2003; Krabbendam & Aleman, 2003; Kurtz, Moberg, & Gur, 2004). Recent research has also shown its effectiveness for early onset Psychosis (Wykes, Newton, Landau, Rice, Thompson, & Frangou, 2007) and Anorexia Nervosa (Tchanturia et al., 2007). Lindvall and colleagues (2011) have adapted this approach to be used with children and adolescents with Anorexia

Nervosa and others have reported that children with Anorexia Nervosa have engaged well with this approach (Wood, Al-Khairulla & Lask, 2011). CRT would not only help target decision-making skills but also other executive difficulties observed in LAC such as visuo-spatial and memory deficits (Fisher, 2015).

'Borderline features' as a construct may inform services as to what features they may assess when children are referred and provide a common language between clinicians for currently non-diagnostic symptoms such as problems with identity and relationships. Research highlights the types of interventions that have been successful in treating BPD in adults such as dialectical behavioural therapy (DBT) and mentalization-based therapy (MBT; Bateman & Fonagy, 2008; Bateman, Ryle, Fonagy & Kerr, 2007; Chiesa, Fonagy, & Holmes, 2006; Linehan, Comtois, Murray, Brown, Gallop, Heard, Korslund, Tutek, Reynolds & Lindenboim, 2006; Linehan, Dimeff, Reynolds, Comtois, Wlch, Heagerty & Kivlahan, 2002). There are also some new early intervention programmes that have shown to be effective with young people who have 'borderline features' such as cognitive analytical therapy (CAT) and emotional regulation group training (Chanen, Jackson, McCutcheon, Jovev, Dudgeon, Yuen, Germano, & McGory, 2008a; Chanen, McCutcheon, Germano, Nistico, Jackson, & McGorry, 2009; Schuppert, Giesen-Bloo, van Gemert, Wiersema, Minderaa, Emmelkamp, & Nauta, 2009). Further research is needed to develop universal early intervention and prevention programmes for LAC children who do present with these features. Identifying risk factors such as poor decision-making skills can be an important step in these developments.

Further research exploring the links between symptoms can support both with early identification of risk factors and the later development of mental health problems. There is still a limited amount of research looking at the developmental pathways between executive functioning and mental health problems. In addition, it is still not entirely clear whether the observed difficulties and symptoms are still present during adulthood (Fisher, 2015). Longitudinal studies would help clarify these pathways and also inform early intervention services.

4.3 Conclusion

LAC made poorer decisions and reported lower levels of 'borderline features' and low mood compared to non-LAC. There were small associations found between children scoring higher on 'borderline features' and difficulties with some decision-making skills. Nevertheless, this association may have been limited in LAC due to LAC scoring significantly lower on decision-making skills but also lower on 'borderline features' compared to non-LAC. To clarify these findings future research should aim to seek different perspectives such as carer report or clinician assessment to further explore the presence of 'borderline features' in LAC and its association with executive functioning skills.

The current study and previous studies have identified that 'looked after' and maltreated children have poorer decision-making skills compared to children who are not 'looked after' or maltreated. Future research should clarify the developmental pathways between poor decision-making skills and later risky behaviour. Clinicians should aim to develop interventions that may target these difficulties such as CRT. These interventions could potentially reduce the likelihood of 'looked after' or maltreated children engaging in risky behaviour.

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6. Appendix

1. Information Sheets and Consent Forms

1.1 Young Person Information Sheet for LAC

KING'S College LONDON
Institute of Psychiatry
at The Maudsley

South London and Maudsley NHS
NHS Foundation Trust

<u>Information Sheet for Young People</u>

Comparing children who are 'looked after' to those who are not on how they think and feel

We would like you to read the information sheet and ask us any questions you have. If you agree to be part of this project then we would like you to read and tick boxes on the permission form.

- **_<u>What is this project about?</u>_** This project is to understand what sort of help children who no longer live with their parents may need.
- **_<u>Who are you?</u>_** **_<u>What do you do?</u>_** We are psychologists who work with children or teenagers who have experienced difficulties like you. We talk to them and try to and understand what has happened to them. We then help them think about what would be best for their future.
- **_<u>Why are you asking me?</u>_** We are asking you because we know you no longer live with your parents.
- **_<u>What do I have to do to take part?</u>_** We will ask you to fill in some questionnaires and complete some puzzles and tasks on a computer. Everything should take about one hour and a half.
- **_<u>What will I get?</u>_** You will be given a £10 book token after everything is finished. You, your carers and social worker will get a summary of your results.
- **_<u>Who will know?</u>_** We will not tell anybody your name or the things you have told us, unless we think you or someone else might be hurt.
- **_<u>Can I say no?</u>_** You can say no now, or at any point during the project without telling us why.
- **_<u>Can I find out more?</u>_** Yes, you can ask us, your carer or social worker any questions you have. We have given them a longer sheet than this one, if you would like to read it with them you can. If they agree, we can talk to you on the phone or meet up with you to tell you more.

Thank you for reading this

1.2 Information sheet for person with Parental Responsibility in LAC

INFORMATION SHEET & CONSENT FORM
Cognitive and Emotional Functioning in Looked After Children: A Control Comparison Study

Children who are looked after are being invited to take part in a research study being conducted by research staff at the Institute of Psychology, King's College London, and The Maudsley Hospital.

Please take time to read the following information sheet about the study before deciding whether or not you wish the looked after child/children you care for to take part in the study. This information sheet is intended to give you enough information to decide whether or not you wish your child to take part in the study. Please don't hesitate to contact us if there is anything that is not clear or if you would like more information. Please take your time to decide whether or not you wish to take part. Thank you for reading this.

What is the purpose of the study?
This study aims to find out more about how difficulties with memory and making decisions may affect the way we feel about others and ourselves. The study will be looking at the reactions of children that are 'Looked After' (i.e. in foster care, residential care or subject to a care order) and children recruited through a primary school (not looked after). We hope that the results will improve our understanding of how difficulties with memory and making decisions may effect the way we feel about ourselves and others may eventually lead to improvements in the access, delivery of treatment and assessment in health services.

Do the children have to take part?
Taking part is voluntary and the child is free to withdraw at any time without giving a reason. You are also free to withdraw the looked after child/children at any time. If you would also like to meet with us prior to us meeting with the child you have parental responsibility for then we can arrange to do this. Your decision whether or not to take part will not affect any ongoing healthcare, including future or current treatment. At any stage of the study you are free to withdraw without giving a reason.

What will happen to the child I have parental responsibility for if they take part?
If you are interested in taking part then we will contact you by phone and arrange a time to meet with you and the child. The child will be asked to attend **an hour and a half long** session in which they will complete several tasks with the researcher. The child will receive £10 book token to thank them for their time on completion of the tasks. Compensation can be claimed for extra travel expenses that may be incurred; this will be discussed prior to the assessment taking place. Only the researcher will have access

to the answers they give and they will be kept on a computer that is protected by a password that only the researcher knows. Once the results have been scored up then they will be destroyed.

Are there any risks?

There are no known risks involved in the study. If the child finds any of the questions distressing then they can decline to answer them or you both may discuss them or any other aspects of the study with the main researcher, Jeyda Ibrahim (Clinical Psychologist in Training), Dr Matt Woolgar (Clinical Psychologist) will also be available to contact.

What are the possible benefits of taking part?

We hope that the information gathered from the study will help us to understand more about the cognitive difficulties associated with emotional and relationship problems in children. You will also be provided with a short cognitive report of the child's scores. This might be helpful in identifying any needs they have and/or for planning education/interventions.

Will my taking part in this study be kept confidential?

All information which is collected from the study will be kept strictly confidential. Neither you nor the child's name will be on the questionnaires. Questionnaires and paper results will be stored in locked filing cabinets that will only be accessible to the research staff involved in this study. The results will be entered into a computer base for statistical analysis, but the child's name will not be entered and the files will be password protected.

The requirements of the Data Protection Act will be complied with at all times, and the research has been approved by the Joint South London and Maudsley and the Institute of Psychiatry NHS Research Ethics Committee (ref 14/LO/0508).

The only situation in which we might have to break confidentiality would be if we thought that the child, or someone else might be at risk of harm, or if we became aware of issues of a criminal nature. If we thought the child or someone else was at risk of harm, we would talk to you and the child about the issue.

What will happen to the results of the research study?

The research should be completed by the end of 2015. The results will be written-up as part of a Doctoral Thesis in Clinical Psychology, and if possible, will also be published. . You or the child will be sent a newsletter to inform you of the results if you wish. None of the individual questionnaires or experimental results will be displayed in the results so the child will not be identifiable in the report.

Who has reviewed the study?

An ethical review of this study has been carried out by the Joint South London and Maudsley and the Institute of Psychiatry NHS Research Ethics Committee (ref 14/LO/0508).

Contact for Further Information:

Should you need further information please contact Jeyda Ibrahim, Clinical Psychologist in Training (tel: 07810230966)

Thank you very much for taking the time to consider this research study.

1.3 Consent form for person with parental responsibility for LAC

Institute of Psychiatry
at the Maudsley

South London and Maudsley **NHS**
NHS Foundation Trust

KING'S
College
LONDON
University of London

LREC Study Number: 14/LO/0

Subject Identification Number for this trial:

PERSON WITH PARENTAL RESPONSIBILITY CONSENT FORM
(Looked After Children group)

Title of Project: <u>Cognitive and Emotional Functioning in Looked After</u>
<u>Children: A Control Comparison Study</u>
If you wish to take part in this study, please complete this form
and return it in the stamped addressed envelope provided

Name of Researcher: Jeyda Ibrahim
Name of subject: _____
Address: _____
      _____
      _____
      _____
Telephone number: _____.
Please initial box

1. I confirm that I have read the information sheet (dated 22/04/2014) for the above study and have had the opportunity to ask questions.   ☐

2. I understand that I or the child I am giving parental responsibility for can choose whether I o the child would like to take part in the study or not and that I or the child am free to withdraw at any time, without giving any reason.   ☐

3. I understand that the only situation in which you might have to break confidentiality   would be if you thought that the child or someone else might be at risk of harm, or if you became aware of issues of a criminal nature.   ☐

4. I agree to take part in the above study.   ☐

_____   _____
Name of person with parental responsibility   Date

_____

Signature

Name of child _____
1 for carer; 1 for researcher; 1 for local authority

1.4 Assent form for LAC

King's College LONDON

South London and Maudsley NHS
NHS Foundation Trust

Assent form for young people (LAC group)

<u>Cognitive and Emotional Functioning in Looked After Children: A comparison Control Study</u>

Names: Researchers Name: Jeyda Ibrahim

Thank you for thinking about taking part in this project. It is important that the project is explained to you before you agree to take part. After reading the information sheet if you have any questions please ask before agreeing to join in. You will be given a copy of this form.

Please tick the boxes for the sentences you agree with:

1. I have read the information sheet for young people and someone from the team has answered my questions ☐

2. I know that I can change my mind about being involved at anytime and I do not have to say why ☐

3. I know that anything I say will be kept private unless it is about me or somebody else being hurt ☐

4. I would like to be part of this project ☐

Name of young person: Date:

5. I have provided the information sheet, explained the project, and answered any questions honestly and fully ☐

Name of researcher: Date:

Signature:

When completed one copy for person with parental responsibility and one copy for the researcher will be given.

1.5 Cover letter for parents at schools

Dear parents,

As x School we have agreed to take part in some research with the Institute of Psychiatry, King's College London. The study is about Cognitive and Emotional Functioning in Looked After Children. Researchers would like to compare these children to children who are still living with their parents x Primary school.

Your child will meet with the main researcher to solve some puzzles and answer some questions during school time. This will only happen once and will take approximately hour. No identifiable information will be used and you or your child can withdraw at any time. Your child will also be rewarded with a **£10 Amazon voucher! You will be given a brief report summarising your child's performance.**

Please note that your child must be **9 or above** to participate and not all children who sign up will be asked to participate. This will not be for any particular reason but only because the researchers have a limited amount of time and resources to complete this research, therefore will only have spaces for a limited amount of children.

If would like your child to take part in this project please read the attached **information sheet for parents** and ask your child to read the attached information sheet for them. Please then complete the **reply slip** below and the **parental consent form**. You will also need to ask your child to complete the **child assent form**. Please return both forms and the reply slip to x by dd.mm.yy**.**

Yours Sincerely,

I .... give permission to contacted by the researcher about the study. I have completed the attached parental consent form and my child has completed the attached assent form.

I understand that this does not mean my child has to or will definitely be taking part in this research.

I confirm that we have not migrated to this country within the last 5 years and that my child is 9 years or older.

My child's name is: ....

My child's date of birth is: ....

Signature: Date:

1.6 Information Sheets for Parents in non-LAC group

INFORMATION SHEET & CONSENT FORM (Control group)
Cognitive and Emotional Functioning in Looked After Children: A Control Comparison Study

Your child is being invited to take part in a research study being conducted by research staff at the Institute of Psychiatry, King's College London. Before you decide whether you would like your child to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with your legal guardian, relatives and your GP if you wish. This information sheet is intended to give you enough information to decide whether or not you wish your child to take part in the study. Please don't hesitate to contact us if there is anything that is not clear or if you would like more information. Please take your time to decide whether or not you wish to take part. Thank you for reading this.

What is the purpose of the study?
This study aims to find out more about how difficulties with memory and making decisions may affect the way we feel about others and ourselves. The study will be looking at the reactions of children that are 'Looked After' (i.e. in foster care, residential care or subject to a care order) and children recruited through a primary school. We hope that the results will improve our understanding of how difficulties with memory and making decisions can effect the way we feel about ourselves and others and may eventually lead to improvements in the access, delivery of treatment and assessment in health services.

Why have I been invited?
You have been invited because you are the legal guardian of a child that is attends [insert name when known] primary school and is aged between 9-12 years. Your child's answers will be compared to answers provided by a sample of 'Looked After' Children to see if there are any differences in their responses.

If you are interested in taking part, we will talk to you on the phone (or in person if you prefer) about the research, ask you and your child a few questions and then arrange a time to meet your child (and yourself if you wish) to complete a few tasks.

Do I have to take part?
No, taking part is voluntary and your child is free to withdraw at any time without giving a reason. You are also free to withdraw your child at any time.

The tasks will take no longer than an hour and a half and will take place at school. We will liaise with your child's school if you decide for you and your child to take part in the study to arrange a time to meet with your child. If you would also like to meet with us prior to us meeting with your child then we can arrange to do this. Your decision whether or not to take part will not affect any ongoing healthcare, including future or current

treatment. Your child will receive £10 to thank them for their time on completion of the tasks. At any stage of the study you are free to withdraw without giving a reason.

What will happen to me if I take part?
Once you have agreed to take part in the study you will be contacted by the researcher by telephone. Your child will be asked to attend an hour and a half long interview which will take place at their school, in which they will complete several tasks with the researcher. Only the researcher will have access to the answers they give and they will be kept on a computer that is protected by a password that only the researcher knows. Once the results have been scored up then they will be destroyed.

Are there any risks?
There are no known risks involved in the study. If your child does find any of the questions distressing then they can decline to answer them or you both may discuss them or any other aspects of the study with the main researcher, Jeyda Ibrahim (Clinical Psychologist in Training), if there is anything you would like to discuss. Dr Matt Woolgar (Clinical Psychologist) will also be available to contact should you wish to discuss anything further.

What are the possible benefits of taking part?
There is no intended clinical benefit to your child from taking part in this study and it will not affect the care you or they receive. However, we hope that the information gathered from the study will help us to understand more about the cognitive difficulties associated with emotional and relationship problems in children. You will also be provided with a short report of your child's scores.

Will my taking part in this study be kept confidential?
All information which is collected from the study will be kept strictly confidential. Neither you nor your child's name is not on the questionnaires we will complete together. The only information we require about your child is asked during the interview and no other information will be sought from you, your child, the clinic or school. Questionnaires and paper results will be stored in locked filing cabinets that will only be accessible to the research staff involved in this study. The results will be entered into a computer base for statistical analysis, but again your child's name will not be entered and the files will be password protected.

The requirements of the Data Protection Act will be complied with at all times, and the research has been approved by the Joint South London and Maudsley and the Institute of Psychiatry NHS Research Ethics Committee (ref 14/LO/0508).

The only situation in which we might have to break confidentiality would be if we thought that your child, you or someone else might be at risk of harm, or if we became aware of issues of a criminal nature. If we thought you, your child or someone else was at risk of harm, we would talk to you and your child about the issue and let the clinical team and social worker know how you both feel.

What will happen to the results of the research study?
The research should be completed by the end of 2015. The results will be written-up as part of Jeyda Ibrahim's Doctoral Thesis in Clinical Psychology, and if possible, will also be published. You and your child will be sent a newsletter to inform you of the results if you wish. None of the individual questionnaires or experimental results will be displayed in the results so your child will not be identifiable in the report.

Who has reviewed the study?

An ethical review of this study has been carried out by the Joint South London and Maudsley and the Institute of Psychiatry NHS Research Ethics Committee (ref 14/LO/0508).

Contact for Further Information:
Should you need further information please contact Jeyda Ibrahim, Clinical Psychologist in Training (tel: 07810230966).

Thank you very much for taking the time to consider this research study.

If you decide to take part you are still free to withdraw at any time without giving a reason. This will not affect the standard of care you receive.

1.7 Information Sheet for Young Person in non-LAC group

Information Sheet for Young People

Comparing children who are 'looked after' to those who are not on how they think and feel

We would like you to read the information sheet and ask us any questions you have. If you agree to be part of this project then we would like you to read and tick boxes on the permission form.

- ***What is this project about?*** This project is to understand what sort of help children who no longer live with their parents may need.
- ***Who are you?*** ***What do you do?*** We are psychologists who work with children or teenagers who have experienced difficulties because their parents cannot provide care for them. We talk to them to try and understand them and help them cope with their problems.
- ***Why are you asking children in my class ?*** We are asking you because we want to compare children like you who do live with their parents, to children who don't live with their parents.
- ***What do I have to do to take part?*** We will ask you to do some puzzles with us and fill in some questionnaires. Everything should take about an hour and a half.
- ***What will I get?*** You will be given a £10 book token after everything is finished. You and your parents will also get a summary of your results.
- ***Who will know?*** We will not tell anybody your name or the things you have told us, unless we think you or someone else might be hurt.
- ***Can I say no?*** You can say no now, or at any point during the project without telling us why.
- ***Can I find out more?*** Yes, you can ask us, your parents or teachers any questions you have. We have given them a longer sheet than this one, if you would like to read it with them you can. If they agree, we can talk to you on the phone or meet up with you to tell you more. You can meet us with your family or alone, and all the meetings will take place at your school.

Thank you for reading this

1.8 Consent form for parents for non-LAC group

KING'S College LONDON

South London and Maudsley NHS
NHS Foundation Trust

LREC Study Number: 14/LO/0508.

Patient Identification Number for this trial:

PARENTAL CONSENT FOR

Title of Project: <u>Cognitive and Emotional Functioning in Looked After Children: A Control Comparison Study</u>

If you wish for your child to take part in this study, please complete this form

and return it in the stamped addressed envelope provided

Name of Researcher: Jeyda Ibrahim

Name of Young Person: _____

Address: _____

_____

_____

_____

Telephone number: _____.

Please initial box

1. I confirm that I have read the information sheet (dated 14/04/14) for the above study and have had the opportunity to ask questions. ☐

2. I understand that I can choose whether I would like to take part in the study or not and that I or my child are free to withdraw at any time, without giving any reason, without mine or my child's medical care or legal rights being affected. ☐

3. I understand that the only situation in which you might have to break confidentiality   would be if you thought that me/my child or someone else might be at risk of harm, or if you became aware of issues of a criminal nature. ☐

4. I agree for my child to take part in the above study. ☐

_____   _____   _____

Name of Patient   Date   Signature

1.9 Assent form for child in non-LAC group

King's College LONDON

South London and Maudsley **NHS**
NHS Foundation Trust

Assent form for young people (Control group)

Cognitive and Emotional Functioning in Looked After Children: A comparison Control Study

Names: Researchers Name: Jeyda Ibrahim

Thank you for thinking about taking part in this project. It is important that the project is explained to you before you agree to take part. After reading the information sheet if you have any questions please ask before agreeing to join in. You will be given a copy of this form.

Please tick the boxes for the sentences you agree with:

1. I have read the information sheet for young people and someone from the team has answered my questions ☐

2. I know that I can change my mind about being involved at anytime and I do not have to say why ☐

   ☐

3. I know that anything I say will be kept private unless it is about me or somebody else being hurt

   ☐

4. I would like to be part of this project

Name of young person: Date:

5. I have provided the information sheet, explained the project, and answered any questions honestly and fully ☐

Name of researcher: Date:

Signature:

When completed one copy for child and parent, one copy for the school and one copy for the researcher will be given.

1.10 Reflections on recruitment process

The LAC population are a difficult population to conduct research with due to the complications with who has parental responsibility. The recruitment process required a high level of persistence and liaison with the local authority. Due to this reason it was difficult to both get the correct numbers to meet power calculations and ensure that the LAC and non-LAC groups were matched on age and gender. The phases of recruitment are described below:

Phase 1.

One primary school for the non-LAC population was identified to participate in the research. Unfortunately, only 11 parents gave consent for their children to participate. Therefore, another primary school was needed to meet sufficient numbers for the non-LAC group.

Phase 2.

The second primary school was sufficient enough to meet the number of non-LAC children required to meet power calculations (23). However, at the end of this phase it was identified that the two samples were not matched on age effectively. Over half of the LAC population was over 12 years old, whereas none of the non-LAC group were 12 years old.

Phase 3.

A secondary school was identified to recruit 12 year old non-LAC participants. Unfortunately, this was an all-girls school and there was not enough time to recruit another school with a mix gender. Therefore, there were a much higher number of males in the LAC group and a higher number of females in the non-LAC group.

1.11 Ethical Approval Letters from NRES and R&D

NHS

Health Research Authority

NRES Committee London - Riverside
Level 3 Block B
Whitefriars
Lewins Mead
Bristol
BS1 2NT

Telephone: 0117 342 1385
Fax:0117 342 0445

21 May 2014

Ms Jeyda Ibrahim
Addiction Sciences Building
4 Windsor Walk
London
SE5 8AF

Dear Ms Ibrahim

Study title:	**Cognitive and executive processes associated with emotional and relationship difficulties in the looked after children population**
REC reference:	14/LO/0508
Protocol number:	N/A
IRAS project ID:	145161

Thank you for your letter of , responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details. Publication will be no earlier than three months from the date of this opinion letter. Should you wish to provide a substitute contact point, require further information, or wish to make a request to postpone publication, please contact the REC Manager, Miss Tina Cavaliere, nrescommittee.london-riverside@nhs.net.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at http://www.rdforum.nhs.uk.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host organisations

Registration of Clinical Trials

All clinical trials (defined as the first four categories on the IRAS filter page) must be registered on a publically accessible database within 6 weeks of recruitment of the first participant (for medical device studies, within the timeline determined by the current registration and publication trees).

There is no requirement to separately notify the REC but you should do so at the earliest opportunity e.g when submitting an amendment. We will audit the registration details as part of the annual progress reporting process.

To ensure transparency in research, we strongly recommend that all research is registered but for non clinical trials this is not currently mandatory.

If a sponsor wishes to contest the need for registration they should contact Catherine Blewett (catherineblewett@nhs.net), the HRA does not, however, expect exceptions to be made. Guidance on where to register is provided within IRAS.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Ethical review of research sites
NHS sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Non-NHS sites

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date
Evidence of Sponsor insurance or indemnity (non NHS Sponsors only)		09 August 2013
Non-validated questionnaire [MFQC]		
Participant consent form [Consent Form Parental Responsibility LAC]	1	10 March 2014
Participant consent form [Consent Form Parent Control]	1	10 March 2014
Participant consent form [Consent Form Child LAC]	1	10 March 2014
Participant consent form [Consent Form Child Control]	1	10 March 2014
Participant information sheet (PIS) [Information sheet for parents of control group]	2	14 April 2014
Participant information sheet (PIS) [Info Sheets Parental Responsibility LAC]	1	10 March 2014
Participant information sheet (PIS) [Information sheet for young people in LAC group (clean)]	4	14 May 2014
Participant information sheet (PIS) [Information sheet for person/authority with parental responsibility for children in LAC group]	2	14 April 2014
Participant information sheet (PIS) [Information sheet for young people in control group (clean & tracked)]	3	06 April 2014
REC Application Form		10 March 2014
Research protocol or project proposal	1	10 March 2014
Response to Request for Further Information		
Summary CV for Chief Investigator (CI)	CV- Dr Matt Woolgar	
Summary CV for Chief Investigator (CI)	CV-Jeyda Ibrahim	
Validated questionnaire [BPFS-C]	1	10 March 2014

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document *"After ethical review – guidance for researchers"* gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The HRA website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

Feedback

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website:
http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/

We are pleased to welcome researchers and R & D staff at our NRES committee members' training days – see details at http://www.hra.nhs.uk/hra-training/

14/LO/0508	Please quote this number on all correspondence

With the Committee's best wishes for the success of this project.

Yours sincerely

Dr Sabita Uthaya
Chair

Email: nrescommittee.london-riverside@nhs.net

Enclosures: "After ethical review – guidance for researchers"

Copy to: Mr Keith Brennan
Ms Jennifer Liebscher, South London and Maudsley NHS Foundation Trust, R&D Department

Institute of Psychiatry

at The Maudsley

Research and Development Office

Box P005
De Crespigny Park
Denmark Hill
London SE5 8AF
Tel +44 (0)20 7848 0790
Fax +44(0)20 7848 0147
http://www.kcl.ac.uk/iop/research/office/index.aspx

KING'S College LONDON
Founded 1829

Ms Jeyda Ibrahim
Addiction Sciences Building
4 Windsor Walk
London
SE5 8AF

25 June 2014

Dear Ms Ibrahim

Trust Approval: R&D2014/065
Title: Cognitive and executive processes associated with emotional and relationship difficulties in the looked after children population
REC Reference: 14/LO/0508

I am writing to confirm approval for the above research project at South London and Maudsley NHS Foundation Trust. This approval relates to work in the Child and Adolescent Mental Health Services CAG and to the specific protocol and informed consent procedures described in your R&D Form. Any deviation from this document will be deemed to invalidate this approval. Your approval number has been quoted above and should be used at all times when contacting this office about this project.

Amendments, including extending to other Trust directorates will require further approval from this Trust and where appropriate the relevant Research Ethics Committee. Amendments should be submitted to this R&D Office by completion of an R&D Amendment form together with any supporting documents. A copy of this is attached (R and D Amendment Form V3.doc), but is also available on the R&D Office website.
King's College London - Research and development approval

I can confirm that King's College London and South London and Maudsley NHS Foundation Trust will be taking on the role of Sponsor for this study.

Approval is provided on the basis that you agree to adhere to the Department of Health's Research Governance requirements including:

- Ethical approval must be in place prior to the commencement of this project.

- As Chief Investigator and/or Principal Investigator for this study you have familiarised yourself with, and accept the responsibilities commensurate with this position, as outlined in the Research Governance Framework

http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4122427.pdf.
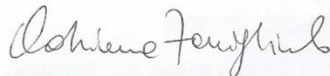
- Compliance with all policies and procedures of the Trust which relate to research, and with all relevant requirements of the Research Governance Framework. In particular the Trust Confidentiality Policy. http://www.slam.nhs.uk/media/107386/confidentiality%20policy.pdf
  .

- Co-operating with the Trust R&D Office's regular monitoring and auditing of all approved research projects as required by the research governance framework, including complying with ad hoc requests for information.

- Informing the Trust's Health and Safety Coordinators and/or the Complaints Department or of any adverse events or complaints, from participants recruited from within this Trust, which occurs in relation to this study in line with Trust policies. Contact details are available from the R&D Office if required.

- Sending a copy of any reports or publications which result from this study to the Trust Departments involved in the study if requested.

- Honorary Contracts must be in place prior to patient contact for all relevant members of the research team. Advice on this will be provided by the R&D Office at the point of obtaining R&D approval and on an ongoing basis for new members of staff joining the research team.

- Sending a copy of the annual reports and end of project notification submitted to ethics.

Failure to abide by the above requirements may result in the withdrawal of the Trust's approval for this research.

If you wish to discuss any aspect of this research approval with the R&D Office, please contact Jenny Liebscher jennifer.liebscher@kcl.ac.uk in the first instance.

I wish you every success with this study.

Yours sincerely

Adriana Fanigliulo
Research Governance Facilitator
SLaM/IoP R&D Office

Enc. R&D Approval Amendment Form

2. Decision-making and Memory Tasks Outcome Variables

2.1 VRM outcome variables

2.1.1 VRM Free Recall- total correct

The total number of correctly recalled words from list of words presented in previous phase (range 0-12).

2.1.2 VRM Recognition-total correct

The number of words the participant recognises as seen or as not seen correctly from the previous phase within a list of new and old words (range 0-24).

2.2 AGN outcome variables

2.2.1 AGN Total Omissions Positive

Total number of missed responses to target type positive in the blocks where target is positive (range 0-36).

2.2.2 AGN Total Omissions Negative

Total number of missed responses to target type negative in blocks where target is negative (range 0-36)

2.3 CGT outcome variables

2.3.1 CGT Quality of Decision Making

The majority of trials offer a choice on which more of the boxes are of one colour or the other. The participant has a choice to choose the more or less likely colour. This score is the proportion of these trials on which the participant chose the most likely outcome.

2.3.2 CGT Deliberation Time

The mean time from the presentation of the coloured boxes to the participant's choice of which colour to bet on.

2.3.3 CGT Risk Taking

The mean proportion of the participant's current points total that the subject chooses to bet on gamble test trials for which they had chosen the most likely outcome, i.e. trials on which they had more chance of winning than losing.

2.3.4 CGT Risk Adjustment

Participant will usually gamble more of their current points when the odds are strongly in their favour. This score reflects the tendency to bet a higher

proportion of their points on trails when the large majority of the boxes are the colour than when a smaller majority of the boxes are of the colour chosen.

2.3.5 CGT Delay Aversion

Participants who are unable or unwilling to wait will bet larger amounts of their point total when the possible bet amounts are presented in descending order than they do when the amounts are presented in ascending order.

2.3.6 CGT Overall Proportion Bet

This score reports the average proportion of the current points total that the subject chose to risk on each gamble test trial, including trials on which they bet on the less likely outcome, and trials on which both outcomes were equally likely.

3. Sample Report given to Person with Parental Responsibility

South London and Maudsley **NHS**
NHS Foundation Trust

KING'S
College
LONDON

**Institute of
Psychiatry**

at The Maudsley

Private and confidential

Summary ReportName: XYY

Age at Testing: 11 years and 5 months

XXparticipated in a research study investigating cognitive and emotional functioning features in looked after children. As part of the study XXunderwent some cognitive and mental well-being assessments. He engaged really well with the assessment and with encouragement was able to concentrate throughout. Please note this does not constitute a comprehensive psychological assessment. This summary contains brief feedback on his results. It may be helpful for a copy of this summary to be filed on X' medical and educational records.

Date of Testing: 30th January 2014

Administrator: Jeyda Ibrahim (Trainee Clinical Psychologist)

Co-researchers: Dr Nicola Cosgrave & Dr Matt Woolgar (Consultant Clinical Psychologists)

Summary of scores

1. IQ (measure of general intelligence)

The two subtest form of the Wechsler Abbreviated Scale of Intelligence-II (WASI-II) was administered. This form includes Vocabulary (measuring word knowledge, verbal concept formation, and fund of knowledge) and Matrix Reasoning (visual information processing and abstract reasoning) and provides the full scale of intellectual functioning score (FSIQ). The measure has been standerdised with a population age ranging from 6 to 89 years.

X' FSIQ score was 74 this falls within the borderline range of functioning and places him on the 4th percentile. XXmay have some difficulty understanding abstract concepts and it may take him longer to complete tasks relative to other children his age. It may be helpful for this school to be aware of this in order to be able to provide extra support where necessary.

2. Mood

The mood and feelings questionnaire (MFQ) was used to measure mood. The MFQ consists of a series of descriptive phrases regarding how the subject has been feeling or acting recently. Codings reflect whether the phrase was descriptive of the subject most of the time, sometimes, or not at all in the past two weeks. A score of 11 or above may indicate depression.

Score 2 – This score is below the cut off score for depression suggesting no concern of low mood.

3. Relationships with others and self

Borderline Personality Features Scale for Children (BPFS-C) was used to measure the child's feelings about themselves, about others and their relationships. The average score on the BPFS-C is 59 within a normal population of children between ages 9 and 12. A higher score (approximately 85) which is one standard deviation above the mean at around 72 may indicate some difficulties in areas of affective instability, identity problems, negative relationships and self-harm.

Score 39- This score is within the normal range of interpersonal functioning for X' age.

Summary and Recommendations

XXengaged well with the assessment session and with encouragement concentrated throughout. His level of intelligence score was within the borderline range of functioning. It would be helpful for the school to know that he is in the borderline level of functioning relative to other children his age.

XXmay find it difficult to understand abstract concepts and therefore may need additional support with this. It may be helpful for him to get extra support at school to improve his academic performance. He may also benefit from additional support in daily living tasks relative to other children his age.

Finally, it may be helpful for another IQ test to be repeated in two years to observe whether there have been any changes. XXdid not show any level of low mood or interpersonal difficulty. If you have any further questions about X' scores please do not hesitate to get into contact with us. We advise that you share this report with X' school so they can provide additional support if necessary.

We thank you for giving consent for XX to participate in our research study and hope that it was a positive experience for him. Please do not hesitate to get in touch if you have any further questions.

Jeyda Ibrahim (Trainee Clinical Psychologist, Institute of Psychiatry)

jeyda.ibrahim@kcl.ac.uk

4. Correlations between demographic variables

Correlations

		Group	Gender	Age	Ethnicity	IQ	MFQ
Group	Pearson Correlation	1	.331**	-.222	.175	.603**	.247*
	Sig. (2-tailed)		.006	.071	.156	.000	.044
	N	67	67	67	67	67	67
Gender	Pearson Correlation	.331**	1	.242*	.056	.213	.032
	Sig. (2-tailed)	.006		.048	.654	.084	.800
	N	67	67	67	67	67	67
Age	Pearson Correlation	-.222	.242*	1	.054	-.043	-.283*
	Sig. (2-tailed)	.071	.048		.662	.728	.020
	N	67	67	67	67	67	67
Ethnicity	Pearson Correlation	.175	.056	.054	1	.009	.111
	Sig. (2-tailed)	.156	.654	.662		.942	.370
	N	67	67	67	67	67	67
IQ	Pearson Correlation	.603**	.213	-.043	.009	1	.064
	Sig. (2-tailed)	.000	.084	.728	.942		.610
	N	67	67	67	67	67	67
MFQ	Pearson Correlation	.247*	.032	-.283*	.111	.064	1
	Sig. (2-tailed)	.044	.800	.020	.370	.610	
	N	67	67	67	67	67	67

**. Correlation is significant at the 0.01 level (2-tailed).

*. Corrlation is significant at the 0.05 level (2-tailed).

4.1.1 MANCOVA for decision-making skills and memory

Dependent Variable		Sum of Squares	df	F	Sig.	Partial Eta Squared
Free Recall	Contrast	7.720	1	3.136	.081	.046
	Error	160.041	65			
Recognition	Contrast	3.662	1	.624	.432	.010
	Error	381.532	65			
Positive omissions	Contrast	250.077	1	2.995	.088	.044
	Error	5427.863	65			
Negative omissions	Contrast	548.362	1	6.881	.011	.096
	Error	5179.907	65			
Delay aversion	Contrast	.421	1	7.096	.010	.098
	Error	3.855	65			
Deliberate time	Contrast	30455.735	1	.021	.884	.000
	Error	92832627.311	65			
Overall proportion bet	Contrast	.056	1	2.650	.108	.039
	Error	1.383	65			
Quality of decision making	Contrast	.524	1	21.062	.000	.245
	Error	1.616	65			
Risk adjustment	Contrast	1.809	1	2.303	.134	.034
	Error	51.058	65			
Risk taking	Contrast	5.310E-5	1	.001	.980	.000
	Error	5.683	65			

4.1.2 MANCOVA for decision-making skills and memory whilst controlling for age

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.809	23.312[b]	10.000	55.000	.000
	Wilks' Lambda	.191	23.312[b]	10.000	55.000	.000
	Hotelling's Trace	4.238	23.312[b]	10.000	55.000	.000
	Roy's Largest Root	4.238	23.312[b]	10.000	55.000	.000
Age	Pillai's Trace	.401	3.687[b]	10.000	55.000	.001
	Wilks' Lambda	.599	3.687[b]	10.000	55.000	.001
	Hotelling's Trace	.670	3.687[b]	10.000	55.000	.001
	Roy's Largest Root	.670	3.687[b]	10.000	55.000	.001
Group	Pillai's Trace	.449	4.480[b]	10.000	55.000	.000
	Wilks' Lambda	.551	4.480[b]	10.000	55.000	.000
	Hotelling's Trace	.814	4.480[b]	10.000	55.000	.000
	Roy's Largest Root	.814	4.480[b]	10.000	55.000	.000

a. Design: Intercept + Age + Group

b. Exact statistic

Multivariate analysis

Source	Dependent Variable	F	Sig.	Partial Eta Squared
Corrected Model	FreeRecall	6.506	.003	.169
	Recognition	.388	.680	.012
	positiveomissions	5.085	.009	.137
	negativeomissions	7.928	.001	.199
	delayaversion	7.410	.001	.188
	deliberatetime	.983	.380	.030
	overallproportionbet	1.918	.155	.057
	qualityofdecisionmaking	11.770	.000	.269
	riskadjustment	5.911	.004	.156
	risktaking	.945	.394	.029
Intercept	FreeRecall	.252	.618	.004
	Recognition	59.167	.000	.480
	positiveomissions	15.728	.000	.197
	negativeomissions	17.331	.000	.213

	delayaversion	23.337	.000	.267
	deliberatetime	12.868	.001	.167
	overallproportionbet	16.802	.000	.208
	qualityofdecisionmaking	10.272	.002	.138
	riskadjustment	6.101	.016	.087
	risktaking	8.259	.005	.114
Age	FreeRecall	9.467	.003	.129
	Recognition	.161	.689	.003
	positiveomissions	6.904	.011	.097
	negativeomissions	8.211	.006	.114
	delayaversion	7.062	.010	.099
	deliberatetime	1.945	.168	.029
	overallproportionbet	1.178	.282	.018
	qualityofdecisionmaking	2.117	.151	.032
	riskadjustment	9.228	.003	.126
	risktaking	1.889	.174	.029
Group	FreeRecall	6.345	.014	.090
	Recognition	.730	.396	.011
	positiveomissions	5.503	.022	.079
	negativeomissions	11.104	.001	.148
	delayaversion	10.929	.002	.146
	deliberatetime	.028	.868	.000
	overallproportionbet	3.351	.072	.050
	qualityofdecisionmaking	23.388	.000	.268
	riskadjustment	5.041	.028	.073
	risktaking	.109	.743	.002

4.2 MANCOVA for decision-making skills and memory whilst controlling for age and IQ

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.763	18.331[b]	10.000	57.000	.000
	Wilks' Lambda	.237	18.331[b]	10.000	57.000	.000
	Hotelling's Trace	3.216	18.331[b]	10.000	57.000	.000
	Roy's Largest Root	3.216	18.331[b]	10.000	57.000	.000
Age	Pillai's Trace	.436	4.404[b]	10.000	57.000	.000
	Wilks' Lambda	.564	4.404[b]	10.000	57.000	.000
	Hotelling's Trace	.773	4.404[b]	10.000	57.000	.000
	Roy's Largest Root	.773	4.404[b]	10.000	57.000	.000
IQ	Pillai's Trace	.374	3.404[b]	10.000	57.000	.002
	Wilks' Lambda	.626	3.404[b]	10.000	57.000	.002
	Hotelling's Trace	.597	3.404[b]	10.000	57.000	.002
	Roy's Largest Root	.597	3.404[b]	10.000	57.000	.002
Group	Pillai's Trace	.274	2.149[b]	10.000	57.000	.035
	Wilks' Lambda	.726	2.149[b]	10.000	57.000	.035
	Hotelling's Trace	.377	2.149[b]	10.000	57.000	.035
	Roy's Largest Root	.377	2.149[b]	10.000	57.000	.035

a. Design: Intercept + Age + IQ + Group

b. Exact statistic

4.3 ANCOVA for BPFS-C score with Age and Mood as Covariate

Tests of Between-Subjects Effects

Dependent Variable: BPFS

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	7773.897[a]	3	2591.299	21.698	.000
Intercept	2842.293	1	2842.293	23.799	.000
Age	249.362	1	249.362	2.088	.153
MFQ	4995.862	1	4995.862	41.832	.000
Group	300.137	1	300.137	2.513	.118
Error	7523.894	63	119.427		
Total	226419.000	67			
Corrected Total	15297.791	66			

4.3.1 ANCOVA's for LAC vs Non-LAC on BPFS-C subscales

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	Affective Instability	55.868[a]	1	55.868	3.313	.073	.048
	Identity Problems	239.142[b]	1	239.142	10.577	.002	.140
	Negative Relationships	180.142[c]	1	180.142	9.214	.003	.124
	SelfHarm	3.427[d]	1	3.427	.176	.676	.003
Intercept	Affective Instability	15751.749	1	15751.749	933.968	.000	.935
	Identity Problems	13362.246	1	13362.246	591.007	.000	.901
	Negative Relationships	9149.336	1	9149.336	467.962	.000	.878
	Self-Harm	12430.412	1	12430.412	638.104	.000	.908
Group	Affective Instability	55.868	1	55.868	3.313	.073	.048
	Identity Problems	239.142	1	239.142	10.577	.002	.140
	Negative Relationships	180.142	1	180.142	9.214	.003	.124
	SelfHarm	3.427	1	3.427	.176	.676	.003
Error	Affective Instability	1096.251	65	16.865			
	Identity Problems	1469.604	65	22.609			
	Negative Relationships	1270.843	65	19.551			
	Self-Harm	1266.215	65	19.480			
Total	Affective Instability	17451.000	67				
	Identity Problems	15810.000	67				
	Negative Relationships	11123.000	67				
	Self-Harm	13985.000	67				
Corrected Total	Affective Instability	1152.119	66				
	Identity Problems	1708.746	66				
	Negative Relationships	1450.985	66				
	Self-Harm	1269.642	66				

a. R Squared = .048 (Adjusted R Squared = .034)

b. R Squared = .140 (Adjusted R Squared = .127)

c. R Squared = .124 (Adjusted R Squared = .111)

d. R Squared = .003 (Adjusted R Squared = -.013)

4.3.2 MANCOVA for BPFS-C subscales whilst controlling for mood, age and gender

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.308	6.578[b]	4.000	59.000	.000	.308
	Wilks' Lambda	.692	6.578[b]	4.000	59.000	.000	.308
	Hotelling's Trace	.446	6.578[b]	4.000	59.000	.000	.308
	Roy's Largest Root	.446	6.578[b]	4.000	59.000	.000	.308
Age	Pillai's Trace	.187	3.384[b]	4.000	59.000	.015	.187
	Wilks' Lambda	.813	3.384[b]	4.000	59.000	.015	.187
	Hotelling's Trace	.229	3.384[b]	4.000	59.000	.015	.187
	Roy's Largest Root	.229	3.384[b]	4.000	59.000	.015	.187
IQ	Pillai's Trace	.079	1.257[b]	4.000	59.000	.297	.079
	Wilks' Lambda	.921	1.257[b]	4.000	59.000	.297	.079
	Hotelling's Trace	.085	1.257[b]	4.000	59.000	.297	.079
	Roy's Largest Root	.085	1.257[b]	4.000	59.000	.297	.079
Gender	Pillai's Trace	.101	1.648[b]	4.000	59.000	.174	.101
	Wilks' Lambda	.899	1.648[b]	4.000	59.000	.174	.101
	Hotelling's Trace	.112	1.648[b]	4.000	59.000	.174	.101
	Roy's Largest Root	.112	1.648[b]	4.000	59.000	.174	.101
Group	Pillai's Trace	.107	1.758[b]	4.000	59.000	.149	.107
	Wilks' Lambda	.893	1.758[b]	4.000	59.000	.149	.107
	Hotelling's Trace	.119	1.758[b]	4.000	59.000	.149	.107
	Roy's Largest Root	.119	1.758[b]	4.000	59.000	.149	.107

a. Design: Intercept + Age + IQ + Gender + Group

b. Exact statistic

5. Correlations between variables within both groups

Correlations

		BPFS	Affective Instability	Identity Problems	Negative Relationships	Self-Harm
Free Recall	Pearson Correlation	-.015	-.067	.049	.067	-.128
	Sig. (2-tailed)	.902	.588	.696	.590	.303
	N	67	67	67	67	67
Recognition	Pearson Correlation	-.136	-.142	-.194	-.011	-.055
	Sig. (2-tailed)	.273	.252	.115	.930	.658
	N	67	67	67	67	67
Positive omissions	Pearson Correlation	.025	.097	-.105	.018	.131
	Sig. (2-tailed)	.842	.434	.396	.884	.291
	N	67	67	67	67	67
Negative omissions	Pearson Correlation	-.040	.045	-.175	-.024	.094
	Sig. (2-tailed)	.748	.717	.157	.847	.447
	N	67	67	67	67	67
Delay aversion	Pearson Correlation	-.026	.086	-.008	-.051	-.099
	Sig. (2-tailed)	.832	.490	.949	.679	.426
	N	67	67	67	67	67
Deliberate time	Pearson Correlation	.265*	.028	.340**	.335**	.193
	Sig. (2-tailed)	.031	.821	.005	.006	.117
	N	67	67	67	67	67
Overall proportion bet	Pearson Correlation	.049	.065	.053	.050	-.027
	Sig. (2-tailed)	.694	.600	.673	.687	.828
	N	67	67	67	67	67
Quality of decision making	Pearson Correlation	.164	.143	.168	.098	.069
	Sig. (2-tailed)	.185	.247	.174	.429	.578
	N	67	67	67	67	67
*. Correlation is significar **. Correlation is significa Risk adjustment	Pearson Correlation Sig. (2-tailed) N	-.132 .288 67	-.229 .062 67	-.114 .357 67	-.124 .316 67	-.039 .755 67
Risk taking	Pearson Correlation	-.086	-.032	-.031	-.169	-.064
	Sig. (2-tailed)	.489	.798	.802	.170	.605
	N	67	67	67	67	67

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Service Related Project

'The Highs and Lows' through recovery: An integrative group combining Cognitive Behavioural Therapy, Narrative Therapy and the Tree of Life

Jeyda Ibrahim

Supervisor: Dr Jo Allen

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Abstract

The Treatment of Bipolar Disorder has been previously dominated by pharmacotherapy, however due to the inadequacy of pharmacotherapy there has been a growing interest in psychological therapies. This study explores an innovative pilot group therapy program that combined two therapeutic approaches; cognitive behavioural therapy and narrative therapy with a specific focus on the tree of life tool. Six participants with a diagnosis of Bipolar Disorder took part in this pilot group that was over 8 weekly sessions. There were no significant differences observed between the two measures (Clinical Outcomes of Routine Evaluation and Mental Health Recovery Measure), however, participants discuss their personal accounts of the benefits of the group in their own recovery. Clinical implications and future directions are discussed.

1. Introduction

1.1 Bipolar Disorder

Bipolar Disorder (BD) is described as one of the most unique mental health problems. The distinct feature of the disorder is mania. Mania is sometimes thought of as the opposite of depression. Mania consists of an elevated mood or euphoria. It is further characterised by over-activity with a reduced requirement to sleep and enhanced optimism that could become so excessive that the individual's judgment is irrational (Belmaker, 2004).

According to The International Classification of Diseases (ICD-10; World Health Organisation, 1992) individuals with BD have episodes of recurring (i.e., a minimum of two) significant changes in mood. These episodes consist of sometimes an elevation of mood (mania or hypomania), and sometimes a lowering of mood (depression). Mania usually begins rapidly and can lasts between 2 weeks and 4-5 months. Depression on the other hand usually last longer, approximately 6 months. These episodes usually follow stressful life events or traumatic experiences (World Health Organisation, 1992).

1.1.1 Prevalence and Rates of Relapse

BD in its broadest definition has a community lifetime prevalence of 4% and can have severe and multiple impacts on an individual's life. Prevalence rates have found to be not affected by race, ethnicity or gender (Ketter, 2012). Prevalence rates are also not affected by family income (Merikangas, Akiskal, Angst, Greenberg, Hirschfeld, Petukhova & Kessler, 2007). Individuals with BD have increased rates of mortality and disability than those who do not. Dominant causes of mortality include cardiovascular disease and diabetes in addition to unnatural causes such as suicide (Ketter, 2010). Yearly approximately 0.4% of individuals with BD will die by suicide; this is much greater than the international population average of 0.012% (Baldessarini & Tondo, 2003).

1.1.2 Risk factors for BD

Early research has shown a strong genetic predisposition for BD (Goodwin &

Jamison, 1990) and medication trials have demonstrated the efficacy of Lithium and anticonvulsive medication in stabilising the cycling of BD (e.g., Keck & McElroy, 1996). Although this research caused a focus in the disorder's biological risk factors, during the past two decades there has been a growing interest in the psychosocial risk factors. In particular the detrimental effects of BD including alcohol abuse, suicide, divorce and erratic work history (Goodwin & Jamison, 1990) suggest psychosocial factors to be of huge significance (Alloy, Abramson, Urosevic, Patricia, Walshaw, Nusslock & Neeren, 2005).

Two psychosocial risk factors have been studied in regards to BD: recent life events and social support (including negative support for example expressed emotion) (Alloy et al., 2005). Research has shown consistently that individuals with BD have experienced significant life events, which have caused considerable distress both before and following episodes of BD (Alloy, Abramson, Neeren, Walshaw, Urosevic & Nusslock, 2006; Alloy, Reilly-Harrington, Fresco & Whitehouse, 1999; Johnson & Kizer, 2002; Johnson & Roberts, 1995). Further, there has been considerable research showing social support improves the course of BD, whilst negative support (for example high expressed emotion) from significant others has negative impact on the course of BD (e.g., Johnson, Meyer, Winett & Small, 2000; Johnson, Winett, Meyer, Greenhouse, & Millet, 1999; Miklowitz, Goldstein, Nuechterlein, Snyder, & Mintz, 1988; Priebe, Wildgrube, & Muller-Oerlinghausen, 1989; Rosenfarb, Becker, Khan & Mintz, 1998).

A recent study using the cognitive model hypothesized that multiple, extreme, individualised, positive and negative appraisals of internal states are maintaining factors of BD. In addition, they hypothesized that these factors intensify symptoms of the disorder. Using a computer-based task they showed that individuals in the bipolar risk group demonstrated more extreme ratings of catastrophic appraisals of low activation states. Further, they had a tendency to make more extreme ratings of appraisals of high activation states. In addition individuals in the depression risk group scored higher on a range of negative appraisals of low activation states. They concluded that their findings provide preliminary evidence to support the role of specific cognitions in BD (Dodd,

Mansell, Morrison & Tai, 2011).

Mansell (2007) has illustrated using case studies that individuals with BD have multiple, extreme, and conflicting beliefs about changes in internal states and that these have reciprocal relationships with beliefs on behaviour, physiology, and the social environment. Mansell (2007) also supports that these are both maintaining factors and contributors to the escalation of bipolar symptoms (Mansell, 2007).

1.2 Psychological Treatment of BD

Although treatment of BD has dominated by pharmacotherapy medications such as Lithium only provide a lasting benefit for two thirds of individuals (Goodwin, 2002; Prien & Potter, 1990). Due to the inadequacy of medication treatment in preventing relapse there has been growing interest in psychological treatments for BD (Lam & Wong, 2005).

1.2.1 National Guidelines

The National Guidelines recommend individually tailored psychological interventions for people who have a BD but who are considerably stable. The psychological therapy should be in addition to medication and should last approximately 16 sessions. They suggest therapy should include: psycho-education about the disorder, the importance of regular routine and sleep, compliance with medication, monitoring mood, identifying early warning signs and strategies to prevent escalation into full-blown episodes, and enhancing general coping strategies. These recommendations for therapy are irrespective of differences in schools of therapy, which may be used (NICE, 2006).

In addition to psychological therapy they also recommend that healthcare professionals should offer individuals opportunities of social support such as a befriending scheme through trained volunteers. In particular this should be offered to people who present with chronic depressive symptoms (NICE, 2006).

1.2.2 Cognitive Behaviour Therapy (CBT)

In the past two decades there has been a growing interest into CBT for BD (Szentagotai & David, 2010). It has been the most consistently researched

psychological approach and research so far shows that it is a hopeful approach for recovering functioning in BD (Lam, Bright, Jones, Hayward, Schuck, Chisholm & Sham 2003; Scott, 2008). Classically, it has two components; cognitive (e.g. cognitive restructuring of dysfunctional or irrational beliefs) and behavioural (e.g. alteration of maladaptive behaviours). During the education phase it supports individuals with BD to understand the disorder and have a better monitoring and self-regulation of the disorder and a better adherence to the treatment. During the skill-training phase it helps individuals to identify residual and/or prodromal symptoms and use coping strategies to control them in order to prevent relapse. In the final stage CBT focuses on individual interpersonal and personal problems, which have occurred as a consequence of the disorder. This is known as the core beliefs restructuring and behavioural modification phase (Patelis-Siotis, 2001; Szentagotai & David, 2010).

A recent meta-analysis has shown the overall effect size of CBT compared to treatment as usual (e.g. medication) in BD to be significant (low to medium). This was during post-treatment and further follow-ups. Although all studies reviewed compared CBT in addition to medication with medication alone rather than to placebo, the authors concluded that a significant low to medium effect could be clinically significant. They argue that a critical question is, for what CBT is most and least effective. Their analysis showed CBT has a clear influence on symptoms post-treatment, for treatment adherence, quality of life, and life/social adjustment. However, it has no significant effects on relapse and/or recurrence and treatment cost (Szentahotai & David, 2010).

A recent qualitative study aimed to explore individual experiences of an integrative cognitive model in the process of recovery. They interpreted two themes from their analysis; ambivalent approaches (these were approaches that participants thought had both positive and negative consequences) such as taking medication and impact of diagnosis on identity and helpful approaches (these were approaches objectively thought to be helpful) such as understanding, social support and companionship (Mansell et al., 2010).

1.2.3 Group therapy

Research has generally shown cognitive-based group therapy can prevent relapse of BD (Burlingame, Strauss, & Joyce, 2012). For example, a recent pilot group intervention for BD (Castle, Berk, Berk, Lauder, Chamberlain & Gilbert, 2007) had participants attending 12 weekly 90-minute structured group sessions, which were developed using the Collaborative Therapy Framework (Castle & Gilbert, 2006). This approach is based on the stress vulnerability model and supports participants to prevent relapse by developing self-awareness and using coping mechanisms to acknowledge vulnerabilities and successfully deal with stress. Their results showed participants in the treatment group had fewer relapses and spent less 'unwell' time then the control group. Castle et al (2007) also stated some time was dedicated during sessions for group members to talk about personal experiences (Castle et al., 2007; Pearson & Burlingame, 2013).

Given that NICE guidelines recommend social support as an important factor for recovery, delivering therapy in a group modality may be particularly beneficial for individuals with BD. Further, delivering interventions in a group format is cost-effective.

1.2.4 Recovery

There have been a number of qualitative studies that have explored individual accounts of recovery for BD (Chapman, 2002; Michalak, Yatham, Kolesar, & Lam, 2006; Russell & Browne, 2005; Young & Ensing, 1999). Recovery from BD appears to be complex, dynamic and personal to the individual. However, in a broader sense individuals shift from a 'stuck' state of ambiguity, overwhelming information, lack of control, poor self-awareness, lack of acceptance and global poor functioning to a comparatively stable state in which they begin to recognise and face their difficulties. Further they draw on social support and companionship and begin to develop an improved understanding of their difficulties, reliable methods of keeping well, greater control over their lives, and a more coherent self-identity (Mansell, Powell, Pedley, Thomas & Jones, 2010).

Discussing recovery is important as it gives us more information about service

user's individual journey. This could help guide future interventions and the delivery of services. For the individual it makes their recovery more meaningful and person-centred. The service user movement has been highly influential in this (The Sainsbury Centre for Mental Health, 2003). Recent NICE guidelines also discuss the importance of service user involvement in services (NICE, 2011).

Whilst it is not possible to review all studies on recovery in general it is important to summarise key points. Pitt, Kilbride, Nothard, Welford, and Morrison (2007) argue that recovery is a dynamic process that does not have a specified end-point. In addition it is personalised in its contents and timing for individuals (Pitt et al., 2007). Higginson and Mansell (2008) discuss a move from a sense of loss of control to the emergence of perceived control as the individual begins to acknowledge and face their difficulties (Higginson & Mansell, 2008).

1.2.5 Narrative therapy

An important part of recovery is that it involves the individuals themselves making sense of their difficulties and then finding personal ways to address these difficulties and move forward in their recovery. A possible way of recovery would be to help individuals recognise their own strengths and resources. This also supports the shift from an illness centred approach to a person-centred one. A therapeutic approach, which fits in with the principles of recovery, is Narrative Therapy (NT).

A key phenomena of NT is that we 'narrate' our lives: therefore the narratives of the past, present and the future, are not only simply the stories of our lives but they can define our lives (Rhodes & Jakes, 2009). White and Epston (1990) argue that individuals with mental health problems have 'problem-saturated stories'. The aim of NT is to a) articulate the 'problem-saturated story' and its consequences on the individuals life and b) deconstruct this negative story and move to constructing an alternative narrative. An alternative narrative could be constructed in a number of ways. For instance, thinking of examples of events that do not fit the dominant story known as 'initiatives' (White, 2004) previously known as 'unique outcomes' (Rhodes & Jakes, 2009). Unfortunately, in addition to

their current-suffering individuals with mental health problems also undergo the costs of being narrated as 'outsiders' and as not as 'rational' as others (Foucault, 1965; Harper, 2004).

Recently, Rhodes and Jakes (2009) combined NT with CBT for individuals with psychosis. They argue that their therapeutic approach strongly highlights the importance of collecting resources both old and new in the life of the individual and simultaneously building new narratives of the self and the individual's world (Rhodes & Jakes, 2009). They draw on a few arguments to justify the use of this constructional approach. One particular argument relative to BD is building resources. In a review MacLeod and Moore (2000) suggest that concepts of strength and resources may prevent mood disorders and relapse. They argue that the aim of therapy should be to support the individual to discover and construct areas of strength and resources, in addition to employ long-term activities which give a sense of satisfaction and achievement (Rhodes & Jake, 2009).

Given the focus of NT away from an illness-focused approach it is possibly not surprising there are few studies to date on NT and BD. However, there has been evidence to suggest its usefulness in mood disorders (MacLeod & Moore, 2000) and emerging evidence in psychosis (Lysaker, Lancaster, and Lysaker, 2003; Roberts, 1999; Seikkula, Alakare, and Aaltonen, 2001). Given its focus on strengths and resources and its idiosyncratic nature in developing new narratives, as a form of recovery, NT may be a useful approach with individuals who have BD particularly in relation to relapse prevention.

1.2.6 Tree of Life

The Tree of Life (ToL) is a therapeutic tool, which is based on narrative approaches (REPSSI, 2007). It uses different parts of the tree to represent different parts of our lives. The use of metaphors encourages individuals to talk about their lives in ways that highlight their strengths and support them to become more hopeful about the future. This therapeutic tool was initially developed to support work with children affected by HIV/AIDS in southern Africa (REPSSI, 2007). However, it has been proven so successful that it is now used all

over the world in a variety of contexts (e.g. Hughes, 2013; Jamieson, 2012). In addition, this approach has been particularly used with Black and Minority Ethnic (BME) groups who's stories often have been marginalised as a way of enriching their story and therefore increasing their sense of control and promoting positive identity.

Currently being piloted on psychiatric wards within the South London and Maudsley and there is an ongoing ToL supervision group within the trust. Although to our knowledge the ToL has not been used with individuals who have BD given its narrative approach it could be a successful tool in supporting individuals to discover their strengths and resources. Further, to talk about their dreams and goals for the future. Thus, shifting from a problem-saturated story to an alternative construction. This is particularly important for BD as highlighted by the NICE guidelines they have to learn to be in control of their daily routine, identifying relapse signs and monitoring mood along with other things in their life. The ToL approach is also effective regardless of ethnicity, race or culture as it has been used successfully all around the world.

1.3 Current study

Given that evidence suggests limitations of CBT for BD i.e. not influencing rates of relapse unless therapy delivered in a group format and the important of identity the mentioned group decided to adapt the CBT model. The NT was used in addition to CBT to support the sharing of stories amongst group members and the development of more positive stories.

The current study combined CBT and NT as a group intervention for people who have a diagnosis of BD. The CBT in particular focused on early, middle and late warning signs and coping strategies, which can be used in each state. Further, it guided the psycho-education part of the group. It looked at symptoms and strategies in terms of cognitions, behaviours, emotions and physical symptoms. The NT focused on supporting people to share their stories and for group members to recognise the strengths of each other. In addition for them to develop a positive identity and control over their life. In particular, the ToL tool helped

give a metaphorical context to the CBT approach and encouraged individuals to tell their story in a positive light and facilitated discussion about hopes and dreams for the future. Finally, social support was encouraged through the group intervention and opportunities for discussion. A focus group was conducted at the end of the therapy programme to facilitate discussions around idiosyncratic recovery experiences for individuals. Individuals were also asked to complete the Clinical Outcomes of Routine Evaluation-10 (CORE-10) and Mental Health Recovery Measure (MHRM; Young & Bullock, 2003; Bullock, 2005) before and after the group. To reduce the sense of power imbalance a service user was invited to the first session and group facilitators also shared their own trees. Further, each individual was asked what their expectations were from the group during the assessment stage and this was incorporated in the design of the group.

2. Method
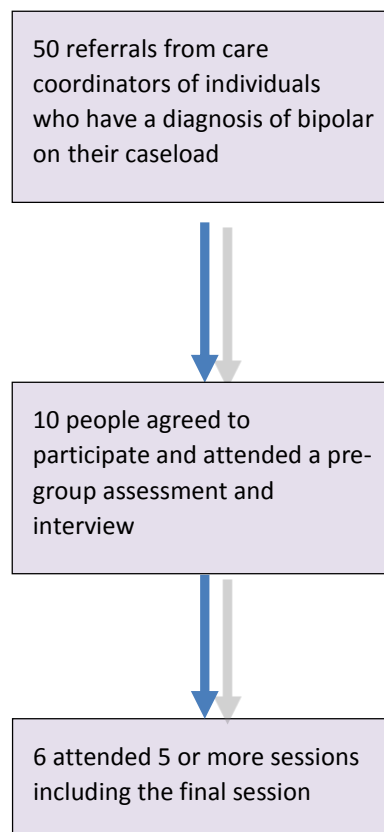
2.1 Participants

2.1.1 Service context

Participants were selected from a Support and Recovery Team for Psychosis and Bipolar disorder. The group was designed and run as a way of addressing the needs of people who have a diagnosis of Bipolar Disorder. There are limited resources for one to one therapy for people who have a diagnosis of Bipolar. Therefore, people with a diagnosis of Bipolar are likely to not get as much psychological support as those with a diagnosis of Psychosis.

Previously, a CBT group was run for people with Bipolar Disorder within the service. Five people had completed the group. The group members reported the helpful things about the group to be: meeting other people, sharing experiences with others who have been through similar things, validation, group being relaxed and informal and not forcing one perspective. They reported the unhelpful things to be: too much repetition of the CBT model, not enough time to discuss personal information and not wanting to discuss some personal information in the group setting. This feedback was given great consideration

when designing the current group.

2.1.2 Participant selection

Six adults attended the group regularly. This was defined by attending at least 5 sessions one of which included the final session out of 8. See figure 1 for a description of how participants were selected.

Figure 1. Description of participant selection

2.1.3 Demographics

5 out of 6 participants who attended were female. They were all service-users from a Psychosis Support and Recovery Team, and were referred by their care coordinators. The mean age of the 6 participants were 49.5 years with the range from 40 years to 59 years. Participants had a variety of different ethnicities including: White British, Nigerian, African, Columbian and Scottish. The 6 participants who completed the group attended at least 5 out of 8 sessions including the final session.

2.1.4 Exclusion and Inclusion Criteria

In order to be able to take part in the group participants either had to have a diagnosis of bipolar disorder or to have experienced elevations of high and low mood. Participants were required to be in a stable period and were unable to attend if they were currently experiencing psychotic symptoms or suicidal thoughts.

2.2 Facilitators

The group had two female facilitators; a trainee clinical psychologist and a clinical psychologist. They also designed and analysed the data for the group.

2.3 Procedure

2.3.1 Pre-group assessment

Before the group started each participant was interviewed by one of the facilitators. They were provided with information about the group such as: the number of sessions, when it will start, and a general overview of the group. They were then asked how things were for them at the moment, if they had had any previous psychological therapy and whether this was helpful or not, their expectations from the group, if the group was successful what would be different in their life, and how they would like to measure change.

Group members were involved in the development of the group. They were asked about their expectations of the group. This data was incorporated when the facilitators were designing the group. The combined aims of facilitators and group members are summarised in Table 1.

Table 1 summarises the aims of the group

Aims and Expectations
To share experiences
To recognise our strengths, who we are and were we come from
To talk about what it means to feel high, what we notice about ourselves and what others notice when we feel high, what the positives and negatives are of feeling high and how we can cope with feeling high
To talk about what it means to feel low, what we notice about ourselves and what others notice when we feel low, what the positives and negatives are of feeling low and how we can cope with feeling low
To discuss what our ideal self looks like
To discuss difficult life experiences and how we can cope with these
To discuss how we can monitor our mood
Share coping strategies and witness other people's strategies
To discuss and practice ways of maintaining and remembering coping strategies

All participants were also asked to complete the Clinical Outcomes of Routine Evaluation-10 (CORE-10) and Mental Health Recovery Measure (MHRM; Young & Bullock, 2003; Bullock, 2005) during this pre-assessment.

2.3.2 Group structure

Below is a summary of each session of the group. During each session group members were also asked to complete a session evaluation (see Appendix 1). At the end of each session they were asked to note down the most helpful thing about the session and the coping strategy they will be trying out during the following week. At the beginning of the following session they will be asked to rate the coping strategy they used on a scale of 1 to 10. These evaluation forms were for participants use only and were not analysed. Outline of sessions can be found in Table 2.

Table 2. Structure of Sessions

Session	Session content	Approaches used
1	Introductions, defining BD and discussing pros and cons of diagnosis, guest service-user attended to talk about her experiences and answer questions	Psycho-education Service user involvement
2	Completing the ToL (for metaphorical handout refer to Appendix 2)	ToL Sharing stories
3	Storms (life events) & optimal (ideal) self were discussed	ToL Sharing resources Letters to self
4	Discussing what it means to be 'high' (i.e. drought for the tree)	ToL CBT model for identifying symptoms Letter to self
5	Discussing what it means to be 'low' (i.e. flood for the tree)	ToL CBT model for identifying symptoms Letter to self
6	Identifying early, middle and late warning signs and coping strategies for each	Sharing resources CBT for identifying symptoms of relapse ToL
7	Each participant telling their own story, other participants identifying strengths	Sharing narratives and strengthening own identity Witnessing others stories Social connection
8	Discussing how to maintain coping strategies and reflecting on group.	Social connection- exchanging details CBT maintenance ideas Recovery

2.4 Measures

2.4.1 Perception of Recovery

The MHRM (Young & Bullock, 2003; Bullock, 2005) was used to measure the recovery process. The MHRM is a 30 item self-report measure that assesses the recovery process for individuals who have enduring mental health problems such as major depression, bipolar disorder, or schizophrenia. The MHRM is scored with a 5 point Likert Scale (0 to 4) for each item. The total score can range from 0-

120. The conceptual framework of the MHRM is developed from a particular theoretical model of mental health recovery that was derived from the experiences of individuals with mental health problems (Young & Ensing, 1999). The conceptual domains include: Overcoming Stuckness, Self-Empowerment, Learning and Self-Redefinition, Basic Functioning, Overall Well-Being, New Potentials, Spirituality and Advocacy/Enrichment (Young & Bullock, 2003; Bullock, 2005). A higher score is equivalent to a higher level of mental health recovery. Although the total score is not used with any particular ''clinical cut off'' to state whom is or whom is not ''in recovery'' anyone scoring below 60 (i.e. one standard deviation below the mean of 80) could be described as having a recovery process that is below average in comparison to their peers (Bullock, 2009).

2.4.2 Psychological Well-Being

The Clinical Outcomes in Routine Evaluation- Outcome Measure (CORE-OM; Barkham, Evans, Margison, McGrath, Mellor-Clark, Milne & Connell, 1998; Barkham, Margison, Leach, Lucock, Mellor-Clark, Evens, Benson, Connell, Audin & McGrath, 2001; Evans, Connell, Barkham, Margison, McGrath, Mellor-Clark & Audin, 2002) is a 34 item measure which measures psychological distress. It is not associated with a particular model of therapy or a particular diagnosis. The CORE-10 is a short version of the CORE-OM but only includes 10 items. Domains covered include anxiety (2 items), depression (2 items), trauma (1 item), physical problems (1 item), functioning (3 items- day to day, close relationships, social relationships) and risk to self (1 item).

2.5 Focus Group

In addition to quantitative measures described above a focus group was also used to gather qualitative information from individuals on their views, experiences, and opinions about the group. A focus group is described as informal discussions between individuals about a specific topic (Wilkinson, 2004). The aim of the focus group is not to derive a final conclusion that everyone agrees on but rather to promote a variety of responses from participants (Hennink, 2007). The

moderators for the focus group were the two group facilitators.

2.6 Analysis

2.6.1 Statistical Analysis

A t-test was employed to compare scores on the CORE-10 and MHRM before and after the group was completed. Data was entered and analysed using Statistical Package for Social Sciences (SPSS) version 19.

2.6.2 Thematic Analysis

Thematic analysis was used to analyse the data from the focus group. Thematic analysis moves away from simply counting explicit words or phrases. Instead it aims to identify both implicit and explicit themes within the data (Guest, MacQueen & Namey, 2012).

2.7 Approval of the study

The study was registered with the Clinical Governance & Audit Department of South London and Maudsley NHS Foundation Trust.

2.8 Consent

All participants signed a consent form to say that they were happy for the data they provided using the questionnaires and focus group to be anonymously used to analyse the group, see Appendix 3.

3. Results

3.1 Description of analysis

The group was analysed using a mixed methods approach. Quantitative data was collected using the CORE-10 and MHRM measures before and after the group to see if participants had better mental health and a more positive attitude to recovery. Qualitative data was obtained through a focus group with participants who had attended the group.

3.2 Quantitative evaluation

Two outcome measures were used before the first session and during the last session to assess change, the CORE-10 and the MHRM.

3.2.1 Change in Mental Health

The CORE-10 was used to measure change in psychological well-being. 4 out of 6 participants showed a decline in the CORE-10 score suggesting better mental health. One participant's score remained the same and another participants score increased, suggesting a decline in mental health. The mean score for the CORE-10 before the group was 12 with a standard deviation of 10.7. This score falls within a mild category of stress. The mean score for the CORE-10 during the last session of the group was 9.8 with a standard deviation of 8.6. Suggesting better mental health in general. This score falls within the low category of stress. See figure 2 for a more detailed break down of scores.
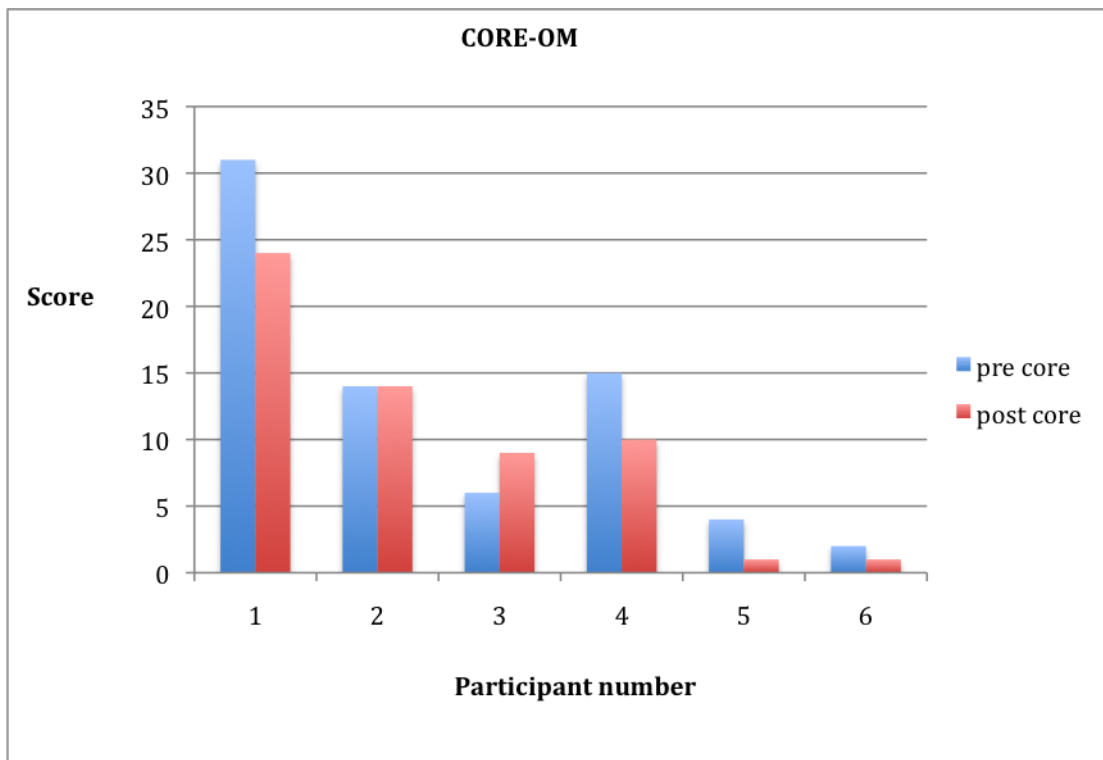
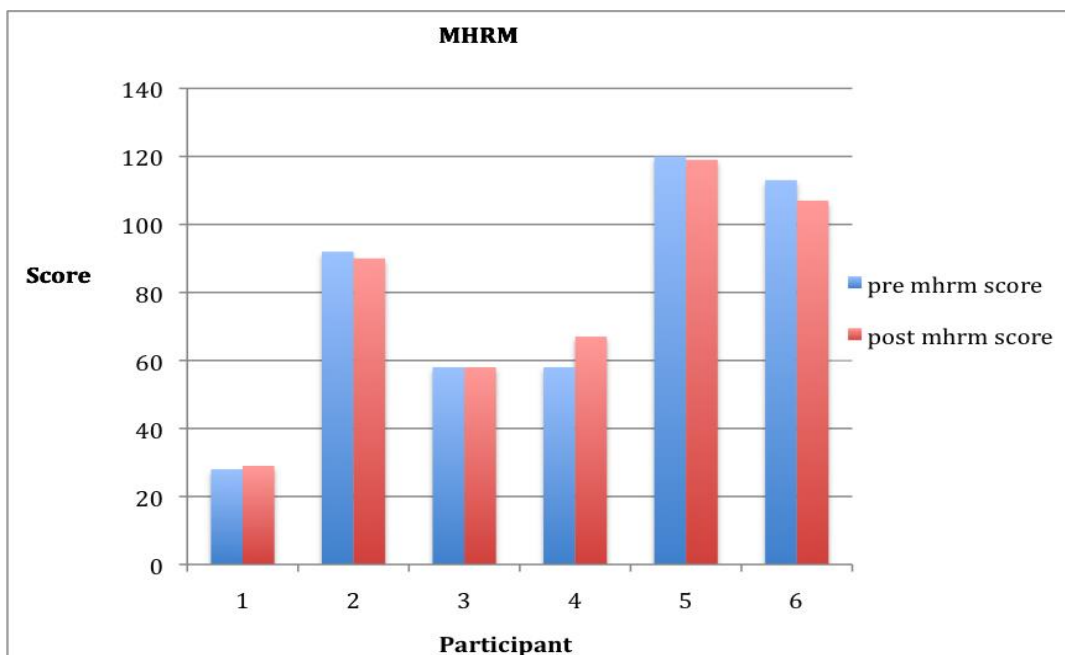**Figure 2.** Participant's pre and post scores on the CORE-10

A repeated measures t-test was employed to examine if there was any statistically significant difference in CORE-OM scores for before and after the group. Results of

the t-test showed that there was no statistically significant difference over time;

t(6)=1.174; p>0.05 (not sig.)

3.2.2 Change in perception of recovery

The MHRM was used to measure any changes in participant's perception of their own recovery. Only one participant showed an increase in their perception of their recovery. One participant's score remained the same. The remaining participant's showed a decrease in their score by a couple of points. The mean score for the MHRM before the group was 78 with a standard deviation of 36. This score falls within the average category of an individual's perception of their recovery. The mean score for the MHRM during the last session was 78 with a standard deviation of 34. As mentioned before, this score falls within the average category of an individual's perception of their recovery. See figure 3 for a more detailed breakdown of scores.

Figure 3. Participant's pre and post score of the MHRM

A statistical analysis was not employed for the mean pre and post scores of the MHRM as there was no descriptive difference in the means.

The MHRM has a variety of different dimensions which are overcoming stuckness, self-empowerment, learning and self redefinition, basic functioning, overall well-being, new potentials, spirituality and advocacy/enrichment. See table 2 for details on the mean of pre and post scores for these dimensions. The only dimension that participant's showed an improvement on was the learning and self-definition scale. See table 3 for a more detailed breakdown of scores.

Table 3 Mean pre and post scores for dimensions of MHRM

Dimension	Pre score	Post score
Overcoming stuckness	12	12.5
Self-empowerment	10	10
Learning and self redefinition	11	13
Basic functioning	10	9
Overall well-being	9.5	9
New potentials	11.5	10.5
Spirituality	5	4
Advocacy/enrichment	10	9.5

A repeated measures t-test was employed to examine if there was any statistically significant difference on the learning and self redefinition scale as this was the only descriptive improvement observed. Results of the t-test showed that there was no statistically significant difference over time;

$$t(6)=-1.718; p>0.05 \text{ (not sig.)}$$

3.3 Qualitative evaluation

A focus group was conducted with 6 participants during the last session of the group. The total time of the focus group was 27 minutes 43 seconds. Participants

were asked three questions; what did you find most helpful about the group? what did you find least helpful about the group? and what would you like to change about the group? The focus group was transcribed and read several times to identify possible themes in line with thematic analysis (Braun & Clarke, 2006). Three themes were identified as a result of the analysis and these three themes also have sub-themes. Table 4 summarises the themes and sub-themes identified.

Table 4 themes and sub-themes identified from the focus group

Themes	Sub-themes
Social support and Hope	*"I'm not on my own"*
	"Light at the end of the tunnel"
	The Tree of Life
Understanding and Coping for all	Gaining an understanding of 'bipolar' and how to cope with it
	Reflecting on relationships with professionals
Practical strengths and weaknesses	Non-attendance
	Facilitators
	High demand

3.3.1 Social support and Hope

3.3.1.1 "I'm not on my own"

Participants talked about their appreciation in relation to being with other people who were experiencing similar problems. Being able to hear other people's stories and share their own made them feel like they were not alone in their own journey. For example;

P1 *"…I have been, feel very privileged to have heard everybody else's erm contributions, and it has you know, really reassured me that I'm not on my own…"*

P2 *"…and doing it in an environment which you are with other people who are experiencing same thing and occasionally somebody sharing just sort of spontaneously a bit of their experiences, of what they have been experiencing has*

also been very helpful…''

Participants listened very carefully to one another's experiences throughout the group and often praised each other for the achievements and strengths they described. The social aspect of the group was very important to all participants as all of them had mentioned that hearing other people's stories was one of their key aims at the assessment session.

3.3.1.2 ''Light at the end of the tunnel''

Participants also talked about feeling more hopeful about the future. Understanding and thinking about coping strategies helped people to feel more positive about their life. For example;

P3 *''…when I first started this group I felt negative, negative, negative because there was loneliness, boredom, but now I can see a light at the end of the tunnels so that really makes me happy…''*

P4*''having to write down is also very helpful to know myself, to help myself cope with the situation, what am I going to do next? Its very important''*

P6 *''…I strongly feel it's helpful in that way, I will be in a position to use what I have learnt here, to take charge of what ever situation I find myself in so, it was very useful''*

As reflected above participants talked about how they will be taking particular coping strategies forward and using them even after they have completed the group.

3.3.1.3 The Tree of Life

The Tree of Life was mentioned by several participants as being one of the crucial parts of the group. For example;

P3*''…the tree of life was the most, the epic, the top of the icing for me, I really enjoyed it and when I was filling it up so many ideas were coming up''*

Not only did participants mention enjoying completing the tree of life as a way of

being hopeful towards the future. They enjoyed the fact that they were able to do this collectively as a group.

P3 *"...as a group we were collectively able to do it very well"*

P4 *"I think the tree of life as well and working in pairs to go over each others tree of life and erm, and in a way I would have quite liked to have one group tree of life because it made me realise after that day, gosh these people who some them not having a lot of self-esteem including myself, yet look, collectively how much talent there is, in this room, skills and everything that was kind of presented up at the top, I mean at the front, and its something you can keep going back to and adding to"*

Completing the tree of life in pairs gave the opportunity for people to recognise strengths in others and support each other in creating a new narrative. This alternative narrative was free from one that was dominated by a diagnosis. Not only were participants able to gain hope from their own strengths but from those around them also. The tree of life was a part of the group that clearly bought social support and hope together.

3.3.2 Understanding and coping for all

3.3.2.1 Gaining an understanding of 'bipolar' and how to cope with it

Participants talked about how helpful it was to understand what bipolar was and what it meant. They talked about learning this through the contents of the group and through listening to other people's experiences throughout the sessions. For example;

P4 *"...helped me to understand my problems and listening to others was very important because before I did not realise how it was to be high and low..."*

P3 *"...coming to a group like this has really helped, to make me understand what exactly bipolar is..."*

In particular participants talked about defining early, mid and late warning signs and thinking about coping strategies for each stage as particularly helpful. Participants also talked about particular parts of the group they enjoyed and

found helpful such as writing letters to yourself and the tree of life. Below are some examples;

P6 *"Breaking it all up, because of early signs and the later signs and also the thought pattern during those stages was the most helpful thing and also identifying that if you can change the way you are thinking, at the early stage and challenge those thoughts you are more likely to change the whole situation…"*

P2 *''…for me it was the letters to yourself…the most helpful thing was having to focus on the erm early, middle and late warning signs…"*

P1 *''…doing things bit by bit, so you work on this bit and then you work on that bit and you slowly then without realising it to then seeing a more complete picture of staying well and your illness…"*

3.3.2.2 Reflecting on relationships with professionals

Throughout the group and during the focus group participants repeatedly spoke about feeling misunderstood by other professionals through their experience of mental health services. One suggestion during the first session was to invite a pharmacist to one of the group sessions to give participants an opportunity to ask questions about medication. This was organised by the facilitators. During the focus group, participants also talked about having a psychiatrist for one of the sessions as a way of improving the group. For example;

P1 *"…psychiatrists are at the top and yet I feel that they understand the least, that's how it feels anyway but I think it would be good to get one of them in here…"*

Participants all agreed that they had not been given the support they needed throughout their life. Most participants talked about medication being a key problem in their recovery, particularly the side-effects. For example;

P6 *''…a lot of us are struggling not because of the fact that we are mentally ill but because of the side-effects that are coming as a result of the medication…''*

3.3.3 Practical strengths and weaknesses

3.3.3.1 Facilitators

Participants praised the facilitators several times throughout the focus group. It seems as though they played an important part in engaging participants in the group. For example;

P2 *''...having two people running the group who are very understanding and have made me feel as erm made me feel as calm about coming here as possible...''*

P1 *''...because this is the first time you have done it, this one, so really personally, I don't think what you did was too much or you know you have allowed people to interrupt... and still manage to cover all of the practical worksheets...''*

Participants seem to also appreciate that there was enough time to interrupt whether it was to ask a question or talk about their own experiences. Facilitators had also shared their own tree of life, which may have contributed to neutralising the natural power imbalance between facilitators and participants.

3.3.3.2 Non-attendance

Participants talked about the fact that people not being able to attend each session as a problem. In particular, because there was so much covered in each session, it was difficult for people to catch up when they returned. For example;

P5 *''I think one of the biggest drawbacks of the group is that people didn't attend every session, and I'd missed two sessions myself, and I really felt that when I came back...I had missed out quite a lot...''*

It is acknowledged that this is the very nature of groups and that it is not always possible for all members to attend all sessions. However, the 6 participants did attend at least 5 out of 8 sessions.

3.3.3.3 High demand

There was quite a lot of content covered in each session. One particular participant, whose first language was not English found this challenging. For example;

P3 *''...I said the amount is just too much you know we need to keep up with the*

demand every week, I said I don't think I will be able to cope..."

The diversity of participants in terms of age, education and ethnicity may have reflected different viewpoints on the amount covered and content of the sessions.

3.4 Summary

In general group members reported positive feedback about the group. In particular they mentioned the social support aspect of the group and being able to share experiences as valuable. The Tree of Life was also mentioned as a benefit of completing the group and participants mentioned that the group was able to give them hope for the future. Practical drawbacks such as non-attendance at all sessions by all participants were also discussed.

4. Discussion

This study aimed to explore the merits of combining a NT and CBT approach within a group therapy context for individuals who have a diagnosis of BD. The CBT specifically focused on identifying early, mid and late warning signs in terms of cognitions, behaviour, physical symptoms and emotions. Further, to identify coping strategies for each stage and psycho-education. The NT specifically focused on giving participants an opportunity to share their story and as a group construct less 'problem-saturated' stories for each participant; this element enabled witnessing and being seen by others supporting identity building and community. The ToL was used as a narrative therapeutic tool to encourage participants to recognise their own and other participants' strengths. Further, to identify their hopes and dreams for the future. The ToL also provided a metaphorical context for the CBT concepts (without blaming and internalising concepts) and encouraged talk about culture and its influence on our lives. A service user attended a question and answer session and the facilitators shared their own ToL to reduce power imbalance between professionals and participants.

The group was analysed using two approaches; outcome measures (CORE-10 and MHRM) and a focus group. There were no significant differences observed on the two quantitative measures for before and after treatment. However, it is important to note that on the CORE-10 measure all participants' scores were within the low category of distress, and there was a general decrease in scores suggesting improved mental health. It is important to note that participants were in general not highly distressed when beginning the group. Further, scores on the MHRM measure for all participants were within the average category of individual's perception of recovery.

An interesting clinically relevant finding was observed when analysing the sub-scales of the MHRM. The Learning and Self-redefinition subscale showed increased scores for all participants. When considered in the context of the recovery approach these results have clinical relevance. Recovery is often described as a dynamic and idiosyncratic process (Pitt et al., 2007) with no

specific end-point (Higginson & Mansell, 2008). Recovery does not necessarily mean clearing from symptoms but acknowledging and facing one's problems. It is described as a better understanding of the self and a sense of control (Mansell et al., 2010). This is not only reflected in the scores of the MHRM measure but participants also qualitatively described feeling that they had a better self-awareness and felt they had more control over their problems.

The focus group was constructed around three separate questions presented by the facilitators addressing what the participants found helpful, unhelpful and what they would like to change. The three main themes identified were: social support and hope, psycho-education and practical strengths and weaknesses. Peer support through a befriending scheme is a key recommendation made by the National guidelines (NICE, 2006; 2011). The group format of psychotherapy was hoped to provide an opportunity for this. Participants were given the opportunity to share their stories and hear others' also. Participants specifically mentioned that coming to the group made them realise that they are not alone. This is an important concept of narrative approaches as individuals with mental health problems are often narrated as 'outsiders' and as not as 'rational' as others (Foucault, 1965; Harper, 2004). It is felt that the group de-constructed this narrative and constructed a new narrative in which individuals had met other people who had experienced similar difficulties.

Participants also talked about feeling more hopeful and positive about their future. It is believed that the ToL encouraged individuals to move away from a problem-saturated story towards one, which acknowledged strengths. Further, this task supported individuals to think about dreams and goals they may want to work towards in the future. Thinking about an ideal self in terms of what a tree may need also supported people to think and explore multiple resources that may be present in their life. Strengths and resources have been shown to be important in reducing risk of relapse (MacLeod & Moore, 2000). Given that CBT independently has not shown significant effects in reducing relapse (Szentahotai & David, 2010) the ToL may be a future promising approach to tackle difficulties with reducing relapse rates.

The ToL was the only therapeutic tool that was valued by all participants. This reflects the usefulness of the ToL for individuals from a diverse range of backgrounds and educational contexts. It appears that the ToL both directly and indirectly helped improve participant's self-esteem. Unfortunately, a specific measure exploring self-esteem was not used so it was not possible to measure this quantitatively. Any future study should consider including this.

The second theme explored was about understanding and thinking about ways to cope. Participants talked about the helpfulness of gaining an understanding of what BD was. The CBT model also supported participants to gain self-awareness at different levels of early, middle and late warning signs. Participants talked about breaking it up in terms of cognitions, behaviours, emotions and physical symptoms as helpful. This supports previous research that has shown that CBT is a promising approach for improving functioning for individual's who have a diagnosis of BD (Lam et al., 2003; Scott, 2008). Further both the narrative, ToL and CBT together contributed to restructuring some of the biased appraisals suggested by cognitive models (Mansell, 2007).

The final theme explored was Practical Strengths and Weaknesses. One of the practical strengths emphasized by participants were the facilitators. Participants talked about facilitators who understood them and were calm. Further that they were both able to allow people to interrupt but still complete tasks of the session. It is felt that empowering participants in the structuring of the group by asking them their expectations at the beginning of the group, sharing their own ToL and allowing enough time for discussion helped build a successful therapeutic relationship. Castle et al (2007) report a similar approach during their group sessions (Pearson & Burlingame, 2013). Once again this contributed to the social support individuals received from facilitators during the group sessions.

In regards to weaknesses mentioned one was participant's not attending all sessions. Unfortunately, this was inevitable given that individuals had a variety of life events happening during the group sessions despite all participants thought to be in a stable period. Although this meant that participants had a lot of catching up to do when they returned given the metaphorical and structural approach of

the group, it was not felt that this disrupted the relationship between participants. All individuals were accommodating to individuals who missed sessions and returned at a later date.

Given the diversity of individuals attending the group it was anticipated that some individuals might find the content of the group more difficult then others to grasp. One particular participant mentioned their difficulties with understanding particular metaphors and feeling like they were not able to complete tasks. Other participants were extremely helpful in providing recommendations as to how this could be addressed. For example, informing individuals that if they cannot complete the homework they could always ask for help or call before the next session. In addition for facilitators to provide reassurance that if there was something that participants did not understand that they could ask and if they could not complete the homework they could still attend the session.

4.1 Limitations and Future Directions

There are several limitations of the group described and the analysis of the group. In regards to the group it was only over 8 sessions, which is not in line with the National guidelines (NICE, 2006; 2011) recommending 16 sessions. The group was also a small sample size and future research would need to repeat this group with more participants.

Further, participants did not attend all sessions making it difficult to know which parts participants benefited the most from although all participants completed their own ToL and some additional practical tasks. This also may have made it difficult for participants to follow the metaphorical structure of the group. There are several ways that could improve the participants understanding of the content of the group including; providing a manual for each participant with all worksheets during the first session, providing a structure for each session at the beginning of the group, giving an opportunity of contacting facilitators if there was something they did not understand, providing an example letter for each template, reinforcing the importance of attendance and time keeping and recaping previous session at the beginning of each session. Future groups should

consider these recommendations.

In terms of analysis the outcome measures did not show any statistical significance pre and post therapy. Several reasons for this have been discussed, however, future groups should consider other outcome measures; particularly, those focusing on self-esteem and self-awareness in line with recovery approaches. Outcome measures are specifically important when developing new therapeutic approaches given the context of the National Health System and Payments by Results.

Given the group draws on different therapeutic approaches it may be more difficult to find an appropriate outcome measure. It will be important for future groups to define exactly what they intend to measure and what the anticipated change would be.

Finally, although the focus group gathered personal perspectives on the group the group facilitators facilitated it. This could have impacted on the openness of the participants and could have led to more positive comments as they may have wanted to impress facilitators or may have felt indebted (Hopkins, 2007). However, participants did comment on the weaknesses of the group as well as the strengths.

4. 2 Conclusions

In conclusion, the combination of CBT and NT specifically ToL for BD is felt to address a number of important factors which contribute to recovery and reduce relapse such as an increased self awareness, self control, identification of resources and strengths. The group context of the therapy and the opportunity for individuals to share experiences with others as well as learning from others contributed to participants feeling socially included and supported. Delivering interventions in a group therapy approach is also cost-effective.

5. Leadership and Dissemination

5.1 Before the group

Before we started running the group I was involved in recruiting participants. I spoke to care coordinators to refer appropriate individuals and made a poster advertising the group. I also applied for ethical approval from the trust.

I was involved in devising a questionnaire for the pre-assessments, thinking about measures to use for the group and how to analyse the group. I was also involved in designing the group. We also consulted the Tree of Life supervision group in the Psychosis CAG (South London and Maudsley NHS Trust-SLAM) on our design of the group.

5.2 During the group

I co-facilitated the group with my supervisor and we designed every session together. I was also involved in designing the worksheets and the evaluation sheet used in each session (see appendix 1).

5.3 After the group

After we had completed the group program I analysed the results from the measures and the focus group. I presented my results at a Case Conference to Trainee Clinical Psychologists and Clinical Tutors and Supervisors who are part of the Clinical Doctorate Training Program at the Institute of Psychiatry. My presentation was titled 'Can words speak louder than numbers?' I also presented our results to the Tree of Life supervision group in the Psychosis CAG.

This write up will be disseminated to the Psychosis CAG lead, the Southwark Support and Recovery Team and the Psychosis CAG ethics committee who approved the study. It is hoped that the Southwark Support and Recovery Team along with other teams in SLAM will run this group with individuals who have a diagnosis of Bipolar Disorder. A manual with all the worksheets will be provided upon request. Finally it is hoped that we will publish the results of our study in a scientific journal.

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7. Appendix

7.1 Session Evaluation Form

<u>Session evaluation</u>

Part 1

1. The coping strategy I used during last week was

…………………………………………………………………

2. On a scale of 1-10 (1 being not useful 10 being extremely useful) circle how useful the technique you tried out last week was

1   2   3   4   5   6   7   8   9   10

Part 2

3. The most helpful thing about today's session was

……………………………………………………………

4. During the week I am going to try to

……………………………………………………………

7.2 Metaphorical meanings of the Tree of Life

Metaphor of the tree

Roots (background/culture): represent where we have come from, our cultures and backgrounds, who and what has influenced us and made us who we are, who has taught us the most, where our values come from.

The ground (current lives): our lives now – what we do day to day, where we live, activities we're engaged in, our interests, favourite moments etc.

The trunk (skills and abilities): our skills, strengths and abilities – what we or others think we are good at, what others appreciate about us

The branches (hopes, dreams and wishes): our hopes and dreams, wishes we have for the direction of our lives, how we would like to see things going

The leaves (significant people): significant people to us, may be alive, may no longer be with us but are still important to us, people who support or sustain us, people who sustain our values and principles

(may not know them personally)

The fruits (gifts you have received): 'gifts' that we have been given by others, good feedback, being cared for, being loved, acts of kindness etc.

The flowers (gifts you have given others): gifts that you give to others.

7.3 Consent Form

<u>Consent form</u>

I agree for the following anonymous data to be used to evaluate the group which may be written up for publication (please tick boxes you agree with):

-Pre and post measures of CORE-10 (Clinical outcomes for routine evaluation) ☐

-Pre and post measures of BDI (Beck Depression Inventory) ☐

-Pre and post measures of MHRM (Mental health recovery measure) ☐

-Recorded and transcribed verbal feedback for group (recordings will be deleted after they have been transcribed) and written feedback ☐

Please not that you have the right to withdraw at anytime should you choose to do so.
Service User Name……………………………………………
Signature………………………………………………………
Date………………………………………………………………