Linking Adolescent Personality Characteristics with Aggression and Non-Suicidal Self-Injury

Thesis submitted to the University of Leicester

Faculty of Medicine & Biological Sciences,

School of Psychology, for the degree of

Doctorate in Clinical Psychology

By

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2012

Declaration

I confirm that the literature review and research contained within this thesis are my own work and have not been submitted for any other degree or to any other institution.

Exploring the relationship of callous-unemotional traits with aggression and non-suicidal self-injury within an adolescent in-patient sample.

Section A: Thesis Abstract

The thesis examined the evidence base for psychological interventions for the treatment and prevention of adolescents with callous-unemotional characteristics exhibiting aggression and self-harm behaviours. The research process has three sections.

Self-Contained Literature Review

Within the adult literature Dialectical Behavioural Therapy (DBT) is recognised as an effective treatment with adults presenting with suicidal ideation and self-harm. Clinicians have adapted the adult DBT programme for adolescents (DBT-A) and the review paper considered the literature base for the effectiveness of the adapted intervention for adolescents who exhibited suicidal ideation and self-harm behaviours. The review critically appraised ten quantitative studies that employed either comparison groups (4 studies) or a pre-post design (6 studies). The results suggested DBT was effective in reducing symptoms of suicidal ideation and self-harm behaviours, in additional to ameliorating other mental health problems. There were issues with confounding variables and the delivery of the DBT-A programmes were varied across studies. Future research needs to be of a higher quality.

Research Report

The empirical study was conducted within medium secure facilities with 76 in-patient adolescents to explore the associations of aggression (proactive and reactive) and non-suicidal self-injury (NSSI) with callous-unemotional (CU) traits. CU traits consisted of three dimensions of behaviour, callousness, uncaring, and unemotional that might designate a subgroup of inpatient adolescents. A number of significant associations were identified between the components of CU traits and proactive aggression and reactive aggression. The findings suggested that adolescents characterised by higher levels of CU traits were more than likely to exhibit combined proactive and reactive aggression. Those young people who exhibited NSSI scored higher on the unemotional dimension of CU traits. The findings were discussed in the context of existing research.

Critical Appraisal

A personal account of the researcher's reflections on the research process was provided in the critical appraisal.

Acknowledgements

The completion of this thesis could not have occurred without the support and encouragement of many people. My thanks go to my research supervisor Dr. Steve Allan and to Dr. Malcolm Wheatley my field supervisor for their knowledge and continual support.

The research would be nothing without its participants, and I am very grateful to all the young people who gave up their time to take part. I am extremely indebted to the two adolescent in-patient services, and in particular, Dr. James Bickley and Martinus Hofmeyr who liaised with the clinical teams to ensure data collection ran as smoothly as possible.

A special mention must be given to Layla Williams for her organisational skills, for keeping me motivated and for her continual positive outlook for this piece of work. I would also like to acknowledge my fellow trainees, especially Lisa Galsworthy-Francis, Ellie Taylor and Sarah Simms for giving me support and encouragement when I needed it most.

Final, this could never have been written without the support of my family and friends. A special thank you to my partner Baz and our boys, Ben and Alex who have supported me through the roller coaster of emotions that I have experienced during this piece of research, and for allowing me to spend many hours alone with my iMac and hogging the kitchen table. To my friends' thank you for understanding when I have not returned your texts and phone calls.

Word Counts

Word count for main text and abstracts:

Section A, Thesis abstract:	300
Section B, Literature Review Abstract:	298
Literature Review:	8135
Section C, Research Report Abstract:	300
Research Report:	12,281
Section D, Critical Appraisal:	3302
Total (excluding abstracts):	23,718

Word count for tables, references, and appendices:

Section B, Literature Review:	5458
Section C, Research Report:	4142
Section D, Critical Appraisal:	0
Total:	9600

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Section B: A Systematic Literature Review

Is Dialectical Behavioural Therapy effective for adolescents who display suicidal and self-harm behaviours?

Title

Is Dialectical Behavioural Therapy effective for adolescents who display suicidal and self-harm behaviours?

1. Abstract

Background: Dialectical Behavioural Therapy (DBT) has been used to treat adults with suicidal and non-suicidal self-injury, but DBT for an adolescent population is under-developed. The current systematic review provided an assessment of the effectiveness of DBT when adapted for adolescents (DBT-A) in comparison to other methods in the treatment of mental health symptoms including suicidal and self-harm behaviours.

Method: Computerised databases including PsychINFO and Scopus were searched. The inclusion and exclusion criteria were utilised to select studies to be reviewed. Studies were included if they were quantitative in design using adolescents aged between 11 and 19 years-of-age who experienced suicidal ideation and/or self-harm. Studies were excluded if they were: dissertations, abstracts, or unpublished studies; used qualitative and/or single case design; if suicidal and self-harm behaviours were the secondary focus; if they used additional therapy in conjunction with DBT, such as, cognitive behavioural therapy; excluded adolescents experiencing a learning disorder. Ten studies were reviewed, four studies used comparison groups, and six studies used a pre-post treatment design and focused on the methodological quality and outcomes of the current reviewed literature.

Results: All of the six pre-post treatment designed studies had small participant numbers. None of the four studies that used comparison groups employed randomisation. The findings suggested that there was some evidence for DBT being effective in reducing symptoms of suicidal and self-harm behaviours, in addition to ameliorating other mental health problems. There were issues with confounding variables (e.g. environment and medication), and the delivery of the DBT-A programmes were varied across studies.

Conclusions: The findings suggested that DBT could be beneficial in the treatment of reducing suicidal and self-harming behaviours for adolescents, but further rigorous and robust quality research is required to enhance the evidence-base to confirm this finding.

Keywords: adolescents; Dialectical Behavioural Therapy; self-harm, suicide; suicidal ideation.

2. Introduction

Adolescence is a developmental stage that is characterised by significant changes in physical and cognitive functioning, social and emotional changes. Some adolescents experience difficulties that are characterised by certain behaviours including suicide and self-harm. This introduction briefly discusses the prevalence of mental health problems in adolescence before specifically focusing on suicide and self-harm. There follows a brief review of the empirical evidence of Dialectical Behavioural Therapy for Adolescents (DBT-A[1]), and within the context of other available treatments (Cognitive Behavioural Therapy, Group Therapy, and Psychotherapy). The introduction will then concluded with the aims and rationale for the current review.

2.1 Prevalence of mental health problems in adolescence

Adolescence is often described as a developmental stage, rather than something defined strictly by age. The World Health Organisation (WHO, 2001) defined adolescence as the period between the ages of 10 years and 19 years. Despite this, surveys (Office for National Statistics; ONS, 2005) on mental health, group 16-and-17-year-olds with adult statistics and young people aged 15 and under as children statistics, with no separate category for adolescents (Cooper & Bebbington, 2006). Therefore, from statistical adult data it can be difficult to extrapolate data for groups of adolescents who are aged between16 and 17 years regarding mental health difficulties.

There is evidence to suggest that the prevalence of childhood mental health problems is gradually increasing (Collishaw, Maughan, & Goodmand, 2004). At any one time in the UK, one in ten children under 16 years of age has a clinically

[1] See Appendix C for a comprehensive list of abbreviations

diagnosed mental health disorder. Among 11-16 year olds, 13% of boys and 10% of girls are affected (ONS, 2005).

2.2 Suicide

Depending on the source consulted, suicide is the second or third leading cause of death in adolescents in most Western countries (CDC, 2008; ONS, 2005). Self- harm is the strongest predictor of eventual death by suicide in adolescence, increasing the risk up to 10-fold (Hawton & Harris, 2007). The overall risk of suicide increases after a self-harm episode over time with a 1.7% increase after 5 years, 2.4% at 10 years and 3.0% after 15 years (Hawton, Zahl, & Weatherall, 2003).

Possible factors that could increase the likelihood of adolescent suicide can include a family history of suicide (Brent, Mortiz, Loitus, Schweers, Balach, Roth, & Perper, 2002), or suicide attempts (Beautrais, 2000), being male in gender (Votta, & Manion, 2004), experiencing parents with mental health problems (Beautrais, Joyce, & Mulder, 1997), a gay or bisexual orientation (Russell, & Joyner, 2001), a history of physical or sexual abuse (Brown, Cohen, Johenson, & Smailes, 1999), and a previous suicide attempt (Beautrais, 2003). Additionally, mental health problems can predispose individuals to suicide include depression (Brausch & Gutierrez, 2009), bipolar disorder (Swann, Dougherty, Pazzaglia, Pham, Steinberg, & Moeller, 2005), substance abuse or dependence (Makhija, 2007), psychosis (Power, Bell, Mills, Herrman-Doig, Davern, Henery, Yuen, Khademy-Deljo, & McGorry, 2003), posttraumatic stress disorder (Waldrop, Hanson, Resnick, Kilpatrick, Naugle, & Saunders, 2007), panic attacks (Pawlak, Pascual-Sanchez, Rae, Fischer, & Ladame, 1999), and a history of aggression (Renaud, Berlim, McGirr, Tousignant, & Turecki, 2008), impulsivity (Renaud et al., 2008), or severe

anger (Penn, Esposito, Schaeffer, Fritz, & Spirit, 2009). It has been suggested that more than 90% of adolescent suicide victims previously met the criteria for a psychiatric disorder before their death (Rudd, Berman, & Joiner, 2006).

2.3 Non-suicidal self-injury

Intense emotions are a normal feature of adolescence; however the inability to cope with intense emotions in healthy ways may lead adolescents to express their pain and frustration through self-harm (WHO, 2001). A dangerous and pervasive problem for some adolescents is non-suicidal self-injury (NSSI), which has been defined as being the direct and deliberate destruction of one's own body tissue in the absence of intent to die (Lloyd-Richardson, Perrine, Dieker & Kelley, 2007).

The average age-of-onset of NSSI is 12 years old (Nock, Teper & Hollander, 2007) and the rate of incidence of NNSI over the years had been increasing steadily among young people, but over the past five years the frequency of NSSI has stabilised (Muehlenkamp, Claes, Havertape & Plener, 2012). A survey of school children in England in 2002, found that 6.9% of young people had committed an act of NSSI, and it was far more common in girls (11.2%) than boys (3.2%; Hawton, Rodham & Evans, 2002). Research also suggests that individuals who self-injure are diagnostically heterogeneous and may experience a range of psychological disorders (Nock, Joiner, Gordon, Lloyd-Richardson & Prinstein, 2006).

2.3.1 NSSI and mental health problems

Mental health diagnoses are not infrequent in individuals who exhibit NSSI, but the presence of NSSI also does not imply the presence of any particular diagnosis (Klonsky & Muehlenkamp, 2007). However, when considering adolescents within a clinical population who are receiving mental health treatment it

is not surprising to find higher rates of NSSI than in the general population of between 40-80 percent (Darche, 1990; DiClemente, Ponton, & Hartley, 1991; Nock & Prinstein, 2004). Symptoms of both depressive and anxiety disorders in addition to a borderline personality disorder (BPD) diagnoses are often associated with NSSI (Andover, Pepper, Ryabchenko, Orrico, & Gibb, 2005). This is perhaps because they are characterised by negative emotionality and emotion dysregulation (Mennin, Heimberg, Turk, & Fresco, 2005).

2.3.2 NSSI, mental health, and forensic adolescents

A number of studies have demonstrated that young people who have had contact with the criminal justice or forensic systems experience high levels of mental health problems (Chitsbesan, Knoll, Bailey, Kenning, Sneider, McDonald, & Theodoiou, 2006; Shelton, 2001; Skowyra & Cocozza, 2007; Trupin, Stewart, Beach & Boesky, 2002). Depression, anxiety disorders, and NSSI occur frequently in this population (Sukhodolsky & Ruchkin, 2006), with high levels of comorbidity (Axelson & Birmaher, 2001).

2.4 What treatments have demonstrated effectiveness?

A number of psychotherapeutic approaches have been developed to treat and manage people who present with suicidal and/or self-harm behaviours. Treatments include cognitive-behavioural therapy (CBT), psychodynamic therapies, and group therapies.

2.4.1 Cognitive-behavioural therapies

NICE (2006) recommended that self-harm be treated with a combination of social, physical, and psychological support with CBT. Evidence for the treatment of self-harm indicates that CBT can be helpful (Slee, Garnefski, van der Leeden, Arensman, & Spinhoven, 2008), although it is unclear whether brief CBT is more

effective than routine care (Tryer, Thompson, Schmidt, Jones, Knapp, & Davidson, 2003). CBT with a problem-solving element has been found to produce positive outcomes (Hawton, Arensman, Townsend, Bremner, Feldman, & Goldney, 1998), but the long-term effects are less clear and individual CBT might be no more effective than routine care (Burns, Dudley, Hazell, & Patton, 2003).

2.4.2 Psychodynamics therapies

Empirical evidence suggests that psychodynamic treatments may also be effective in reducing self-injury (Bateman & Fonagy, 2001; Ryle, 2004). Many of the dynamic treatments reported in the literature were originally designed to treat borderline personality disorder; nevertheless, self-harm is often present and a treatment target (Klonsky & Muehlenkamp, 2007).

2.4.3 Group therapies

Burns et al. (2003) reviewed evidence for the effectiveness of clinical interventions designed to reduce deliberate self-harm. They concluded that a Random Controlled Trials (RCT) of group therapy (Wood, Trainor, Rothwell, Moore, & Harrington, 2001) that incorporated integrative techniques from a range of different models (CBT, DBT, problem solving and psychodynamic group psychotherapy) was the only specific treatment that lead to a reduction in deliberate self-harm. Furthermore, Burns et al. (2003) reported that the evidence base of treatments designed to reduce the repetition of deliberate self-harm in adolescents was limited.

2.5 Dialectical behavioural therapy for adults

2.5.1 Development of DBT

Linehan's (1993a) Dialectical Behaviour Therapy (DBT) is a manualised cognitive-behaviour therapy developed for chronically suicidal adults, including those with a diagnosis of borderline personality disorder (BPD). The central tenet

of DBT is Linehan's (1993) biosocial theory in which BPD is viewed primarily as a dysfunction of the emotional regulation system. According to Linehan (1993a) the etiology of this dysfunction lies in the transaction between a biological emotional vulnerability and an invalidating environment. Therefore, DBT conceptualises suicidal and self destructive behaviours (self-harm) as having important affect-regulating properties as well as serving to elicit helping behaviours from an otherwise invalidating environment (Miller, Rathus, Linehan, Wetzler, & Leigh, 1997).

2.5.2 The DBT programme

DBT is a comprehensive cognitive behavioural treatment that combines the basic strategies of behaviour therapy with Eastern mindfulness practices. DBT is comprised of both group and individual therapy. Group therapy focuses primarily on psychosocial skills training and individual therapy focuses mainly on motivational issues, including: the motivation to stay alive, to replace problem behaviours with skillful behaviours, and to build a life worth living (Linehan, 1993a). The skills training group typically includes four core modules: (1) mindfulness skills, (2) distress tolerance skills, (3) emotion regulation skills, and (4) interpersonal effectiveness skills. The four core skill modules are designed to increase adaptive behaviours and cognitions (Berzins & Trestman, 2004). In addition to the group work, a collaborative working relationship between therapist and client is fundamental for DBT to be successful. Within the relationship there needs to be recognition of the mutual investment and commitment to clear, precise treatment target goals, on-going assessment, and monitoring through further data collection with the client (Miller et al., 2007).

2.5.3 Empirical evidence

DBT was the first empirically supported treatment for this complex, difficult to treat population that is characterised by: affective liability; cognitive disturbances; self-harming behaviour; chronic feelings of emptiness; interpersonal dysfunction; and anger management difficulties (Berzins & Trestman, 2004). A number of randomised controlled trials (RCT) have found DBT to be superior to treatment-as-usual (TAU) for problems associated with BPD (Linehan, Armstrong, Suarez, Allmon, & Heard, 1991; Linehan, Heard, & Armstrong, 1993; Koons, Robins, & Tweed, 2001; van den Bosch, Koeter, & Stijnen, 2005; Linehan, Comtois, & Murray, 2006). Participants within DBT groups have demonstrated greater improvements in treatment-adherence rates, reducing anger, suicide attempts, suicidal ideation and self-harming behaviours, as well as the number of inpatient psychiatric days (Linehan et al., 1991; Bohus, Haaf, & Simms, 2004). DBT for adults has been widely utilised within multiple therapeutic settings and applied to a variety of diagnoses (Klein & Miller, 2011). Research suggests that DBT can be conducted with various adult populations, including outpatient (Linehan et al., 1991), inpatient, (Linehan et al., 2006) and forensic clients (Berzins & Trestman, 2004).

2.6 Dialectical behaviour therapy for adolescents

Until recently there was an absence of empirically supported psychosocial treatments for adolescents who presented with maladaptive coping strategies (i.e. self-harming behaviours), similar to adults with BPD. To address this absence Miller et al. (1997) adapted and modified DBT from the adult literature and developed DBT for adolescents (DBT-A).

2.6.1 DBT-A - the modified programme

In adapting DBT for adolescents (DBT-A) Miller et al. (1997; 2007) maintained the core principles and modes of treatment of DBT while making several changes to the treatment base on developmental and contextual considerations (Klein & Miller, 2011). Treatment length was reduced from 12 months to 16 weeks as it was thought that adolescents may not need the same length of treatment as adults with BPD, and they may commit to a shorter treatment programme. Family members were included in the weekly skills training groups so they could facilitate the learning of skills and to possibly improve potentially invalidating home environments. Family sessions were included to address any important familial problems, the number of skills was reduced to help with learning, and age-appropriate terminology was incorporated to make skills handouts more developmentally appropriate. There was also an introduction of a skills-training module, 'Walking the Middle Path', to help adolescents and their families develop the skills needed to overcome different ways of thinking, feeling, and interacting. In addition, treatment included validation and behavioural skills, and a set of adolescent-family-specific dialectical dilemmas and corresponding secondary treatment targets (Klein & Miller, 2011).

2.6.2 Empirical evidence

Since the development of DBT-A there have been several studies evaluating DBT with young people presenting with a range of difficulties and diagnoses other than deliberate self-harm. These include eating disorders (Salbach-Andtae, Bohnekamp, & Pfeiffer, 2008), which showed significant post-treatment improvement in eating disorder symptoms and general psychopathology. Similar positive outcomes were achieved when applying DBT to a group of adolescents diagnosed with oppositional defiant disorder (Nelson-Gray, Keane, Hurst, Mitchell,

Warbuton, Chok, & Cobb, 2006). DBT was delivered to adolescent males who were aggressive and incarcerated, resulting in a significant reduction in physical aggression, distancing coping methods, and the number of disciplinary tickets for violations (Shelton, Kesten, Zhang, & Trestman, 2011). A further DBT intervention was delivered to adolescents with bipolar disorder and it was found there was a high rate of subject retention, significant reductions in suicidal ideation, emotional dysregulation, and depressive symptoms (Goldstein, Axelson, Birmaher, & Brent, 2007). Therefore, the evidence suggests that one of the benefits of DBT was that it could be applied regardless of diagnosis.

2.7 Review aims and rationale

As it has been outlined above, suicidal and self-harm behaviours are not uncommon within adolescent mental health services, and the number of young people presenting with mental difficulties is increasing (Collishaw et al., 2004). Many different therapeutic approaches (e.g. CBT and psychodynamic therapies) offer evidence that their specific models can make a difference and can reduce suicidal and self-harming behaviours (Bateman & Fonagy, 2001; Ryle, 2004; Slee et al., 2008). However, individual therapy is expensive in terms of staffing (i.e. time, expertise, supervision) and physical space. Group therapy makes more efficient use of resources, but it can be difficult to match young people to specific treatment groups due to contributing causal factors (Burns at al., 2003). It is possible that DBT could be a useful approach for treating adolescents who display suicidal and self-harming behaviours. It has already been identified that DBT has been found to have positive results within the adult literature (Linehan et al., 1991; Linehan et al., 1993; Koons, et al., 2001; van den Bosch et al., 2005; Linehan et al., 2006). DBT for adolescents has been a recent development, and therefore research

is still in its infancy. To date there has only been one review of the literature in this area conducted by Quinn (2009).

In this literature review, Quinn (2009) reviewed the efficacy of DBT as adapted for adolescents by assessing the efficacy of DBT compared to usual treatment methods in the treatment of adolescent mental health symptoms, including deliberate self-harm. The research design specifically focused on clinical trails with a treatment-as-usual (TAU) comparator. Consequently, the review focused on three relevant articles.

The aims of the current review were to critically appraise the available research into the efficacy of DBT with adolescents who display suicidal and self-harming behaviours. The current review aimed to provide an overview of the findings from research in the area of DBT and adolescents by appraising different research designs (i.e. not just clinical trials). The current review also considered the implications of different research designs in practice, and contributed to informing the provision of DBT within an adolescent suicidal and self-harming population.

3. Method

3.1 Development of search terms

Search terms and selection criteria were developed with reference to the review question and with the consideration of theoretical and empirical literature on adolescents who display suicidal and self-harming behaviours. This was informed by a scoping review that aimed to assess the breadth of the literature. The method through which this review was undertaken is described below, beginning with a description of the search terms and selection criteria used before describing how databases were searched, quality of papers assessed and data extracted.

The review focused on DBT and its effectiveness as a treatment for adolescents who present with suicidal and self-harming behaviours. To identify appropriate studies to systematically review the following main search terms (with appropriate truncation) were used.

- Suicidal behaviour
- Self-harming behaviour
- Psychotherapy
- Adolescents

The term 'Psychotherapy' was used instead of 'Dialectical Behavioural Therapy' as it generated a larger number of DBT studies. It is unclear as to why this was the case. However, a consequence of using the broader term of 'psychotherapy' was that it identified studies using various psychological interventions. Therefore, all the studies using psychotherapy were screened and only DBT studies were selected for review. The selection process is demonstrated in Figure 1 (see page 15).

3.2 Study selection criteria

3.2.1. Inclusion criteria

Only quantitative studies were included in the review. The data related to adolescents (11-19 years) who experienced symptoms of a mental illness, such as suicidal ideation or self-harm. Studies included those comparing the provision of DBT as the psychosocial treatment and treatment as usual (TAU; such as supportive therapy). Quasi-experimental studies were also included even if sample sizes were small and the settings (for example, inpatient, outpatient and forensic) varied to gain a broader overview.

3.2.2. Exclusion criteria

Studies were excluded from the review if they (1) were dissertations, abstracts, or unpublished studies; (2) used qualitative and/or single case design; (3) if suicidal and self-harm behaviours were the secondary focus, (4) or if they used additional therapy in conjunction with DBT, such as, cognitive behavioural therapy, (5) or included adolescents experiencing a learning disorder.

Exclusion criteria were selected to ensure only original quantitative articles were included and suicidal and self-harm being clearly investigated. It was important that the exclusion criteria were implemented to ensure articles were able to address the research question while being sufficiently comparable for the results to be synthesised appropriately.

3.3 Procedures for the identification and selection of studies

Two main methods were used to identify relevant studies. First, a computerised search was undertaken on the 20th and 21st August 2011 using databases search terms, and setting database refinements to limit the findings to peer reviewed

journals only. The searches are documented in Table 1 below. Secondly, the reference sections of relevant reviews were examined for appropriate studies, and those studies were searched for in the databases (see Table 1). The titles and abstracts (where available) of the subsequent studies were screened and 35 papers were found that potentially met the research criteria. Full text articles were retrieved. For an outline of the stages of selection and subsequent filtering of studies see Figure 1.

Table 1: Record of database search for the 20th-21st August 2011

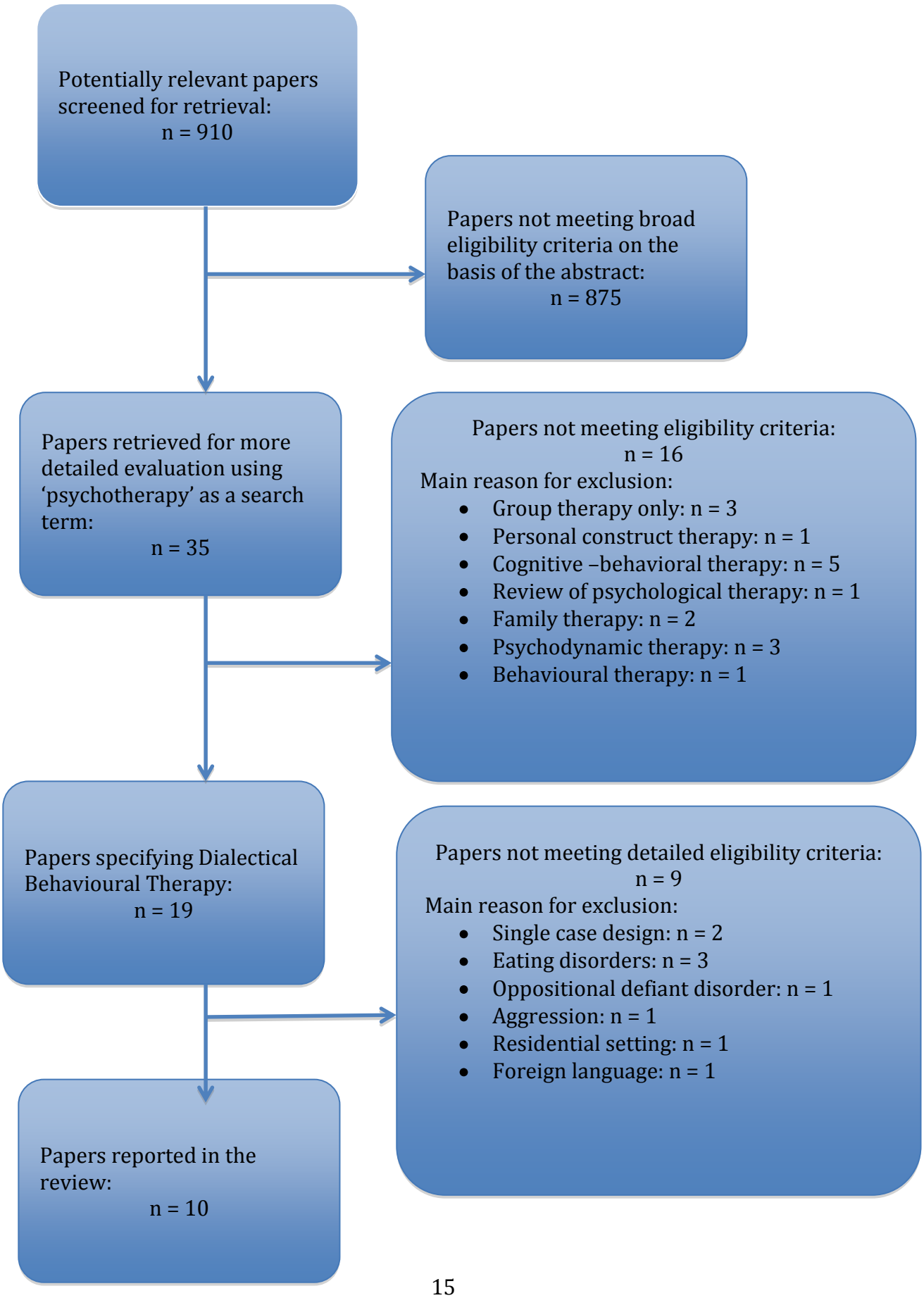
Where possible the following refinements were applied: Child, Adolescent, Empirical study, Date of publication: 1990 to 2011	Number of Hits			
Search Terms	**Psych Info**	**Web of Science**	**Scopus**	**Medline**
1) Suicid* AND Adolescen*	5598	11,588	17,100	39,243
2) Self-harm* AND Adolescen*	509	941	1162	3209
3) Suicid* AND Psychotherap* AND Adolescen*	458	562	836	910
4) Self-harm* AND Psychotherap* AND Adolescen*	72	46	77	552

* Truncation of terms

3.4 Full text retrieval

The full texts of 35 articles were further screened against the selection criteria with criteria sensitivity checks made by cross-reference to the studies' reference lists. No additional articles were found. A total of ten articles were finally selected for review.

Figure 1: Flow chart of the full-text screening process



3.5 Quality assessment

A checklist for measuring study quality (Downs & Black, 1998) was used to assess the following five areas: reporting, external validity, bias, confounders, and power. This checklist can be seen in Appendix A

- Reporting (9 questions asked) assessed whether information provided in the paper was sufficient to allow the reader to make an unbiased assessment of the findings of the study.
- External validity (3 questions asked) addressed the extent to which the findings from the study could be generalised to the population from which the study subjects were derived.
- Bias (7 questions asked) addressed biases in the measurement of the intervention and the outcome.
- Confounding (6 questions asked) addressed bias in selection of study participants.
- Power (1 question asked) attempted to assess whether the negative findings from a study could be due to chance. This item was scored 0 to 5

The outcome of the study quality tool on the reviewed studies is presented in Table 2.

Table 2: The results of the checklist for measuring the quality of the reviewed studies

	The five domains of quality				
Studies	**Reporting (9)**	**External validity (3)**	**Internal validity bias (7)**	**Internal validity – confounding (6)**	**Power (1)**
1	7	1	4	2	2
2	4	1	4	1	2
3	6	1	5	1	-
4	4	1	5	1	-
5	8	1	4	2	-
6	7	1	4	1	5
7	6	1	4	1	-
8	5	1	4	1	-
9	6	1	3	1	-
10	7	1	4	2	2

*Numbers in parentheses are the total number of questions asked for each domain. A point was awarded for each yes to the questions.

- Insufficient information documented to be able to give a score.

The results from Table 2 demonstrated that Study 5 had the highest score (8) for 'Reporting', which suggested the article presented sufficient information for the reader to make an unbiased assessment of the findings. In contrast, Studies 2 and 4 only scored 4 indicating there was not sufficient information for an unbiased assessment. All ten studies scored 1 (out of 3) for external validity suggesting it was difficult to generalise to the population from which participants were derived. Studies 3 and 4 scored 5 (out of 7) for internal validity, which implied that the biases were mostly addressed in the measurement of the intervention. However, Study 9 found it difficult to address biases as it scored 3 (out of 7). All ten papers struggled with addressing 'confounding' biases scoring either 1 or 2 (out of 6). There was also a wide variation of 'power' addressed across the ten studies. Study 1 was the only paper to address 'power' appropriately.

3.6 Data extraction

Detailed data from the ten review articles were extracted using a form (Appendix B) and then entered into two tables (see Tables 3 and 4). Some of the categories were descriptive and some acted as a checklist for assessing the quality of the study. The extraction categories were informed by the NHS CRD (2001) description of data extraction and study quality assessment. The data extracted within the categories were viewed with reference to internal and external validity. An ID code ranging from 1 to 10 was given to each study reviewed.

3.7 Data synthesis

A meta-analysis was not conducted as the overall effect sizes could not be calculated due to the variation of results available. Therefore, a narrative explanation was developed from the collected data, which covered the studies' general summaries, key findings of the target outcomes and methodological quality of the studies.

Table 3: Sample characteristics and method of the reviewed studies

ID – Author(s)	Country	Setting	N	Age (mean)	Gender (N)	Ethnicity	Inclusion	Exclusion
1) Katz et al., (2004)	USA	Inpatient	62	14-17 years (M =15.40)	Female (n = 52) Male (n = 10)	72.6% White 1.6% Latino 0% African American 4.8% Asian/Pacific 19.4% First Nation 1.6% Other	Admitted after suicide attempt. Suicidal ideation severe enough for admission	Mental retardation Psychosis Bipolar affective disorder Severe learning disabilities
2) McDonell et al., (2010)	USA	Inpatient	106 104	DBT Group 12-17 years (M = 15.54) Historical control 12-15 years (M = 15.3)	Female (n = 121) Male (n = 89)	Not Specified	Voluntary and involuntary admissions	Admissions for legal competence restoration
3) Fleischhaker et al., (2011)	Germany	Outpatient	12	13-19 years	Female (n = 12)	Not Specified	Age at beginning of therapy between 13-19 years NSSI or suicidal behaviour in the past 16 weeks Diagnosis of BPD or at least 3 DSM-IV criteria for BPD. Diagnosis of BPD made by means of semi-structured	Cognitive performance according to an intelligence quotient below 70 Present psychotic disorder Present severe depressive episode or mania with indication for inpatient therapy Substance abuse Eating disorder as

							interview (SKID-II)	primary diagnosis Illiteracy
4) James et al., (2008)	UK	Outpatients	16	15-18 years (M = 16.4)	Female (n = 16)	Not Specified	History of more than six months of severe and persistent deliberate self-harm	Diagnosis of schizophrenia, bipolar disorder, autism, ASD, & moderate and severe MH
5) Miller et al., (2000)	USA	Outpatients	27	14-19 years (M = 16.7)	Female (n = 23) Male (M = 4)	59% Hispanic 33% African American 3% Caucasian 5% Other	Engaged in parasuicidal behaviour within the last 16 weeks or reported current suicidal ideation Met diagnostic criteria for BPD or a minimum of three BPD features as measured by SCID-II	Not specified
6) Rathus et al., (2002)	USA	Outpatients	82 29	DBT Group (M = 16.1) TAU (M = 15.0)	Female (n = 76) Male (n = 6) Female (n = 21) Male (n = 8)	The two groups did not differ on ethnicity. Total Sample: 67.6% Hispanic 17.1% African American 8.1% White 0.9% Asian American 6.3% Other	DBT Group a) Suicide attempt within last 16 weeks as measured by clinical interview or by measures HASS or SSI b) Diagnosis of BPD or a minimum of three borderline personality features as measured by SCID-II TAU Group	Not specified

							Participants that met criterion of a or criterion b but not both	
7) Woodberry et al., (2008)	USA	Outpatients	46	13-18 years (M = 16.0)	Female (n = 41) Male (n = 5)	96% Caucasian 4% not reported	History of suicide attempts, self-injury and/or intense and unstable affect or relationships within the past 3 to 6 months. Willing to commit to the entire 15 -week programmes.	Not specified
8) James et al., (2011)	UK	Community	25	13-17 years (M = 15.5)	Female (n = 22) Male (n = 3)	Not specified	History of more than six months of severe and persistent deliberate self-harm	Diagnosis of schizophrenia, bipolar disorder, autism, ASD, & moderate and severe mental impairment
9) Perepletchikova et al., (2011)	USA	Community	11	8 – 12 years (M = 9.83)	Female (n = 6) Male (n = 5)	73% Caucasian 9% Black 9% Hispanic 9% Asian	All the parents that responded within one week were included in the pilot.	Not specified

10) Trupin et al., (2002)	USA	Juvenile Correction	22 23 45	Mental Health Cottage – DBT (M =14.8) General Population – DBT (M = 15.5) Matched comparison (M = 15.2)	Female (n = 60)	MHC: MHC - DBT: 50% White 15% African American 15% Native American 10% Hispanic GP-DBT 50% White 22% African American 9% Native American 14% Hispanic MC: 59% White 23% African American 9% Native American 7% Hispanic	Not specified	Not specified

Table 4: Method controls and results of the reviewed studies

ID - Author(s)	Groups (n)	Review specific variables and measures	Study design	Statistical Methods	Results: differences ($p < 0.05$)
1) Katz et al., (2004)	Bed allocation on admission Group 1: DBT (n = 26) 83% completion (n = 6 did not complete the 1-year follow-up). Group 2: TAU (n = 27) 90% completion (n = 3 did not complete the 1 year follow-up).	Self-report measures: Beck Depression Inventory (BDI: Beck & Beck, 1972); Kazin Hopeless Scale for Children (KHS; Kazin et al., 1986); Reynolds' Suicidal Ideation Questionnaire-Jr (SIQ; Reynolds, 1988). Completed pre and post admission One year follow-up: 1) BDI and SIQ 2) Number of parasuicidal behaviours as measured by Lifetime Parasuicide Count (LPC: Linehan et al., 1997 unpublished instrument) 3) Emergency room visits secondary to parasuicidal behaviour or ideation 4) Number of psychiatric readmissions 5) Adherence to the recommended treatment.	Two-arm parallel Pre-test and post-test (completion of treatment and 1 year) outcome measures	Power analysis 980%) for participant number 2 x 2 ANOVAs on BDI, KHS, SIQ and LPC 2 x 3 ANOVAs on BDI and SIQ t test on o. incident reports/group Post hoc χ^2 on no. incidents reports χ^2 analysis for emergency room visits Cohen's *d* for BDI, KHS, SIQ and LPC.	Significant main effect for time on the BDI, KHS, and SIQ. Both groups improved - no differences between the two groups at discharge. DBT gp had significantly fewer incidents on the ward. DBT gp had 100% retention rate for treatment. One-year follow-up: Main effect for time on the BDI, SIQ, and LPC.
2) McDonell et al., (2010)	Group 1: DBT (n = 106) Group 2: Historical Control Group (n = 104)	Dependent measures included length of stay (months), discharge placement, and change in the number of psychiatric medications and functional status – Child Global Assessment Scale (CGAS) from admission to discharge. Hospital quality assurance database accessed for frequency of locked seclusions (n = 210) and non-suicidal		Repeated measures ANOVAs on medication and CGAS within the DBT group. Locked seclusions and NSIB investigated across 12 months post admission using generalized estimating equations.	DBT group statistically improved in GCAS scores from admission to discharge. DBT group significantly reduced their prescribed medications at discharged. A significant effect of time on NSIB was obtained in the DBT group. DBT group had significantly lower rates of NSIB across 12 months

		injury behaviour (NSIB; DBT, n = 106; HCP, n = 49).			hospitalization compared to historical control group.
3) Fleischhaker et al., (2011)	DBT-A Group (n = 12) Data collected at beginning, four weeks after the end of therapy and one year after the end of therapy	Prior to admission during diagnostic appointment: SKID-I (structured clinical interview for DSM-IV, German version) SKID-II (structured clinical interview for DSM-IV, German version) Parts of Kiddie-SADS-PL (semi-structured interview; present ad life-time version), German version. 2-4 weeks prior to start of therapy: LPC – Lifetime Parasuicide Count THI – Treatment History Interview GAF – Global Assessment Scale of Functioning CGI – Clinical Global Impression ILC – Inventory of Life Quality in Children and Adolescent SCL-90-R Symptom-Checklist-90-Revised CBCL – Child Behaviour Checklist YSR – Youth-Self-Report DIKJ – Depression Inventory for Children and Adolescents	Evaluation of treatment: Pre-test and post-test (completion of treatment and 1 year) outcome measures	Wilcoxon signed rank tests calculated effect size between the three time points: pre-treatment; 4 weeks post treatment; one year after treatment.	Significant reduction of NSBI 4 weeks post treatment. NSBI significantly lower than at one-year follow-up compared to 4 weeks post treatment. Significant amelioration of the GAF and CGI following one year post treatment. Significant amelioration was scored on aspects of the ILC; school, interests and recreational activities, mental health, global rating of quality of life Comparison between psychopathology pre and one-year post therapy yielded a significant reduction in psychopathology for Global Severity Index, Positive Symptom Distress Index. SCL-90-R symptoms significantly reduced for depression, anxiety, somatization, interpersonal sensitivity, obsessive-compulsive and hostility. YSR psychopathological symptoms significantly decreased for social withdrawal, anxious/depressed, schizoid-obsessive, attention problems and aggressive behaviours. DIKJ showed significant improvements for depressive psychopathology.

4) James et al., (2008).	DBT Group (n = 16)	Independent assessments pre and post treatment, and at follow-up (M = 268 days): SCID –II (structural clinical interview for DSM-IV II) – only nine were re-interviewed at the end of treatment. BDI – Beck Depression Inventory (Beck, 1979) BHS – Beck Hopelessness Scale (Beck et al., 1974) GAF - DSM-IV Global Assessment of Functioning (APA, 1994). The number of episodes determined by clinical interview	Evaluation of treatment: Pre-test and post-test and eight-month follow-up outcome measures	General Linear Model (GLM) repeated measures of BDI, BHS, GAF, DSH over three time periods.	Significant reduction in self report depression scores, hopelessness, episodes of DSH and an increase in GAF over the three time periods.
5) Miller et al., (2000)	DBT Group (n = 27)	Independent assessments pre and post treatment: LPI – Life Problems inventory (Rathus & Miller, 1995a) SCID-II diagnosis of BPD (miller et al., 1996) Week 12 participants completed: DBT Skills Rating Scale for Adolescents (Rathus & Miller, 1995b)	Evaluation of treatment: Pre-test and post-test of the LPI	Paired sample *t* tests of pre & post test LPI measure Pearson correlations between the ratings of helpfulness for all 19 skills and LPI change	Significant improvement in all four areas (confusion about yourself; impulsivity; emotional instability; interpersonal problems) and in overall total score. Change in the confusion about the 'yourself' correlated with three emotional regulation skills: please; master; act opposite. Interpersonal problems were

				scores for each problem area.	positively related to the radical acceptance skill. Emotional instability was negatively related to the participate skill.
6) Rathus et al., (2002)	No randomization procedure, patients assigned based on triage model. Patients who had both suicidal ideation and attempts assigned to treatment group, patients who exhibited only one criteria were assigned to control group. Group 1 - Treatment: DBT (n = 29) Group 2 - Control: TAU (n = 82)	HASS – Harkavy-Anis Suicide Survey BDI –Beck depression Inventory LPI – Life Problems Inventory SSI – Scale for Suicidal Ideation SCL-90 – Symptom Checklist 90-Revised K-SADS – Schedule for Affective Disorders and Schizophrenia, child version SCID-II – Structured Clinical interview for DSM-IIIR Personality Disorders, Borderline Personality Module. Number of psychiatric hospitalisations during treatment Number of suicide attempts during treatment Treatment completion rate.	Two-arm parallel pre-test and post-test (completion of treatment and one year) outcome measures	X^2 analysis on number hospitalisations, suicide attempts and treatment completion rates. *t* tests on repeated measures	Between –Group findings: TAU group was significantly admitted for psychiatric hosptialisation during the course of treatment compared to the DBT group. Participants in the TAU group completed significantly less completion of treatment compared to the DBT group. Within-Group findings: Examining pre-post change within DBT group, suicidal ideation significantly decreased. SCL-90 significant pre-post reduction in Global Severity Index, Positive Symptom Distress Index. Individual scales scores, significant decreases on anxiety, depression, interpersonal sensitivity, and obsessive-compulsive. LPI scores significant pre-post decreases in total scores, and

					four problem areas: confusion about self; impulsivity; emotion deregulation; interpersonal difficulties.
7) Woodberry et al., (2008)	DBT Group (n = 46)	Adolescent self-report: RADS – The Reynolds' Adolescent Depression Scale BASIS-32 – The Behavior and Symptom Identification Scale AAS – The Adult Attachment Scale TSCC – The Trauma Symptom Checklist for Children Adolescent Functioning Parent report: CBCL – The Child Behavior Checklist Parent Functioning by Parent Self-report: BDI – The Beck Depression Inventory	Uncontrolled pre-post treatment design	Pre-post treatment using matched pairs *t* tests. Chi-square tests to assess differences among dropouts and completers. Between-group differences in pretreatment scores using independent samples *t* tests	Suicidal Ideation: Significant decreases in frequency of "wanting to hurt self" and "wanting to kill". CBCL, parents reported significant decrease in frequency of "deliberately harms self or attempts suicide." Symptoms and functioning: Significant improvement in adolescent reported anger, depressive symptoms, depression/anxiety, dissociative symptoms, overall symptoms. Adolescents a significant increase in comfort depending on others on the AAS.
8) James et al., (2011)	DBT Group (n = 25)	SCID-II – The Structured Clinical Interview for DSM-IV II BDI– Beck Depression Inventory BHS – Beck Hopelessness Scale ASQ – Attachment Style Questionnaire	Uncontrolled pre-post treatment design	Pre-post treatment using matched pairs *t* tests.	Significant reduction in depression, hopelessness scores and a lowered frequency of self-harm. Significant increase in global functioning.

		CATS – Children's Automatic Thoughts Scale CQLS – Comprehensive Quality of Life Scale GAF – Global Assessment of Functioning Episodes of self-harm per week determined by clinical interview.			
9) Perepletchikova et al., (2011)	DBT Group (n = 11)	Young people: MFQ - Mood and Feelings Questionnaire SCARED – Self-Report for Childhood Anxiety Related Disorders CSCRC – Child Self-Control Rating Scale Skills Training and Homework Review Questionnaires. Parents: ERC – Emotion Regulation Checklist SSRS-P – Social skills Ratings Scale-Parent Version Skills Training Attitude Inventory	Evaluation of treatment: Pre-test and post-test measures	Pre-post treatment using one-tailed paired samples *t* tests.	A significant decrease in depressive symptoms, suicidal ideation, coping skills and problematic behaviour from pre-post intervention.
10) Trupin et al., (2002)	No randomization procedure, patients offered treatment	DISC – Diagnostic Interview Schedule for Children CAFAS – Child and Adolescent	Three-arm parallel	Curve estimation regression analysis.	Two DBT groups demonstrated significant reduction in behaviour during the 10-month

	upon beginning residency Mental Health DBT Group: (n = 220 General Population Group DBT: (n = 23) Matched Comparison Group: (n = 45)	Functional Assessment Scale Rating of functional impairment based on staff interview and chart review.	Pre-test and post-test (90 days) outcome measures	Time series regression analysis. Repeated measures ANOVA	study. Staff punitive actions were significantly lower during the DBT year. Significant decrease in staff punitive actions on the Mental Health DBT group. A significant within subjects decrease in risk scores across groups.

4. Results

4.1 General Description

All the studies delivered a psychological intervention of DBT with young people who displayed self-harm behaviours including suicidal ideation across four different settings: inpatient (two studies); outpatients (5 studies); community settings (two studies); juvenile correction centres (one study). The ten studies all used quasi-experimental designs and, for the purpose of this review were divided into two categories. Four studies used a pre-post design with a comparison group. The remaining six studies used pre-post design without a comparison group.

A summary of the methodology and results for each study that focused on DBT is presented in Tables 3 and 4 respectively. A summary of the key characteristics for all the ten studies is presented in Table 5 (see below). The key characteristics included population factors, settings of studies, standardised and non-standardised variables, and structured interviews.

4.2 DBT and the treatment for self-harm and suicidal ideation (ten studies)

4.2.1 Treatment Outcomes: Studies using comparison groups when evaluating DBT

Four studies (studies 1, 2, 6, 10) assessed the effectiveness of DBT with young people displaying self-harm behaviours using comparison groups. Two studies were within inpatient (n = 263), 1 study within outpatient (n = 111), and one study within juvenile correction (n = 90) settings.

Table 5: Summary of Study Characteristics

Study Characteristics	**Studies assessing DBT, suicidal and self-harm behaviours**
Population factors:	
Sample size range	11 – 210
Total no. Participants	610
Gender	M = 130; F = 480
Mean age range (years)	9.87 – 16.7
Settings of studies:	
Inpatient	2
Outpatient	5
Community	2
Juvenile Correction	1
Variables measured (standardised self-report):	
Beck Depression Inventory	4
Kazin Hopeless Scale	1
Suicidal Ideation Questionnaire-Jr	1
Lifetime Parasuicide Count	1
Global Assessment of Functioning	3
Clinical Global Impression	1
Life Problems Inventory	2
Symptom Checklist – 90-Revised	2
Child Behaviour Checklist	1
Trauma Symptom Checklist for Children	1
Youth Self Report	1
Depression Inventory for Children & Adolescents	2
Beck Hopelessness Scale	1
Harkavy-Anis Suicide Survey	1
Schedule for Affective Disorders & Schizophrenia	1
Reynolds' Adolescent Depression Scale Behavior	1
The Adult Attachment Scale	1
Attachment Style Questionnaire	1
Children's Automatic thoughts Scale	1
Comprehensive Quality of Life Scale	1
Child & Adolescent Functional Assessment Scale	1
Mood and Feeling Questionnaire	1
Self-report for Childhood Anxiety Related Disorders	1
Children's Coping strategies Checklist	1
Emotion Regulation Checklist	1
Scale for Suicidal Ideation	1
Social Skills Rating Scale-Parent Version	1
Structured Interview:	
Structured Clinical Interview for DSM-IV	4
Semi-structured interview; present & Lifetime	1
Treatment History Interview	1

Additional measures:	
Emergency room visits	2
Number of psychiatric re-admissions	2
Adherence to recommended treatment	1
Length of stay	1
Discharge placement	1
Number of psychiatric medications	1
Frequency of seclusions	1
Non-suicidal injury behaviour	4
DBT Skills Rating Scale for Adolescents	1
Treatment completion rate	1
Number of suicide attempts during treatment	1
Skills Training and Homework Review Questionnaire	1
Skills Training Attitude Inventory	1

Study 1 was conducted within an inpatient setting in the USA and evaluated the implementation and 1-year outcome of suicidal adolescent inpatients treated with DBT compared to TAU (psychodynamic psychotherapy). No significant differences were found between the two treatment groups at pre and post testing times, and this remained the case at the one-year follow-up. There was however, a positive outcome for both groups. Measures (Beck's Depression Inventory, BDI; Beck, Ward, Mendelson, Mock & Erbaugh, 1961, Karzdin Hopelessness Scale, KHS; Kazdin, Rogers, & Kolbus, 1986, and the Suicidal Ideation Questionnaire, SIQ; Reynolds, 1988) were administered at three time points (pretreatment, post treatment and at a 1-year follow-up) to the DBT-A and TAU groups and the findings indicated that there was a significant symptom reduction over a 1-year period beginning in hospital and continuing after discharge for the BDI, KHS and the SIQ for both groups. It was suggested that the hospital environment might have positively influenced the reduction of symptoms for both groups.

There was a difference in behavioural problems on the ward depending on which treatment was provided. The DBT-A group had significantly fewer incidents

on the ward when compared to the TAU group during the participants stay in hospital. The mean length of stay in hospital for both groups was 18 days.

Study 2 was also conducted within an inpatient setting in the USA. Results of Study 2 found that participants within the DBT group significantly improved in their overall global level of functioning when measured by the Child Global Assessment Scale (CGAS; Schaffer, Gould, Brasic, 1988) from admission to discharge. Participants also reported a significant decrease in self-harm behaviours and, a significant reduction in the use of prescribed medication at discharge.

Findings from Study 6 (outpatient setting) demonstrated that the DBT group had a significant decrease in self-harm behaviours following the 12 weeks of therapy when compared to the TAU group. The DBT group obtained a significant reduction in suicidal ideation; overall symptom levels and total number of symptoms endorsed on the Symptom Checklist-90 (SLC-90; Derogatis, 1977) that included psychological problems (anxiety, depression, interpersonal sensitivity and obsessive-compulsive) and symptoms of psychopathogy (i.e. impulsivity, emotional regulation, confusion about the self, and interpersonal difficulties).

Study 10 was conducted within a juvenile correction setting. Analyses of the data were used to evaluate the change in the rate of behaviour within participants by using the Child and Adolescent Functional Assessment Scale (CAFAS; Hodges, 1995). Scores indicated that participants that lived in the Mental Health Cottage (MHC) and received DBT demonstrated a significant reduction in behaviour problems included self-harm during the 10-months of the DBT study when compared to the other two groups.

4.2.2. Treatment Outcomes: Studies evaluating DBT without a comparison group

Six studies (Studies 3, 4, 5, 7, 8, and 9) assessed the efficacy of DBT with young people displaying self-harm across outpatient (n = 101) and community (n = 36) settings.

Participants within Studies 3 and 4 completed pre-post measures and were then followed up at one year and at eight months after the end respectively. Results from both studies reported a significant reduction in self-harming behaviours and an increase in psychological well being when comparing pre and post measures (e.g. SCL-90; Global Assessment Scale of Functioning; CAF, Sab, Wittchen, Zaudig, & Houben, 2003; BDI; GAF; Beck's Hopelessness Scale; BHS, Beck, Weissman, Lester, & Texler, 1974).

A decrease in self-harming behaviours and an increase in psychological well-being was reported in Studies 7, 8, and 9. Study 8 also found that DBT was successful in reducing depression and hopelessness, but reported 35% of participants failed to engage with DBT. Studies 7 and 9 focused on parents' self reports. Parents within Study 7 reported similar changes in their children's internalising, externalising, and total problem behaviours. In addition, these parents also reported a large change in their own depressive symptoms. Parents in Study 9 reported a significant reduction with their children's behavioural problems.

Study 5 focused on the pre and post differences in scores on the Life Problem Inventory (LPI; Rathus & Miller, 1995a). Significant symptom reductions were identified in the overall total score and in the four problem areas: confusion about yourself; impulsivity; emotional instability; interpersonal problems. Yet, none of the helpfulness ratings of the 19 skills significantly correlated with its corresponding problem area. However, significant positive correlations were obtained between

skills and the non-corresponding problem areas. For example: confusion with yourself (problem area) correlated positively with three emotion-regulation skills of 'to please', 'to master' and 'to act opposite'.

4.3 Study Quality

A number of methodological limitations affected the internal and external validity of the ten reviewed studies (i.e. sample, measurement and confounding variables). Each of these limitations is discussed below.

4.3.1. Participants

A potential source of bias was the sample sizes and the power to detect significant differences should they occur. Only four of the studies (1, 2, 6, and 10) reported power calculations and only Study 1 addressed 'power' appropriately as documented by the checklist for study quality (Downs, & Black, 1998), but intention-to-treat (ITT) was not reported. Therefore, it is unclear if there were any dropouts from either group. For the purpose of the review, samples were considered to be underpowered if they were smaller than 50 participants using ANOVA or t-tests, and smaller than 25 participants in each group for those using correlations. These numbers are based in a medium effect size of 0.5 and power of 0.8 (Clark-Carter, 2004). When applying these criteria Studies 4, 7, 8, 9, and 10 were underpowered for at least one statistical calculation that were conducted.

Other possible sources of bias were the recruitment procedures and response rates. Four studies (2, 5, 6, and 10) used consecutive referrals to inpatient, outpatient, and juvenile correction services that met specific inclusion criteria over differing time periods. Study 1 recruited participants from an inpatient service who allocated to treatment group (DBT and TAU) according to bed availability. Two studies (7 and 8)

recruited from a range of different services including Social Services, Child & Adolescent Mental Health Services (CAMHS), schools, inpatient services, Youth Offending Teams (YOT), Study 3 recruited from an outpatient child and adolescent psychiatric clinic, and Study 4 recruited only from CAMHS. As the participants were young people seeking treatment this could bias the results. Study 9 recruited participants from a High school whose parents had responded within one week of receiving information about the study, again biasing towards those parents motivated to complete the necessary paperwork and potentially being a more supportive family unit.

Random assignment is an important technique that can be used to control for confounding variables. By randomly assigning participants into groups, randomisation can control for both known and unknown confounding extraneous variables. RCTs are perceived to be the 'gold standard' of research and considered to be the most reliable form of research that influences healthcare policy and practice because RCTs reduce spurious causality and bias. However, it is argued that random allocation does not protect RCTs against any other forms of bias (Jadad & Enkin, 2007), and using RCT type designs are not without weaknesses especially when evaluating psychological therapies (i.e. *responsiveness*; see Stiles, Honos-Webb, & Surko, 1998). Nevertheless, within the adult DBT literature RCTs have been conducted and indicated that DBT is more effective than TAU in treatment of BPD and treatment of BPD and co-morbid diagnosis of substance abuse (Linehan, et al., 1991; Linehan, Schmidt, Dimeff, Craft, Kanter & Comtois, 1999; Koons, Robins, et al., 2001; Verheul, Van Den Bosch, Koeter, De Ridder, Stijnen & Van Den Brink 2003).

Yet within the DBT-A literature, of the ten studies reviewed only four used comparison groups, and none of the studies (1, 2, 6, 9) adopted a randomisation procedure. The comparison groups were created by bed allocation (Study 1), consecutive admission (Study 2), assigned by the triage model (Study 6), and finally treatment upon residency (Study 9). To reduce or eliminate any selection bias it would have been preferable for participants within Studies 1, 2, 6, and 9 to be randomly allocated to a group (e.g. DBT or TAU).

When considering comparison-group studies, those groups that are closely matched are the most likely to generate valid conclusions about an intervention's effectiveness. Four studies (1, 2, 6, and 10) used comparison groups, but only Study 1 matched their comparison group for the demographics of age, ethnicity and urban versus rural habitat. There was no demographic information documented for Study 2 and, Study 6 reported that their groups did not differ on ethnicity. Study 10 also reported demographic data about ethnicity, but it is unclear if this demographic variable was matched between the groups. If groups are not matched they can produce inaccurate estimates of an intervention's effect, because of unobserved differences between the intervention and comparison groups. Studies using matched controls on factors such as age, ethnicity and socio-economic status would be more successful at reducing these potentially confounding variables.

The non-comparison category of Studies 3, 4, 5, 7, 8, and 9 all recruited small numbers of participants (range from 11 to 46). Small sample sizes could detect large effect sizes producing false-positive results (Type 1 error) or an over-estimation of the magnitude in affect. Small sample sizes may demonstrate inconclusive results making it difficult for inferences drawn to be valid.

Another potential bias is related to sample demographics. The majority of studies recruited participants from one service or hospital site, limiting the sample to patients from a small geographical area. Five studies reported gender and ethnicity, and the samples were predominately Caucasian or Hispanic and predominately female. Therefore, the generalisibility of the results to other ethnicities and male patients with self-harming behaviours is limited. There were five studies that gave no demographic information, therefore limiting the ability to assess potential generalisability.

The loss of participants during the intervention phase of treatment may change the characteristics of the group and outcomes irrespective of the studied intervention (Uni & Egger, 2005). The reporting of the attrition rate varied across the ten studies. Studies 2, 5, 6, 7, and 10 did not report the attrition rates. However, the remaining five studies (1, 3, 4, 8, and 9) gave clear accounts of why, when in the process and, how many participants were lost to the group(s).

Therefore, a number of methodological limitations with sampling were identified that could affect the internal and external validity of each of the ten studies. Studies that compared groups (Studies 1, 2, 6, and 10) did not employ randomisation and there was also vagueness in reporting power and attrition across all the studies as well as small sample size of participants within a number of studies.

4.3.2. Measurement Biases

A broad and varied array of standardised, non-standardised and interview measures were used by the ten studies covering an extensive range of constructs including depression (5 studies), hopelessness (3 studies), and suicidal ideation (3 studies). However, due to the range of measures used, it is difficult to compare the findings across studies.

A number of the standardised measures were self-report (for example BDI, CBC, and GASF) which have demonstrated consistent reliability and validity over time. Self-report inventories should only be used to measure symptom change and the reliance on self-report measures is not desirable due to the over or under social desirability (SD) of responses. None of the reviewed studies administered a SD measure, and it is unclear if any of the standardised measures have a SD scale of adjustment.

Data from the different studies was supplemented with non-standardised measures. These included, for example reporting non-suicidal injury behaviour (4 studies), number of visits to the emergency room (2 studies), and number of psychiatric re-admissions (2 studies).

4.3.3. Control of potentially confounding variables

Confounding variables that are not controlled or eliminated will damage the internal validity of the study. There are a number of ways that researchers can attempt to control for confounding variables.

Research suggests that the random allocation is the ideal if using comparison groups, as operationally the two groups should be similar. However if that is not an option then matching is the alternative to reduce confounding variables. Young people who self-harm or have suicidal ideation are not a homogenous group, therefore it is important to reduce the effect of potential confounding variables by matching control groups. In case-control studies participants are matched to controls on specific characteristics for example demographics (age, gender, ethnicity, socio-economic status) with the aim of equal distribution of confounders between the groups. Of the four studies using comparison groups only Study 1 included testing for the significance of inter-group differences, with successfully matched

demographics. The other three studies (2, 6, and 10) reported either no demographic variables being matched to some variables of demographic data being matched. Therefore, a reduction of confounding in Studies 2, 6, and 10 was highly unlikely.

A fundamental aspect of DBT is the training of the professionals who would delivery the therapy. The quality of duration and training varied across the ten studies. Study 10 used three groups in the study (DBT delivered to a mental health group, DBT delivered to a general population group and, a control group from the general population) and staff training was variable ranging from 16 to 80 hours depending on the groups receiving the therapy. It was important that when delivering DBT simultaneous to multiple groups' all staff needed to receive the same training. Therefore, inconsistent staff training was another confounding variable.

Duration of DBT offered to participants was variable across the ten studies. Study 8 did not report the duration of DBT offered, and Study 4 stated their DBT focused on 'stage 1 of treatment', and did not report what the duration was for 'stage 1 of treatment' or what that entailed. The remaining eight studies reported a variation in the duration of DBT offered to participants ranging from two weeks to 24 weeks. Therefore, the variability of duration of DBT across the ten studies made it very difficult to compare the findings.

Medication is an important factor to consider within studies, as it could be a potential confounder. There was a variance on the reporting of medication across the ten studies. Study 1 did report a possible positive effect of medication at the one-year follow-up with the measures of BDI and SDQ. Study 2 did compare medication on admission and discharge and reported a significant reduction of medication. Study 4 did report that 50% of the study's participants were abusing non-prescriptive drugs, and some participants were taking anti-depressants (9/16) and anti-psychotic drugs

(2/16) at the beginning of the study, but did not report post outcomes of medication or non-prescriptive drugs. In contrast, Studies 3, 5, 6, 7, 8, 9, and 10 did not report if their participants were prescribed medication or not. Therefore, because of the inconsistency of reporting on medication, it is unclear what influence medication had on the outcome of studies and whether it was a confounder or not.

5. Discussion

The aim of the current review was to explore the empirical literature on the effectiveness of Dialectical Behavioural Therapy for Adolescents (DBT-A) who displayed suicidal and self-harm behaviours. Due to the dearth of the evidence-based literature per se within the domain of adolescents with suicidal and self-harming behaviours it is difficult to compare how effective DBT-A was in comparison to other treatments and therapies. There were also caveats that need to be considered when reflecting on the suitability of DBT for adolescents who display maladaptive coping skills of suicidal and self-harming behaviours.

The following discussion section will examine the findings and the quality of the 10 studies (those with comparison groups and those without comparison groups). The discussion will then report the clinical implications for DBT-A, and finish with a review critique and a conclusion.

5.1 Effectiveness of DBT-A with comparison groups (studies 1, 2, 6, 10)

The outcomes from Studies, 1, 2, 6, and 10 that used comparison groups, were mixed. All of the group comparison studies (1, 2, 6, and 10) reported reductions in suicidal ideation and self-harm behaviours. However, Study 1 did not find any significant difference between the DBT-A and the TAU groups for reducing suicidal ideation and self-harm behaviours, but did report a significant reduction in behavioural incidents on the wards between the two treatment groups.

When considering the efficacy of DBT-A, only Study 1 compared different therapy groups. Study 1 used a TAU group (psychodynamic principles) compared with a DBT-A group and found no significant differences between the groups. Therefore, it could be suggested that DBT-A, that focused on behaviour change was

no more effective than psychodynamic psychotherapy (Quinn, 2009). There is evidence to suggest that other therapies such as cognitive analytic therapy (Chanen, Jackson, McCutcheon, Jovev, Dodgeon, Yuen, Germano, Nistico, McDougall, Weinstein, Clarkson, & McGorry, 2008), and group therapy (Wood et al., 2001) show promise as treatments for adolescents who repeatedly self-harm.

Studies 2, 6, and 10 used comparison groups reported a significant reduction in suicidal and self-harm behaviours within the DBT-A groups when compared to other groups. Study 6 reported the DBT-A group had a high risk of suicide and self-harm and the authors suggested the group had similar personality characteristic to adults with a diagnosis of BPD. Similarly, Study 2 divided the study into three DBT-A groups, and the group receiving 'full DBT-A' were described by the authors as "likely to be female"[2], had high rates of mood disorders, post traumatic stress disorder, cluster B personality disorder traits, sexual abuse histories and non-suicidal self-harming behaviour" (McDonell et al., 2010). This suggested that the 'full DBT-A' group were similar to adults who had received DBT. These findings demonstrated that DBT-A could be effective for a homogenous group of adolescents who display suicidal ideation and self-harming behaviours, which were similar to DBT being reported in the adult literature (Lynch, Trost, & Salsman, and Linehan 2007). As DBT was developed for adults with BPD it could be expected that DBT-A would be appropriate for adolescents whom present similarly.

5.2 Effectiveness of DBT not using comparison groups (studies 3, 4, 5, 7, 8, and 9)

The non-comparison group of Studies (3, 4, 5, 7, 8, and 9) was pre-post in design. There were four outpatient studies (3, 4, 5, and 7) and two community based

[2] Poorly reported by the authors in the original paper

studies (8 and 9). All of the studies reported significant reductions in self-harm behaviours, as well as a significant amelioration in mental health well-being post therapy, and this was maintained at follow-up of eight months to a year. Therefore, the findings suggested that DBT-A could be an effective therapy when applied to adolescents with specific mental health problems within outpatient and community settings. As comparison groups were not used, it is difficult to compare the studies findings with other studies (1, 2, 6, and 10) in the review and this limits the validity.

5.3 Quality of Assessment of Studies 1, 2, 6, and 10 (comparison groups)

The data in all four studies were of considerably poor quality. None of the four studies were randomised controlled studies, allocations to groups was unblinded, sample sizes were small and there were no impartial controls placed on the procedure for which participants were allocated to treatment. These points are discussed in more detail below.

A possible limitation of the reviewed literature could have been the lack of studies that employed a randomised control trial (RCT) design. The lack of randomising studies made it difficult to compare the studies due to the significant variability in populations, settings, structure, and format of treatment and outcome measures (Klein & Miller, 2011). Reasonable amounts of research literature exploring DBT with adults have employed RCTs with homogenous groups (e.g. BPD; Lynch at al., 2007). A possible explanation for the lack of RCTs within this area could be that adolescents who display suicidal and self-harm behaviours are a heterogeneous group, and RCTs would not be appropriate as the results could be difficult to generalise (Simon, 2001). Therefore, studies in the future may want to consider using a quasi-experimental design as this could minimise any threats to the

external validity. Although it is not without limitations (lack of randomisation) this could make it difficult to eliminate confounding variables. However, if the issues were addressed appropriately some generalisations could be made about the population.

Across the four comparison studies it was apparent there was a lack of matching of demographic data to the groups (treatment versus comparison), and in general demographic reporting which would be required for studies to be replicated. Consequently, limiting the ability to assess potential generalisability.

Only Study 1 reported power calculations. According to Moher, Dulberg, and Wells (1996) the lack of reporting power calculations is not uncommon. The authors reported that only about 12% of published randomised control trials (RCT) discuss statistical power. Moher et al. (1996) gave various explanations to why statistical power is not discussed that included the lack of understanding of calculating sample size to detect an effect of a given size or that it is unnecessary to discuss sample size because RCTs are invaluable to systematic reviews and meta-analyses.

5.4 Quality of Assessment of Studies 3, 4, 5, 7, 8, and 9 (non-comparison groups)

A main factor reducing the quality of the majority of the studies were that they had sample sizes limiting the power of the statistical analyses used. This could have increased the chance of a Type 1 error, and may account for the positive outcomes of treatment.

It would not be uncommon for adolescents receiving clinical interventions to have difficulty with emotional regulation and, experiencing fluctuation in mood states. Many of the measures used were self-report and were reported to have robust reliability and validity. Yet, it would not be uncommon for adolescents

receiving clinical interventions to have difficulty with emotional regulation, and experiencing fluctuation in mood states. Consequently, there are possible limitations that can occur with self-report measures. Participants may exaggerate symptoms or under-report the severity or frequency of symptoms. By administering different types of measures and obtaining data from a multiple of sources would reduce the limitations to validity (Becker, Hagenberg, Roessner, Woerner, & Rothenberger, 2004).

Non-standardised measures served a variety of purposes including determining competencies in domains where there are no psychometric standardised tests. These types of measures were able to describe the performance in the context of real-world settings and activities. Also, the non-standardised measures explored the effects of systematic changes in communication and cognitive demands.

5.5 Consideration of the roles of medication and training

Another consideration that appears to have been omitted from the studies (with the exception of study 6) is the effectiveness or role of medication. There is research documenting the use of medication for reducing many of the symptoms of mental disorders that co-occur with suicidal and self-harm injury, such as depression and anxiety (Bridge, Iyengar, Salary, Barbe, Birmaher, & Pincus, 2007). Consequently, medication can improve symptoms of mental disorders, so it is imperative that if medication is being used it needs to be considered to reduce it as a confounding variable. Future research should consider using a control group (non-medication group), but would recieve the same therapeutic treatment (DBT-A), so that the efficacy of DBT-A can be tested without the confounder of medication.

The treatment duration of DBT offered to participants across the ten studies was variable ranging from 2 to 24 weeks. The number of sessions per week was also variable. The content of the DBT delivered appeared to be different for different studies, making it difficult to draw comparative conclusions. In addition, staff training and supervision as documented in the ten studies was also variable and inconsistent. According to Miller et al. (2007) staff training and supervision is an integral part of the delivery of DBT to enhance the therapists' capabilities and to provide support (therapy for the therapists) with working with a high-risk population.

5.6 Clinical and research implications

Further research is required to extend the evidence-base. DBT as a therapy with adolescents is still in the formative stages of being developed. Standardised measures could give an indication of change, but as yet there is no standardised measure for the skills used within DBT-A. Similarly within the adult literature, an absence of a DBT skills measure makes it more difficult to study DBT skills as an outcome or mediator (Neacsiu, Rizvi, Vitaliano, Lynch, & Linehan, 2010).

There also needs to be a consistency of design and implementation. To date, there has been a variance of the measures used in studies with regards to staff training and the delivery of DBT that made it difficult to draw solid conclusions from the research. One suggestion could be to develop a manualised programme of DBT-A (similar to the adult DBT programme) and for facilitators to deliver the therapy equivalently to achieve a robustness and consistency.

Recruitment to any study is not without its difficulty. This can be even more so when considering a population of adolescents who present with suicidal and self-harming behaviours. RCTs are perceived by some researchers to be the 'gold

standard' of research. To strengthen the validity and reliability of findings, studies should aim to randomly assign participants into groups, which would help reduce confounding variables. None of the four studies using comparison groups were able to achieve the 'gold standard', which could suggest that designing research using this type of design may be unrealistic and fraught with difficulty. Moreover, for RCTs to be successful they often need to recruit large samples that can reduce the flexibility of the design as well as being very expensive. An alternative design that may be more practical could be a practice-based study that uses a bottom-up approach. The initial sampling frame could comprise of all possible participants and an absence of randomisation. The practice-base design would still focus on complex research questions and would give a richness of data to small or large studies (Barkham, Stiles, Lambert & Mellor-Clark, 2010).

5.7 Review critique

The aim of the current literature review was to be systematic, within the time and practical restrictions confronted by the author. It is generally good practice to have two researchers involved at all stages of a review to minimise any bias and error (NHS CRD, 2008), however this was not a practical possibility. The selection criteria for full text being available in English and available electronically or at the University of Leicester is likely to have led to a selection bias for recent studies and those from Western countries.

The review aimed to identify and critique the literature of the efficacy of DBT when delivered to adolescents who display suicidal and self-harming behaviours. The numbers of studies that were available for screening and then reviewed were limited for this review. The heterogeneous nature of the of reviewed studies that included

different settings (inpatient, outpatient, community, and juvenile correction), the range of measures used, and the sample and control groups made a clear synthesis of the research findings difficult.

5.8 Conclusion

The current review aimed to systematically review the literature on the effectiveness of DBT for adolescents who display suicidal and self-harm behaviours. Suicidal ideation and self-harm are emotive topics, that often heighten people's anxieties and, there is often an expectation that professionals need to deal with these difficulties swiftly. The evidence within the adult self-harming literature does indicate that DBT can be an effective treatment (Linehan et al., 1991; Linehan et al., 1993; Koons et al., 2001; van den Bosch et al., 2006), but the DBT programme for adults does have some issues (see Neacsiu, et al., 2010). The evidence to date of applying a similar developmentally appropriate DBT-A to adolescents is inconclusive because of the lack of research evidence available and the methodological weaknesses with the studies that were reviewed. The findings from all the studies reviewed did indicate there was a significant reduction in suicidal and self-harm behaviours, but it is unclear as to whether that was because of the DBT-A or if there were any other factors contributing to the reduction. Further robust methodological research is clearly required if a complete understanding of the effectiveness of DBT for adolescents with suicidal and self-harm behaviours is to be gained.

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Section C: Research Paper

Examining callous – unemotional traits and the relationship with proactive and reactive aggression, and non-suicidal self-injury within an adolescent in-patient population.

1. Abstract

Background: In a secure mental health facility for adolescent in-patients, the current cross-sectional study investigated the relationships of reactive and proactive aggression and non-suicidal self-injury (NSSI) with callous-unemotional (CU) traits. CU traits consisted of three dimensions of behaviour: Callousness; Uncaring; Unemotional.

Method: A sample of 76 adolescent participants consisting of 42 males and 34 females were recruited from two medium secure in-patient settings. Participants ranging in ages from 13 to 19 years and 11 months completed three self-report measures: Inventory of Callous-Unemotional (ICU) traits; Reactive Proactive Questionnaire (RPQ) that has measures of proactive and reactive aggression; Deliberate Self-Harm Inventory (DSHI) measuring different types and frequency of NSSI. Demographic data was also collected to compare group differences.

Results: The findings suggested the presence of CU traits might designate an important subgroup of aggressive in-patient adolescents. The data implied that adolescents characterised by higher levels of CU traits were more likely to exhibit proactive and reactive aggression. 'Callousness' and 'Uncaring' were strongly associated with proactive and reactive aggression respectively. Findings suggested that adolescents who exhibited NSSI scored higher on the 'Unemotional' dimension of CU traits. Differences between the three different diagnostic groups were identified with the 'Organic' group demonstrating fewer acts and frequency of NSSI. The non-offending group reported higher aggression scores compared to those young people with an offending history.

Conclusions: The current study supported the notion that the ICU was a reliable measure to assess the CU dimensions of 'Callousness' and 'Uncaring' in a sample of in-patient adolescents. A combination of these two behaviours appears to be associated with proactive and reactive aggression, and only the dimension of 'Unemotional' was related with NSSI. Study limitations and suggestions for future research are provided. Implications of the findings were discussed.

Keywords: Callous-unemotional traits, reactive aggression, proactive aggression, non-suicidal self-injury, adolescents

2.0 Introduction

Child and Adolescent Mental Health Services (CAMHS) in England are complex and diverse, and admission to inpatient services is reserved for the most complex and serious cases (National In-patient Child and Adolescent Psychiatry Study, 2001). A number of young people in the health care system require detention and treatment in a secure mental health setting. While being detained in secure settings, young people generally require constant observation, and are assessed as presenting as a risk of aggression to themselves or others and/or a suicide risk, including self-harm (Wheatley, Waine, Spence, & Hollin, 2004). The current study aimed to explore the relationships between callous-unemotional traits (CU) with aggression and self-harm within a sample of adolescents who were detained within medium secure psychiatric services to facilitate treatment planning for this vulnerable group.

The current paper will begin with defining self-harm, followed by an overview of adolescent self-harm and aggression within a clinical context. Proactive and reactive aggression will then be examined in further detail, followed by an exploration of the construct of psychopathy within the context of adolescence specifically focusing on CU traits, before presenting the rational for the current study.

2.1 Defining self-harm

The field of suicidology includes the study of self-harm and non-suicidal behaviours and has been plagued by inconsistent terminology. Researchers and clinicians have struggled with which terms will provide the most clarity and sensitivity to suicide related thoughts and behaviours. Furthermore, research studies have failed to separate acts of non-suicidal self-injury and suicidal behaviours.

However, a recent consensus was reached amongst clinicians and researchers that there is a distinct type of non-suicidal self-injury (NSSI) that people engage in for reasons other than to end their lives (Muehlenkamp, 2005; Nock & Kessler, 2006). The term NSSI will be used throughout the current study and will refer to behaviours engaged in with the purposeful intention of hurting oneself (i.e. non-fatal acts that result in bodily injury) without intentionally trying to kill oneself. The term NSSI was also chosen as it lacks a pejorative connation and it also differentiates NSSI from suicide attempts.

2.1.1 Non-Suicidal Self-Injury

It has been identified that NSSI most often begins in adolescence during the developmental transition into adulthood (Pattison & Kahan, 1983). Theories of NSSI include psychodynamic, behavioural, and emotion-regulation based causal models (Chapman, Gratz & Brown, 2006; Linehan, 1993). The emotion-regulation model has received the most empirical support and suggests that NSSI functions to reduce distress associated with interpersonal and intrapersonal stressors such as mental health related distress (Cerrutti, Manca, Presaghi, & Gratz, 2011; Jacobson, Muehlenkamp, Miller, & Turner, 2008). It is likely that psychopathology plays a role in the origins of NSSI, but it is currently unclear which specific forms of psychopathology are associated with NSSI especially within adolescents.

2.2 The clinical context: adolescent self-harm and aggression

In 2001 a British survey of 6,020 adolescents found approximately 6.9% (3.2% males and 11.2% females) had deliberately self-harmed, and only between 6% and 13% had sought medical treatment for their injuries (Bjarehed & Lundh, 2008).

There has also been growing concern amongst health care professionals that different self-harming behaviours might be becoming more frequent.

Deliberate self-harm within an adolescent in-patient setting is not uncommon and is one of the most emotive and challenging problems facing clinicians and in-patient staff (Crawford, Geraghty, Street, & Simonoff, 2003). The clinical presentation of adolescent in-patients is complex and diverse, and this population can often receive a variety of diagnoses (Wheatley et al., 2004). Young people who repeatedly self-harm may present with a variety of impulsive behavioural difficulties, including aggression (Connor et al., 2006).

Overt aggressive behaviours, which include verbal abuse as well as physical aggression, is one of the most common reasons for referral to mental health services in children and adolescents (Greene, Ablon & Martin, 2006). Adolescent aggression is also one of the primary reasons for admission to psychiatric hospitals/units (Barlow, Grenyer , & Iikiw-Lavalle, 2000). Adolescent aggression directed towards in-patient staff, other patients and the self is a significant problem within mental health in-patient settings, and acute aggressive episodes are common during inpatient admission (Sukhodolsky, Cardona & Martin, 2005). Adolescents involved in aggressive acts often have a previous history of aggression (Vivona, Ecker, & Halgin, 1995), are more likely to have a diagnosis of conduct disorder, and respond poorly to therapeutic interventions (Frick, 2009). The types of aggression most likely displayed within in-patient settings are impulsive and overt, incorporating behaviours such as physical attacks, verbal abuse, self-harm, and damage to property (Connor, Carlson, Chang, Daniolos, Ferzinger, & Findling, 2006; Farrell, Bobrowski & Bobrowski, 2006). A recent study (Wheatley et al., 2004) explored the characteristics of a medium secure adolescent in-patient service and found that young people requiring

such care presented most commonly with psychotic, personality or post traumatic stress disorders. With nearly half needing constant observation, 90% of those assessed presented with a risk of aggression and over 60% presented as a suicide risk. Consequently, aggressive behaviour can threaten the safety of staff and patients and can compromise the therapeutic milieu of the inpatient unit (Dean, Duke, George & Scott, 2007).

2.3 Proactive and reactive aggression

Childhood aggression has been identified as a developmental precursor to problem behaviour in adolescence and adulthood, including delinquency, violent antisocial behaviour, depression, and suicide (Fite, Colder, Lochman, & Wells, 2008; Javdani, Sadeh, & Verona, 2011; Zahn-Waxler, Park, Essex, Slattery, & Cole, 2005). However, not all aggressive children continue to exhibit difficulties into adolescence and/or adulthood, and the developmental pathway of aggressive behaviour is not the same for all individuals (Fite, Stoppelbein, & Greening, 2009). Fite et al. (2008) posit that the variable courses and correlates suggest that childhood aggression is a heterogeneous construct, and understanding more about the subtypes of aggression could help with furthering the understanding of aggression and the developmental trajectory through childhood and adolescence.

Many recent studies of children and adolescents' aggressive behaviours distinguish between reactive and proactive aggression, which differ on dimensions of emotional arousal, control and impulsivity (Connor, Swogger & Houston, 2009). Dodge (1991) defined reactive aggression as a reaction to a presumed threat or intention, which is associated with anger and, proactive aggression as planned, instrumental and "cold-blooded" behaviour (Polman, Orobio de Castro, Koops, van

Boxtel, & Merk, 2007). Support has been found for the validity of the distinction between reactive and proactive aggressions (Card & Little, 2006).

A theoretical explanation for reactive aggression has originated from the frustration-aggression model (Berkowitz, 1989). That is, aggressive acts are seen as being the consequence of frustration, and that when a person's goals are blocked as a result of internal or external factors, hostility and anger could be triggered. These increased negative emotions can increase the willingness to exhibit aggression to defend oneself or to inflict harm on the cause of the frustration. So, reactive aggression might be characterised by impulsive and reflexive aggressive behaviour that can occur in response to a perceived interpersonal threat. Moreover, reactive aggression appears to be linked to negative affect, and can be associated with elevated levels of sadness and unhappiness (Card & Little, 2006; Miller & Lynam, 2006; Raine, Dodge, Loeber, Lynam, Reynolds, Stouthamer-Loeber, & Liu, 2006). Therefore, a possible risk factor of reactive aggression may be a suicidal ideation and self-harm behaviour (Connor et al., 2003).

From a theoretical position proactive aggression can be seen as a result of social learning (Bandura, 1977). That is, aggressive behaviour is learnt through operant conditioning and through vicarious learning from observing the behaviour of others. Proactive aggression represents planned and goal-orientated aggression motivated by external reward. Proactive aggression is believed to be driven by positive outcome expectancies and conscious decision-making in regard to displaying aggressive behaviours (Bandura, 1973). Research examining behavioural correlates for proactive aggression reported an association with personality characteristics in adolescence (Murrie, Cornell, Kaplan, McConville & Levy-Elkon, 2004; Vitacco, Neumann, Caldwell, Leistico & Van Rybroek, 2006). In particular, proactive

aggression may be associated with callous-unemotional traits or a lack of guilt and remorse for wrongdoing, accompanied by a lack of empathy for others.

2.4 The construct of psychopathy in adulthood and adolescence

Longitudinal studies have suggested adult antisocial behaviours begin in childhood (Loeber, 1982). The idea of identifying and treating psychopathy in childhood and adolescence is not new. As early as the 1940s, Checkly (1941, as cited in Salekin & Frick, 2005) in his seminal monograph, 'The Mask of Sanity', acknowledged the disorder was likely to have its roots in childhood and/or adolescence. It was argued by Karpman (1950, p. 225 as cited in Salekin & Frick, 2005) that studying psychopathy was important "not merely for academic interest, but in order to better understand how the disorder comes about and from the standpoint of focalising therapy properly." The dominant features of psychopathy that were outlined 70 years ago continued to mirror current conceptions of interpersonal (e.g. superficial charm), affective (e.g. lack of remorse), and behavioural (e.g. sensation seeking) domains.

The construct of psychopathy is currently understood to be a personality disorder composed of interpersonal (e.g. deceitful/manipulative, grandiose sense of self-worth), affective (e.g. shallow affect, lack of remorse), and behavioural (e.g. antisocial behaviour, proneness to boredom, lack of long-term goals) features, which have been suggested to be important for understanding a subgroup of adult criminal offenders (Leistico, Salekin, DeCoster & Rogers, 2008) uniquely characterised by emotional detachment (Checkley, 1976; Hare, 1998; Lyken, 1995). This subgroup of adult offenders display low fearlessness, a callous misuse of others for personal gain,

severe and violent patterns of antisocial behaviour, and high rates of recidivism (Roose, Bijttebier, Decoene, Clae, & Frick, 2010).

It is recognised that the construct of psychopathy and the assessment of psychopathic traits in adolescents is controversial (Edens, Skeem, Cruise & Cauffman, 2001; Hart, Watt & Vincent, 2002; Seagrave & Grisso, 2002). For example, Seagrave & Grisso (2002) have raised concerns about the negative effects of the psychopathic construct in adolescence, and criticisms of the downward extension of the concept of psychopathy from adulthood to childhood (Lynam, 1998). However, many have agreed that research in this area may provide valuable information for early intervention and may usually inform assessment and management of a particular subgroup of complex adolescents (Frick, 2003; Vincent & Hart, 2002). Nevertheless, given the potential negative effects inherent in the use of the psychopathy construct great caution must be applied when exploring psychopathy in adolescent populations (Edens et al., 2001; Seagrave & Grisso, 2002; Vincent, 2006).

2.4.1 Callous-Unemotional (CU) traits

There have been attempts to assess core features of psychopathy, with appropriate developmental modifications, in samples of children and adolescents using several formats (Forth, Kossan & Hare, 2003; Frick, Bodin & Barry, 2000). In samples of clinic-referred and non-referred children (Frick et al., 2000) and samples of detained adolescents (Vitacco, Rogers & Neumann, 2003), factor analyses have consistently identified three personality dimensions similar to those identified in adult samples. These have been labelled as: callous-unemotional (CU) traits; narcissistic traits; impulsive traits. It is suggested that these three personality dimensions are often elevated in children and adolescents who demonstrate serious antisocial

behaviour. Frick (2009) suggested that children and/or adolescents with high levels of CU traits might indicate a specific subgroup of antisocial adolescents.

To assess CU traits within child and adolescent populations researchers in this field have consistently used two particular measures: the Child Psychopathy Scale (CPS), and the Antisocial Personality Screening Device (APSD; Lynam, Caspi, Moffitt, Loeber & Stouthamer-Loeber, 2005; Fisher & Blair, 1998). The CPS and APSD were designed to measure the domain of antisocial behaviour and they include a limited number of items to measure CU traits. The CPS (Forth et al., 2004) consists of a total of 41 items, but only four items measure CU traits, and the APSD (Frick et al., 2000) consists of 20 items in total and has six items measuring CU traits. The CU component of the APSD had emerged as a distinct factor in clinic, community, and detained samples of preadolescent males and females. However, due to the limited number of items of CU traits within the CPS (four) and APSD (six), the measurement of CU traits within these is reported to have significant psychometric limitations with reliability (Poythress, Douglas & Falkenbach, 2006). As there is evidence for the importance of CU traits for understanding antisocial and delinquent adolescents, there is a need for an efficient, reliable, and valid measure of CU traits.

2.4.2 Development of the ICU

One attempt at a more specific measure of CU traits resulted in the development of the Inventory of Callous-Unemotional Traits (ICU; Frick, 2004). The ICU consists of 24 items and its factor structure has been tested in two non-referred samples of adolescents (Essau, Sasagawa & Frick, 2006; Fanti et al., 2009) and in a sample of detained adolescents (Kimonis, Frick & Skeem, 2008). Across all three samples, a very similar factor structure (exploratory and confirmatory factors) has been found with a general CU factor accounting for covariance among all items and

three independent subfactors confirming the validity of the ICU. The three subfactors were labelled: Callousness (e.g. "the feelings of others are unimportant to me"); Unemotional (e.g. "I hide my feelings from others"); and Uncaring (e.g. "I try not to hurt others' feelings"). The internal consistency for the ICU was acceptable, with a co-efficient alpha of 0.77 (Essau et al., 2006).

2.4.3 Research and the ICU

Frick and White (2008) reviewed research using the ICU and reported several differences in the social, cognitive, emotional and personality characteristics of antisocial adolescents with CU traits in children and adolescents who were not callous and unemotional. In the review, studies showed differences in how antisocial adolescents with and without CU traits processed emotional stimuli. Adolescents high on CU traits showed deficits in the processing of negative emotional stimuli and, in particular, showing deficits to signs of fear and distress in others (Munoz, 2009; Kimonis et al., 2007). Studies have also showed several distinct cognitive characteristics of antisocial adolescent with CU traits, such as being less sensitive to punishment (Decuyer, De Bolle, De Fruyt & De Clerq, 2011; Munoz, Frick, Kimonis & Aucoin, 2008). Other studies demonstrated that antisocial children and adolescents with CU traits have unique personality characteristics, such as showing more fearless or thrill seeking behaviours and less anxiety or neuroticism (Marini, & Stickle, 2010; Kochanska, Barry, Jimenez, Hollatz, & Woodward 2009).

2.4.4 Summary of callous-unemotional traits

Research concerning the identification and assessment of callous-unemotional traits in adolescents has progressed over the past decade. The ICU has been developed to try and gain a clearer understanding of some of the behaviours exhibited within a very small subgroup of antisocial young people. Current research has

indicated that young people who have callous-unemotional tendencies might also experience difficulties in other areas including cognition, emotions, social interactions, and aggression. To date, there has been very little research exploring CU traits and mental health such as different types of aggression and non-suicidal self-harm. Therefore, the current study focused on the links of aggression and self-harm with CU traits.

2.5 Linking aggression and self-harm behaviour with CU traits

Within adult psychiatry, psychopathy is a personality characteristic thought to be associated with a number of interpersonal, behavioural, and affective characteristics. Research has been conducted in the areas of psychopathy, aggression and self-harm, but exploring the three factors together has been less well developed. However, a recent study by Daffern and Howell (2009) examined self-harm and aggression in adult patients who had been diagnosed with a personality disorder (psychopathic characteristics) in a high secure mental health hospital and found that adult patients who self-harmed were also aggressive, and patients would generally behave aggressively before they self-harmed. Daffern and Howells (2009) concluded that the states of anger and hopelessness might provide the setting condition (i.e. the antecedents) for both behaviours in some adult patients who had been diagnosed with a personality disorder (psychopathic characteristics).

A specific line of research has attempted to identify childhood precursors to psychopathy. Researchers have focused on callous and unemotional (CU) traits, which include a lack of guilt, absence of empathy, shallow and constrictions of emotions (Barry, Frick, DeShazo, McCoy, Ellis & Loney, 2000). Fanti, Frick, and Georgiou (2009) found that young people attending middle and high schools in

Greece who reported higher levels of CU traits were more likely to also exhibit reactive aggressive behaviours. Reactive aggression has been defined as aggressive responses to others' behaviour that is perceived as threatening or intentional (Dodge, 1991). There is also evidence to suggest that reactive aggression is associated with difficulties in mood regulation (Miller & Lynam, 2006) and there may also be a risk factor for suicidal ideation and self-harm behaviours (Connor, Duberstein, Conwell & Caine, 2003) in differing populations (e.g. adult, forensic, and inpatient). Given that CU traits have been associated with reactive aggression in adolescents, it is possible that there are similar increased risks of self-harm as shown in adults with CU traits and reactive aggression.

There has been limited research focusing on CU traits and different types of aggression. Callous-unemotional traits have been associated with proactive aggression in a community-recruited sample of 98 children (Frick, Cornell, Barry, Bodin & Dane, 2003), and in a sample of 58 detained adolescent females (Marsee & Frick, 2007). Marsee and Frick (2007) found that reactive aggression was more strongly associated with poorly regulated emotion and anger, and proactive aggression was more strongly associated with CU traits. However, a study with a clinical sample of 160 adolescents found that CU traits were not related to parent reports of either proactive or reactive aggression (Barry, Thompson, Barry, Lochman, Adler & Hill, 2007). Therefore, the relationship between proactive aggression and CU traits in adolescents is not clear.

A Greek-Cypriot study with a sample of 347 adolescents reported that if participants were characterised by high levels of CU traits (as measured using the ICU) they were more likely to present with a combination of reactive and proactive aggression in comparison to pure forms of proactive and reactive aggression (Fanti et

al., 2009). This finding was supported by a study (Munoz et al., 2008) of 85 detained USA adolescent males who were classified into three groups based on the severity and type of aggression: a reactively aggressive group only; a proactively and reactively aggressive mixed group; a relatively low aggressive group. Munoz et al. (2008) suggested that research has consistently shown that it is not unusual to find adolescents who display solely reactive aggression, but it is rare to find adolescents showing solely proactive forms of aggression.

A study (Frite, Stoppelbein & Greening, 2009) of 105 children admitted to an acute child psychiatric inpatient unit in the USA examined aggression behaviour, indicators of anti-social behaviour and negative affect. Results indicated unique correlates for reactive and proactive aggressions that mean proactive and reactive aggression were differentially related to indicators of antisocial behaviour and internalising symptoms. Moreover, reactive aggression was significantly related to negative affect, and proactive aggression was significantly associated with antisocial behaviour. However, the authors only found proactive aggression marginally positively related to callous-unemotional traits. A possible explanation for this finding could have been the modest internal consistencies associated with the measure (APSD), which consists of six items for measuring CU traits (Frite et al., 2009).

The concept of fearlessness, or lack of concern for the consequences of aversive behaviour, as suggested by Nock (2009), is consistent with current developmental approaches to very severe antisocial behaviours (Frick, 2006). CU traits could be a key risk factor for engaging in severe aggressive acts, which include NSSI. That is, CU traits interfere with normal socialisation mechanisms that inhibit aggression and promote prosocial responding. Therefore, adolescents with CU traits show less emotional reactivity and deficits in emotion processing (Kimonis, Frick,

Munoz & Aucoin, 2008) that theoretically 'allow' extreme, uninhibited aggressive acts. This parallels Nock's (2009) ideas that adolescents who exhibit NSSI also display under-controlled, uninhibited, and self-directed harmful responding. Therefore, further examination of NSSI, proactive and reactive aggression with CU traits was needed.

2.6 Rationale for the current study

As described above, it has been previously identified that increased understanding is needed in regard to the developmental appropriateness of the construct of psychopathy, as well as the degree of comorbidity that ought to be expected in child and adolescent samples exhibiting psychopathic traits. However, there was a lack of research within UK adolescent inpatient services (National In-patient Child and Adolescent Psychiatry Study, 2001) with a specific focus on CU traits and mental health problems among adolescents (Cook, Barese & Dicataldo, 2010). More specifically it was identified that there was limited research investigating reactive and proactive aggression within an inpatient adolescent population (Connor et al., 2009) and with adolescents who engage in non-suicidal self-injury (Boxer, 2010).

Within adolescent mental health in-patient settings it has been identified that aggression, and self-harm behaviours are not uncommon, and a possible common factor between aggression and self-harm behaviours may be CU traits. Research has indicated that adolescents characterised with CU traits were perhaps more likely to exhibit aggressive behaviours, but the findings have not been conclusive. The ICU (Frick, 2004) was found to be a more robust measure of CU traits than previous measures. The current study aimed to use the ICU to assess the extent that aggression and non-suicidal self-harm would be associated with CU traits. This would be

clinically useful because the study will firstly provide information about young people and CU traits within an adolescent in-patient population. By identifying young people within an inpatient mental health setting who present with a range of complex behaviours would aid planning interventions and could be incorporated into the assessment, formulation and intervention process. The findings may provoke discussion of how young people are managed appropriately. It would also enable clinical teams to develop more collaborative and comprehensive packages of care for adolescents detained within a secure mental health setting.

2.7 Methods of enquiry adopted

The paucity of UK-based research in the area of callous-unemotional traits within adolescence was a catalyst for the current study. The aim of the study was to focus on a specific group of adolescents (detained in a medium secure in-patient setting), using quantitative methods to examine the relationships of reactive and proactive aggression and non-suicidal self-injury with CU traits. There were three main research aims:

a) To explore the associations of a measure of callous-unemotional traits with aggression and non-suicidal self-injury
b) To explore whether proactive and reactive aggressions are differentially associated with callous-unemotional traits
c) To explore the association of callous-unemotional traits with non-suicidal self-injury.

3.0 Method

3.1 Design

The study employed a cross-sectional design to explore the relationship between the three components of callous-unemotional traits that were 'Callousness', 'Uncaring' and 'Unemotional' with two types of aggression (proactive and reactive) and non-suicidal self-injury.

3.2 Sample/Participants

The clinical sample was obtained from one NHS Foundation Trust and from a service from the independent sector within England. Participants were recruited from two in-patient medium secure adolescent services (service Y and service Z) caring for males and females between 13 years and 19 years of age.

3.2.1 Inclusion/exclusion criteria

Inclusion criteria were males and females aged between 13 to 19 years of age. The participants were an in-patient at the two services, and were able to read and write in English. The exclusion criteria included profound cognitive impairment and non-English speaking adolescents. Participants were also excluded in the absence of parental responsibility consent.

3.2.2 Attrition rates

A total number of a 120 beds were available from the two services, but at the time of data collection the two services had 104 young people in their care. The principal researcher tried to include or approached all 104 potential participants. At the time of data collection the RC or Management Team felt that 13.46% of participants did not meet the inclusion criteria. One parent and one social worker declined to give consent for the children in their care. From the 87 potential

participants eleven declined to participate leaving a total sample of 76. Attrition rates are presented in Table 1.

Table 1: Attrition rates from services Y and Z

Consent	N (%)	Explanation
Responsible Clinician (RC) / or Management Team	14 (13.46)	Did not meet the inclusion criteria
Social Worker	2 (1.92)	1 x refused to consent 1 x failed to respond
Parental	1 (0.96)	Parent did not want their child to participate.
Participants	11 (10.58)	10 refused and one person was on community leave
Total	28 (26.92)	

3.3 Demographic Information

With permission from the 76 participants demographic information was obtained from their files and the characteristics are presented in Table 2. The demographic information showed that a greater proportion were British White, with eight more males (n = 44) compared to females (n = 34). The age ranged from 13 years to 19 years and 11 months (M = 17.30, *SD* = 1.30). The mean age for males was 17.29 (*SD* = 1.35) and for females was 17.4 (*SD* = 1.27). All 76 participants had received one mental health diagnosis as coded by the International Classification of Disease 10 (ICD-10; World Health Organisation, 2010), with 43 participants having receiving two diagnoses, 12 participants had received three diagnoses, and three participants had received four diagnoses. Thirty-one participants did not have a reported forensic history. The remaining 45 participants committed a range of offences, which are presented as seven different types of offences in Table 2.

Table 2: Characteristics of the 76 participants from services Y and Z

Demographic Information	**N**	**%**	**Types of Diagnoses[1]**	**N**
Gender			Schizophrenic / psychosis disorder	9
Male	42	55.3	Conduct disorders	24
Female	34	44.7	ASD / Asperger's	16
Ethnicity			Organic mood disorders	7
White British	65	85.5	Mild mental retardation	28
White European	5	6.6	Moderate mental retardation	1
Black	1	1.3	Hyperkinetic disorders	8
Asian	1	1.3	Post traumatic stress disorder	17
Mixed Black	3	3.9	Mixed conduct & emotions	12
Mixed Asian	1	1.3	Emotionally unstable personality	4
Age			Attachment disorders	4
13-14 years	1	1.3	Eating disorders	1
14-15 years	1	1.3	Epilepsy	1
15-16 years	6	7.8	Paedophilia	1
16-17 years	24	31.5	Fetishism	1
17-18 years	24	31.5	**Types of Forensic History[2]**	
18-19 years	10	13	No forensic history reported	31
19+ years	10	13	Criminal damage	25
Time at current placement			Common assault, Affray, ABH	23
0-1 years	38	49.4	Public order offences	6
1-2 years	25	32.5	Sexual assaults	9
2-3 years	10	13	Theft, burglary	13
3+ years	3	3.9	Using offensive weapons	4
			Fire setting	10

1 A number of participants had up to four diagnoses.

2 A number of participants had up to three different types of offences recorded

3.4 Sample size

Correlations were employed to analyse the data. A power calculation indicates that for power of 0.8 and holding alpha at 0.05 with a medium effect size and three predictors, then a sample size of 76 was required (Clark-Carter, 2004).

3.5 Measures

There were three psychometric measures that each participant was required to complete and full copies are available in Appendix D.

3.5.1 The Inventory of Callous-Unemotional Traits (ICU; Frick 2004)

The ICU (Frick, 2004) is a 24-item self-report questionnaire (see Appendix D[1]) designed to provide assessment of callous-unemotional traits. The ICU is composed of 12 positively worded items and 12 negatively worded items. Answers are recorded on a four-point Likert scale (0 = "not at all true", 1 = "somewhat true", 2 = "very true", 3 = "definitely true"). For each item ("I am concerned about the feelings of others," "I feel bad or guilty when I do something wrong," "I care about how when I do at school or work," and "I do not show my emotions to others"), three positively and three negatively worded variations were developed (including the original item in its exact wording). The scores for the ICU were calculated by reverse-scoring the positively worded items, and then summing the items to obtain a total score (minimum score of 0, maximum score of 72).

The ICU captures three dimensions of behaviour: callousness, uncaring, and unemotional (Essau et al., 2006). The internal consistency for the total scale was acceptable, with a co-efficient alpha of 0.77 (Essau et al., 2006). The internal consistency of the three subscales was also acceptable for two of the three scales, with co-efficient alpha being 0.70 for the callousness factor and 0.73 for the uncaring factor (Essau et al., 2006). The internal consistency was marginal (0.64) for the unemotional factor (Essau et al., 2006). The construct validity of the ICU was found to be appropriate (Kimonis, et al., 2008).

3.5.2 Proactive -Reactive Questionnaire (PRQ; Raine, Dodge, Loeber, Gatzke-Kopp & Reynolds, 2006)

Raine et al. (2006) developed the 23-item Reactive-Proactive Aggression Questionnaire (RPQ; see Appendix D[2]) and measures proactive aggression (e.g. "Had fights with others to show who was on top") and reactive aggression ("got angry

when others threatened you"). Proactive aggression is based on 12 items and reactive aggression on 11 items. Each item is rated as 0 (never), 1 (sometimes), and 2 (often) for frequency of occurrence. A minimum score of 0 and a maximum score of 46 can be obtained. The items reflect either a physical or verbal aggression for both reactive and proactive aggression. The motivational and situational context for the aggressive behaviour is used to differentiate between the two forms of aggression. The Cronbach's alpha for proactive aggression was .81, and .82 for reactive aggression (Raine et al., 2006). Evidence for supporting the construct validity and reliability of the scales has been reported across several studies (Baker, Raine, Liu, & Jacobson, 2008; Miller & Lynam, 2003; Raine et al., 2006).

Previous research using the Reactive-Proactive Aggression Questionnaire showed that proactive aggression was associated with initiation of fights, delinquency, poor school motivation, poor peer relationships, single-parent status, psychosocial adversity, substance-abusing parents, hyperactivity, psychopathic personality traits, blunted affect, and serious offending in a detained sample of adolescents. Reactive aggression was associated with adolescents' impulsivity, hostility, social anxiety, lack of close friends, unusual perceptual experiences and ideas of reference (Raine et al., 2006).

3.5.3 Deliberate Self-Harm Inventory (DSHI; Gratz, 2001)

The Deliberate Self-Harm Inventory (DSHI; see Appendix D) is a 17-item, behaviourally based, self-report questionnaire to assess deliberate self-harm. The DSHI is based on the conceptual definition of self-harm as the deliberate, direct destruction or alteration of body tissue without conscious suicidal intent, but resulting in injury severe enough for tissue damage (e.g. scarring) to occur. The measure assesses various aspects of deliberate self-harm including frequency, severity,

duration, and type of self-harming behaviour. All items (1 to 16) begin with, "Have you ever intentionally (i.e. on purpose)....." and are followed by a specific behaviour (e.g. "........cut your wrists, arms or other areas of your body without intending to kill yourself?"). Item 17 is open-ended, asking whether participants have done anything else to harm themselves. For computation a 0 = no response and a 1 = yes response to items one to sixteen. An affirmative response to question 17 also generates a score of one. Further, for the one behavior that could also be used to end one's life (cutting), participants are asked whether they have cut themselves "with- out intending to kill yourself." Participants rate each item using a 5-point Likert-type scale, where 1 = No, I have never done this; 2 = Yes, 1 time; 3 = Yes, 2–5 times; 4 = Yes, 6–10 times; and 5 = Yes, more than 10 times. The DSHI has found to demonstrate high internal consistency ($\alpha = .82$), adequate test-retest reliability (Gratz, 2001), and adequate construct, discriminant, and convergent validity among patient samples (Fliege, Kocalevent, Walter, Beck, Gratz, & Guiterrez, 2006; Gratz, 2001).

3.6 Procedure

3.6.1 Ethical approval

Ethical approval was sought from the National Research Ethics Committee (NREC) as the population being study were adolescents who were medium secure in-patients. Ethical approval was granted in July 2011 (Appendix G). Subsequent approval from individual Research and Development Trusts for services Y and Z were granted in September and October 2011 respectively.

3.6.2 Data collection procedure

The researcher attended a "Community Meeting" (CM) for each of the 11 units across Y and Z services. CM are held three times a week and are a place where young people living on the unit and multidisciplinary staff can discuss an array of

issues including research that is being conducted. At each CM the researcher gave a brief introduction of her role and a short explanation about the study and the recruitment process. All the young people were told to contact a member of unit staff if they did not want to be approached by the researcher about participating in the research, and the staff let the researcher know directly or via email. A parallel procedure occurred with the researcher gaining 'consent to approach' from the Responsible Clinicians, Social Workers, and those people who had Parental Responsibility.

The researcher met with each young person who was interested in the study, and they where taken to the quiet or therapy room on the unit. The researcher allowed sufficient time for participants to read through the Participant Information Sheet (PIS; Appendix E) and ask any questions. An appointment was made within 24 hours to meet the young person if they agreed to participate in the study. The researcher again met the potential participants in a quiet or therapy room on the unit. The participant then completed the assent and consent forms (Appendix F). Countersigned copies of the consent forms were given to each participant as a record of their involvement. The participants were then asked to complete the three questionnaires (Appendix D). Completion of the measures took between 20-45 minutes and was dependent on the individual. Participants were given 'unique identification numbers" to allow them to withdraw from the research at a later point if required. Details were given on the PIS as to how data would be anonymised.

4.0 Results

4.1 Data Analysis

4.1.1 Descriptive Statistics

Data were analysed using the Statistics for the Social Sciences (SPSS) version 18.0. Descriptive statistics for each of the variables used in the current study is presented in Table 3.

Table 3: Descriptive statistics for each measured variable (N = 76)

Measure	**Mean**	***SD***	**Range**	**Min**	**Max**	α
ICU - Total	23.96	9.77	6-55	0	72	0.82
ICU – Callousness	7.80	4.52	1-24	0	33	0.72
ICU – Uncaring	8.33	4.87	0-19	0	24	0.79
ICU – Unemotional	7.04	2.62	1-13	0	15	0.43
RPQ - Total	18.96	9.68	1-43	0	46	0.92
RPQ – Reactive aggression	12.47	4.86	1-22	0	22	0.86
RPQ – Proactive aggression	6.49	5.51	0-21	0	24	0.88
DSHI – Total	5.51	3.91	0-13	0	17	0.86
DSHI – Frequency	30.74	11.41	17-54	0	85	0.83

4.1.2 Reliability of the ICU, RPQ, and DSHI

The findings of reliability for the ICU, RPQ, and DSHI measures are presented in Table 3. To assess for reliability of the measures used, Cronbach alpha were computed for the ICU, RPQ, and DSHI including the three components of the ICU (Callousness, Uncaring and Unemotional), the two components of the RPQ (Proactive and Reactive aggression), and the 'Frequency' score of the DSHI. The total scores for the three measures and their components all achieved acceptable or

above scores for reliability with the exception of the 'Unemotional' component of the ICU. DeVillis (2003) stated that an alpha score of 0.7 or above would be satisfactory for reliability. Although the 'Unemotional' component within the ICU did not achieve an acceptable level of reliability (0.43) the Total ICU and the other two components (Callousness and Uncaring) were considered to be reliable (0.82, 0.72, and 0.79 respectively). Therefore, the ICU measure remained within the study and caution was taken with further analyses with the measure, and in particular, the 'Unemotional' component.

4.1.3 Comparisons of the Mean and Standard Deviation across studies

Comparisons of the mean (*M*) and standard deviation (*SD*) scores of the current study with three other studies that used the ICU are presented in Table 4. To compare the four studies on the Total ICU score and the three components of the ICU (Callousness, Uncaring and Unemotional), *t*-tests were calculated.

The Total ICU score between the current study and the community sample (Roose et al., 2009; $M = 24.05$, $SD = 9.17$) found there was a significant difference, $t = 533.44$, $p = .001$. Similarly, there was a significant difference between the Total ICU scores of the current study and the Essau et al. (2006) study ($M = 24.38$, $SD = 6.85$), $t = 115.09$, $p = .006$. There was no significance between the forensic sample (Kimonis et al., 2008) and the current study ($M = 23.96$, $SD = 9.41$).

T-tests were used to explore the difference between the current study and a community sample (Roose et al., 2009) and a forensic sample (Kimonis et al., 2008) for the ICU component of Callousness. There was a significant difference between the community sample (Roose et al., 2009; $M = 8.01$, $SD = 5.24$) and the current study ($M = 7.80$, $SD = 4.52$), $t = 75.29$, $p = .008$, but a non-significant difference

between the forensic sample (Kimonis et al., 2009; *M* = 5.29, *SD* = 4.82) and the current study (*M* = 7.80, *SD* = 4.52), *t* = 5.22, *p* = .121.

Table 4: Comparison Mean and *SD* scores for the ICU across studies

	Total ICU		**ICU Callousness**		**ICU Uncaring**		**ICU Unemotional**	
	M	***SD***	**M**	***SD***	**M**	***SD***	**M**	***SD***
Current Sample - Inpatient	23.96	9.77	7.80	4.52	8.33	4.87	7.04	2.62
Forensic Sample Kimonis et al. (2008)	23.96	9.41	5.29	4.82	8.68	5.16	7.50	3.03
Community Sample Roose et al. (2009)	24.05	9.17	8.01	5.24	9.13	4.05	6.92	3.11
Community Sample Essau et al. (2006)	24.38	6.85		*		*		*

* Scores not reported

T-tests were also used to explore for difference between the samples and the ICU component of Uncaring. Results indicated that there was a significant difference between the current sample (*M* = 8.33, *SD* = 4.87) and the Roose et al. (2009) sample (*M* = 9.13, *SD* = 4.05), *t* = 21.83, *p* = .029 and the forensic sample (Kimonis et al., 2008; *M* = 8.68, *SD* = 5.16), *t* = 48.60, *p* = .013 respectively. *T*-tests were also used to explore for difference between the samples and the ICU component of Unemotional. The findings showed that there was a significant difference between the current sample (*M* = 7.04, *SD* = 2.62) and community sample (*M* = 6.92, *SD* = 3.11), *t* = 116.33, *p* = .005 and forensic sample (Kimonis et al., 2008; *M* = 7.50, *SD* = 3.03), *t* = 31.61, *p* = .020 respectively.

Gratz et al. (2012) examined NSSI and used the DSHI with a non-clinical sample. In comparison with Gratz et al. (2012) the current study had a higher percentage of young people that completed self-harm (80% compared to 39%; Gratz

et al., 2012). In the present sample 100% of the female participants and 64% of the males participants had completed at least one act of self-harm compared to 39% and 38% respectively in the comparison study (Gratz et al., 2012). Sixty-seven percent of the present study reported more than five incidents of self-harm compared to 21% in the Gratz et al. (2012) sample.

Table 5: Comparison of means and *SD* of the RPQ measure between the current study and two community studies.

	RPQ -Total		**Reactive Aggression**		**Proactive Aggression**	
	M	***SD***	**M**	***SD***	**M**	***SD***
Current sample	18.96	9.68	12.47	4.86	6.49	5.51
Inpatient sample (N = 76)						
Raine et al., (2006)	9.93	6.97	7.14	4.18	2.79	7.0
Community sample (N = 334)						
Fossati et al., (2009)	12.66	3.81	9.34	3.97	3.32	3.65
Community sample (N = 3666)						

Table 5 displays the mean and *SD* scores for the RPQ measure that included the total score and the two components of Reactive and Proactive aggression. The findings demonstrated that the current sample scores were higher compared to the two studies for RPQ total score, 'Reactive' aggression, and 'Proactive' aggression (Fossati et al., 2009; Raine et al., 2006). A possible explanation for the differences of mean and *SD* scores between the current study and the two community studies using the RPQ measure (see Table 5) could have been the different sample populations used. The current study used an inpatient sample, where as Raine et al., (2006) and Fossati et al., (2009) both recruited samples from high schools.

4.1.4 Preliminary analyses

Before the data were analysed in relation to the research questions, a preliminary analysis was undertaken to establish appropriate tests, and to check their

assumptions. Parametric tests have three core assumptions: the data should be normally distributed, variance of scores around the mean should be homogeneous, and the measurement of data should be interval or ratio (Pallant, 2010). However, if the criteria are not fully met psychometric tests have shown to remain robust (Field, 2009).

The Kolmogorov-Smirnov statistic was used to assess the normality of the data and if the test was non-significant then the sample distribution is not different from a normal distribution (Field, 2010). Non-significant results were found for the ICU and RPQ suggesting these two variables were normally distributed, but significance was found with the DSHI Frequency score. Therefore, square root transformations were conducted on the DSHI Frequency variable, and the data rechecked again using Kolmogorov-Smirnov. Transformation did not yield a significant result for the DSHI Frequency suggesting that the transferred variable was normally distributed.

4.1.5 Main variable differences with the demographic variables of age, ethnicity, and gender.

The relationships between the three measures and the components of the ICU (Callousness, Uncaring and Unemotional) and Reactive aggression, Proactive aggression (measured by the RPQ), and NSSI were investigated using ANOVAs and t-tests. Preliminary analyses were performed to assess how well the data met the assumptions of normality, linearity, and homoscedasticity.

Age in this sample was coded in years and months (e.g. 15 years to 15 years and 11 months) and ranged from 13 years to 19 years 11 months. As there was only one person in each year group of 13 and 14 years they were grouped as 15 years and 11 months and younger (n = 8), 16 years (n = 24), 17 years (n = 24), 18 years (n =10),

and 19 years (n = 10). An analysis of variance (ANOVA) was conducted between age and ICU Total, RPQ Total, and DSHI Total. There were no significant differences based on age and ICU Total $F(4, 41) = .570$, $p > 0.05$, RPQ Total $F(4, 71) = 1.54$, $p > 0.05$, and DSHI Total $F(4, 71) = 1.44$, $p > 0.05$.

Ethnicity was also recoded to three groups from five, as there were two groups with just one person. The groups were white British (n = 65), white European (n = 5), and Minorities (n = 6). ANOVAs were administered and no significant differences were found between ethnicity and ICU Total $F(2, 73) = .774$, $p > 0.05$, RPQ Total $F(2, 73) = .494$, $p > 0.05$, and DSHI Total $F(2, 73) = .320$, $p > 0.05$.

T-tests were used to examine the difference between gender and ICU Total, RPQ Total and DSHI Total and the results are presented in Table 6. According to mean scores females scored higher on all the measured variables compared to males. The analyses demonstrated there were no significant differences between gender and ICU Total $t(74) = .904$, $p > 0.05$, and RPQ Total $t(74) = -.721$, $p > 0.05$. However, there was a significant difference between gender and DSHI Total $t(74) = -6.121$, $p < 0.001$.

Table 6: Mean and standard deviations (*SD*) scores for the main measured variables and gender (N = 76)

	Males (n= 42)				**Females (n=34)**			
Measured variables:	**M**	***SD***	**Min**	**Max**	**M**	***SD***	**Min**	**Max**
ICU Total scale	23.00	9.32	6	50	24.94	10.47	12	55
RPQ Total	18.19	8.86	1	37	19.79	10.48	1	42
DSHI Total*	2.98	2.99	0	12	7.50	3.44	0	13

*Significant gender differences, $p < 0.001$

4.2 Comparisons between the ICU, RPQ, and DSHI measures and diagnosis, forensic history, parental responsibility, and length of stay

The aim was to conduct between-groups analyses of variance (ANOVA) and *t*-tests to explore differences in the scores of the three main measures for participants with different demographic data (e.g. diagnosis, forensic background, parental responsibility and length of stay). The first group comparison was between diagnosis and the three measures of ICU, RPQ, and DSHI.

Table 7: Descriptive statistics for the diagnostic groups and the ICU, RPQ, and DSHI measures

	N	**Mean**	***SD***	**Significance**
		ICU Total		
Organic	35	23.43	9.88	
Psychological	24	26.63	10.19	$p > 0.05$
Behavioural	17	21.29	8.51	
		RPQ Total		
Organic	35	18.49	9.77	
Psychological	24	21.08	10.48	$p > 0.05$
Behavioural	17	16.94	8.17	
		DSHI Total		
Organic	35	3.00	3.04	
Psychological	24	8.08	3.08	$p < 0.001^{*}$
Behavioural	17	4.76	3.90	

$^{*}p < 0.001$

ANOVAs were conducted between the diagnostic groups and the three measures (ICU. RPQ, and DSHI) and the results are provided in Table 7. The 16 different types of diagnoses were collapsed into three groups of Organic, Psychological, and Behavioural (Appendix K). The 'Psychological' group showed higher mean scores compared to the 'Organic' and 'Behavioural' groups across the three measures. The diagnostic groups did not demonstrate any difference between

the ICU total measure ($F(1, 73) = -0.12$, $p > 0.05$), and the RPQ Total measure (F(1, 73) = 0.17, $p > 0.05$). However, there was a significant difference between the diagnostic groups and the DSHI Total measure ($F(1, 73) = 12.06$, $p < 0.001$). In order to investigate these differences further post hoc t-tests were completed between the three diagnostic groups and the DSHI Total measure. The t-tests revealed a significant difference between the 'Organic' group and the 'Psychological' group, $t(32) = 5.2$, $p < 0.001$, and a significant difference between the 'Organic' group and the 'Behavioural' group, $t(25) = 10.42$, $p < 0.001$. The adolescents reported fewer types of NSSI in the 'Organic' group (M = 3.0, *SD* = 3.04) compared to the "Psychological' group (M = 8.08, *SD* = 3.08). The adolescents also reported fewer types of NSSI between the 'Organic' group (M = 3.0, *SD* = 3.04) and the 'Behavioural' group (M = 4.76, *SD* = 3.90).

T-tests were used to explore the differences between the two groups of 'no forensic history' and those young people with a 'forensic history' and the ICU, RPQ and DSHI measures. The results are presented in Table 8. Adolescents with and without a forensic history did not differ on the ICU Total and DSHI Total measures. There was a significant difference between the adolescents with and without a forensic history and the RPQ Total measure, $t(73.99) = -.2.32$, $p < 0.23$. Adolescents within the no forensic history group (M = 20.91, *SD* = 10.64) scored higher for aggression than the forensic group (M = 16.31, *SD* = 7.36).

T-tests were completed between the two groups of Looked After Children (LAC) and the Parental Responsibility and the ICU, RPQ, and DSHI measures. The results are displayed in Table 9. There were no statistical significant results between the ICU, $F(3,75) = .682$, $p > 0.05$; RPQ, $F(3,75)$, .257, $p > 0.05$; DSHI, $F(3, 75)$, 1.78, $p > 0.05$ and the two groups of LAC and those with Parental Responsibility.

Table 8: Descriptive statistics for the forensic, no forensic history groups and the ICU, RPQ, and DSHI measures

	N	Mean	*SD*	Significance
		ICU Total		
Forensic	31	24.48	7.55	
No Forensic History	35	23.60	11.12	$p > 0.05$
		RPQ Total		
Forensic	31	16.13	7.36	
No Forensic History	35	20.91	10.64	$p < 0.023^{*}$
		DSHI Total		
Forensic	31	5.42	1.03	
Non-Forensic	35	5.47	1.04	$p > 0.05$

***$p < 0.05$

Table 9: Descriptive statistics for the Parental Responsibility and LAC groups and the ICU, RPQ, and DSHI measures

	N	Mean	*SD*	Significance
		ICU Total		
Parental Responsibility	39	24.08	9.45	
LAC	37	23.84	10.83	$p > 0.05$
		RPQ Total		
Parental Responsibility	39	19.56	9.53	
LAC	37	18.32	9.28	$p > 0.05$
		DSHI Total		
Parental Responsibility	39	5.36	1.09	
LAC	37	5.55	0.98	$p > 0.05$

LAC refers to "Looked After Children"

ANOVAs were performed on the ICU, RPQ, and DSHI measures and Length of Stay groups and the results are presented in Table 10. There was no difference in the Length of Stay and the ICU measure, $F(1,73) = 0.28$, $p > 0.05$. No differences were found between the Length of Stay and the RPQ measure, $F(1,73) = 1.44$, $p > 0.05$, and Length of Stay and the DSHI measure, $F(1,73) = -1.76$, $p > 0.05$.

Table10: Descriptive statistics for the Length of Stay groups and the ICU, RPQ, and DSHI measures

Length of Stay	N	Mean	*SD*	Significance
		ICU Total		
0 – 1 years	38	23.95	10.71	
1 – 2 years	25	23.12	8.17	$p > 0.05$
2 – 3^{+} years	13	25.62	9.77	
		RPQ Total		
0 – 1 years	38	17.50	9.92	
1 – 2 years	25	20.00	9.18	$p > 0.05$
2 – 3^{+} years	13	21.23	9.96	
		DSHI Total		
0 – 1 years	38	5.49	1.00	
1 – 2 years	25	5.38	0.97	$p > 0.05$
2 – 3^{+} years	13	5.44	1.03	

4.2.1 Research question 1

What is the association of callous–unemotional traits with aggression and non-suicidal self-injury?

In order to assess whether there was any relationships of callous-unemotional traits and aggression and non-suicidal self-injury a number of Pearson's product-moment correlation coefficients (*r*) were completed. The results of the Pearson's *r* are displayed in Table 11. The strength of the correlation was based on the guidelines by Cohen (1988, as cited in Pallant, 2010), and are: small – $r = .10$ to .29; medium – $r = .30$ to .49; and large – $r = .50$ to 1.0.

As shown in Table 11 the relationship between callous-unemotional traits (as measured by the ICU) and aggression (as measured by the RPQ) was investigated and there was a significant positive correlation between the total item of the ICU and total item score of the RPQ ($r = .51$, $p < 0.01$). There was also a significant positive correlation between total item of the ICU and the DSHI Total score ($r = .25$, $p < 0.05$).

Table11: Correlations between the study's main variables (N = 76)

	ICU Total Score	Callousness	Uncaring	Unemotional	RPQ total score	Reactive aggression	Proactive aggression	DSHI Total
Callousness	.79**							
Uncaring	.87**	47**						
Unemotional	.53**	.14	.41**					
RPQ Total	.51**	.51**	.40**	.13				
Reactive aggression	.43**	.43**	.32**	.17	.93**			
Proactive aggression	.52**	.51**	.43**	.08	.94**	.74**		
DSHI Total	.25*	.09	.23*	.33**	.25*	.29*	.19	
DSHI Frequency	.19	.07	.16	.28*	.26*	.32**	.18	.96**

Further examination of the relationships of the components of the ICU (Callousness, Uncaring, and Unemotional) with aggression was conducted. A correlation between RPQ Total score and the 'Callousness' component of the ICU demonstrated a significant positive relationship ($r = .51$, $p < 0.01$). There was also a significant positive relationship between RPQ Total score and the 'Uncaring' component ($r = .40$, $p < 0.01$), but a non-statistically significant result was obtained for RPQ Total and the 'Unemotional' component ($r = .13$).

Analyses of the relationships between DSHI Total score and the components of the ICU were undertaken. There were positive significant relationships with DSHI Total score and the components of 'Uncaring' ($r = .23$, $p < 0.05$) and 'Unemotional' ($r = .33$, $p < 0.01$) respectively. A non-statistically significant relationship was obtained between DSHI Total score and the 'Callousness' component ($r = .09$).

4.2.2 Research question 2

Are proactive and reactive aggressions differentially associated with callous-unemotional traits?

To explore if proactive and reactive aggression was differentially associated with CU traits, a number of correlations were completed and the findings of the displayed in Table 11. 'Reactive' aggression and the ICU ($r = .43$, $p < .001$) and 'Proactive' aggression and the ICU ($r = .52$, $p < .001$) both showed positive correlations. The components of 'Reactive' and 'Proactive' aggression demonstrated significant correlations with the ICU component of 'Callousness' ('Reactive', $r = .43$, $p < 0.01$; 'Proactive', $r = .51$, $p < 0.01$). The component of 'Uncaring' demonstrated a significant positive correlation between 'Reactive' aggression ($r = .32$, $p < 0.01$) and 'Proactive' aggression ($r = .43$ $p < 0.01$). No significant correlations were found

between the components of ‘Unemotional’ and ‘Reactive’ aggression (r = .17) and ‘Unemotional’ and ‘Proactive’ aggression (r = .08).

4.2.3 Research question 3

Is non-suicidal self-injury associated with callous-unemotional traits?

Correlations were conducted to examine if there were any associations between non-suicidal self-injury and callous-unemotional traits and the results are displayed in Table 11. DSHI total score and the component of ‘Callousness’ (r = .09) demonstrated a non-statistically significant result. However, DSHI Total score and the components of ‘Uncaring’ (r = .23, $p < 0.05$) and ‘Unemotional’ (r = .33, $p < 0.01$) showed significant positive correlations.

Further correlations were used to explore the relationships between DSHI Frequency and the ICU Total score and the components of the ICU (Callousness, Uncaring and Unemotional). Only the correlation between DSHI Frequency and the ‘Unemotional’ component demonstrated a significant positive result (r = .28, $p < 0.05$). The correlations between DSHI Frequency and ICU Total and DSHI Frequency between the components of ‘Callousness’ and ‘Uncaring’ demonstrated non-statistically significant results.

4.3 Exploring the differences between the components of the ICU with aggression and NSSI

Multiple regressions require a number of assumptions to be met before they can be conducted. Recommendations about sample size are varied with Stevens (1996, as cited in Pallant, 2010) stating n = 45 for a multiple regression with three independent variables, and Tabachnick and Fidell (2007, as cited in Pallant, 2010) suggesting n = 74. Therefore, the sample size of n = 76 was considered sufficient.

Multiple regressions assume no multicollinearity and are not typically a concern for correlations less than .90 (Tabachnick & Fidell, 2007). The correlation matrix was examined the use of Tolerance and VIF values. No evidence of multicollinearity was found as Tolerance values of less than .10 and VIF values above 10 were not present (Pallant, 2010).

Multiple regressions assume normality, linearity, homoscedasticity, and independence of residuals. No violations were identified and the residuals were normally distributed about the dependent variable scores. Therefore, the assumptions were upheld and multiple regressions conducted.

The multiple regression analysis reported that the ICU components (Callousness, Uncaring and Unemotional) explained 21% variance in 'Reactive' aggression, which was significant at $p < 0.001$. Of the three ICU components 'Callousness' made the largest unique contribution and was significant ($p < 0.001$) followed by 'Uncaring' ($p < 0.05$), which was also significant. Finally, 'Unemotional' demonstrated a non-statistically significant correlation.

'Callousness', 'Uncaring', and 'Unemotional' explained 31% of the variance in 'Proactive' aggression, which was significant at $p < 0.001$. 'Callousness' made the largest unique contribution and was significant ($p < 0.001$), followed by 'Uncaring', which was significant at $p < 0.001$, and lastly, the 'Unemotional' component which was non-statistically statistically significant.

'Callousness', 'Uncaring' and 'Unemotional' explained 12% of the variance in DSHI Total score, which was significant at $p < 0.05$. 'Unemotional' made the largest contribution and was significant at $p < 0.05$, followed by 'Uncaring', which was significant at $p < 0.05$, and finally 'Callousness' which was not statistically significant.

Table 12: Correlation matrix for the components of the ICU and components of the RPQ, DSHI Total score, and DSHI Frequency

	Reactive Aggression	Proactive Aggression	DSHI Total Score	DSHI Frequency Score
Callousness	.43**	.51**	.09	.07
Uncaring	.32*	.43**	.23*	.16
Unemotional	.17	.08	.33*	.28*

**Significant at $p < 0.001$; *Significant at $p < 0.05$

'Callousness', 'Uncaring', and 'Unemotional' explained 8% of the variance in DSHI Frequency, which was not significant. Unemotional made the largest unique contribution and was significant at $p < 0.05$. This was followed by 'Uncaring' and 'Callousness' respectively, and both were non-statistically significant.

Table 13: Beta and *p* values of the four multiple regression analyses

	Reactive Aggression		Proactive Aggression		DSHI Total Score		DSHI Frequency Score	
	β	***p***	**β**	***p***	**β**	***p***	**β**	***p***
Callousness	.37	.003*	.39	.001**	-.002	.986	.013	.922
Uncaring	.12	.370	.29	.019*	.11	.406	.050	.719
Unemotional	.07	.569	-.097	.368	.29	.021*	.261	0.39*

**Significant at $p < 0.001$; *Significant at $p < 0.05$

Table 13 presented the beta and *p* values which indicated the unique contribution of the independent variables (Callousness, Uncaring, and Unemotional) of explaining the dependent variables (reactive aggression, proactive aggression,

DSHI Total score, and DSHI Frequency score). The results indicated that 'Callousness' made the largest contribution for 'Reactive' and 'Proactive' aggression, which focused on internal and external aggressive behaviours. 'Uncaring' also made a significant contribution to 'Proactive' aggression, which was an external aggressive behaviour and linked to antisocial behaviour. The 'Unemotional' variable was the largest unique contributor to the DSHI Total and DSHI 'Frequency' scores.

5.0 Discussion

The aim of the present study was to investigate the relationships of reactive and proactive aggression and non-suicidal self-injury with callous-unemotional traits, in a medium secure in-patient adolescent population. Previous research has suggested that the presence of CU traits, which consist of three dimensions of Callousness, Uncaring and Unemotional behaviours that might designate a subgroup of adolescents (Frick, 2009). The findings of the current study suggested that there were a number of associations between the dimensions of CU traits and proactive and reactive aggression, and CU traits and NSSI.

The Inventory of Callous-Unemotional traits (ICU; Frick, 2004) was developed as a specific measure for CU traits within adolescence. The ICU has consistently identified its factor structure across differing samples (Essau et al., 2006; Kimonis et al., 2008; Roose et al., 2010), and cross-culturally (Fanti et al., 2009; Feilhauer, Cima, & Arnts, 2012). The current study found that when comparing the ICU it was similar to the two community-based studies (Essau et al., 2006, Roose et al., 2010), but was different to a forensic population study (Kimonis et al., 2008). Therefore, the current study's findings were consistent with community-based studies, but inconsistent with a forensic-based study, which was surprising that the current study had recruited 31 participants with a forensic history and 45 participants without a forensic history.

5.1 Summary and discussion

5.1.1 Exploration of associations of a measure of callous-unemotional traits with aggression and non-suicidal self-injury

An aim of the current study was to explore whether there were any associations of CU traits with aggression and NSSI within a medium secure

adolescent in-patient sample. Adolescents within the current sample who were characterised by higher levels of CU traits were found to be more likely to display aggression, and this finding was consistent with previous research (Frick et al., 2003; Kruh et al., 2005). Further examination of the ICU showed that the 'Callousness' and 'Uncaring' components were significantly associated with aggression, but the 'Unemotional' component was found to be unrelated to aggression. Fanti et al. (2009) also reported similar finding with the 'Unemotional' component within a high school sample. Further, Roose et al. (2010) compared the components of the ICU with APSD and CPS and reported that the 'Unemotional' component was unrelated to the two-psychopathy measures. It has been suggested that the 'Unemotional' component is perhaps independent to antisocial behaviour (Roose et al., 2010).

The current study found that adolescents characterised by higher levels of CU traits were more likely to exhibit a larger repertoire of NSSI behaviours compared to adolescents who had lower levels of CU traits who only displayed a limited range of NSSI behaviours. Further inspection of the ICU components with NSSI implied that adolescents who had higher levels of CU traits did not care about themselves (Uncaring) and, there was an absence of emotional expression (Unemotional). These findings are perhaps not surprising given that young people who exhibit NSSI often have difficulties with emotional regulation and, therefore their mood could fluctuate. These findings are consistent with a study conducted by Daffern and Howells (2009) which suggested that some adult patients who had been diagnosed with a personality disorder could exhibit both aggression and self-harm. Nonetheless, it was difficult to compare the current study's findings of CU traits and NSSI as there appears to be no research exploring those constructs within an adolescent population.

5.1.2 Exploration of whether proactive and reactive aggression differentially associated with callous-unemotional traits

Another aim of the current study was to investigate whether or not proactive and reactive aggressions were related with CU traits. Adolescents in the present study who demonstrated higher CU traits also exhibited both 'Proactive' and 'Reactive' aggression. A similar outcome was obtained in a study of detained females (Marsee & Frick, 2007). However, Frite et al. (2009) argued however, that much of the research literature between proactive and reactive aggression with CU traits has been equivocal and other research has not indicated a relationship between 'Reactive' or 'Proactive' aggression and CU traits (Barry et al., 2007). A possible explanation for the ambiguity of the findings between CU traits and proactive and reactive aggression may be that adolescents with higher CU traits were associated with a combination of 'Proactive' and 'Reactive' aggression, which has been supported by previous studies within a community sample (Fanti et al., 2009) and a detained male sample (Munoz et al., 2008). Even though factor analyses have identified separate categories of proactive and reactive aggression (Dodge & Coie, 1987), an important issue can be the high correlation between proactive and reactive aggression (Polman, Orobio de Castro, Koops, van Boxtel, & Merk, 2007). Therefore, research needs to take into account the co-occurrence between proactive and reactive aggression so as not to be misleading.

To further explore 'Proactive' and 'Reactive' aggression they were examined with the ICU components of Callousness, Uncaring, and Unemotional. 'Proactive' aggression was positively related to 'Callousness' and 'Uncaring'. This outcome was not overly surprising when considering that when young people engage in 'Proactive' aggression this could be perceived as a cold and callous behaviour. A similar positive

association was demonstrated between 'Reactive' aggression with 'Callousness' and 'Uncaring'. When young people engage in 'Reactive' aggression it may be thought of as an act of frustration, which could be characterised as being impulsive and showing a lack of care about themselves and the feelings of others. Marsee and Frick (2007) reported reactive aggression was more strongly associated with poor emotional regulation, and proactive aggression was more strongly associated with CU traits and positive outcome of expectations for aggression. Fanti et al. (2009) reported similar findings with 'Proactive and 'Reactive' and the components of 'Callousness' and 'Uncaring' within a high school sample. The 'Unemotional' component of CU traits was not associated with either 'Proactive' or 'Reactive' aggression within the current study. Fanti et al. (2009) reported similar findings with this component. A possible explanation may be the poor internal consistency of the 'Unemotional' component (Kimonis et al., 2008).

5.1.3 Exploration of the association of callous-unemotional traits with non-suicidal self-injury

The association between NSSI and the components of CU traits was the final aim for this study. The findings indicated that there were positive associations between NSSI and the CU components of 'Uncaring' and 'Unemotional'. The 'Unemotional' aspect of CU traits focuses on the absence of emotional expression, which it could be suggested was similar with young people who displayed NSSI and the inability to regulate emotions appropriately. That is, at times some young people have reported not feeling anything ("emotionally empty") and so, they complete an act of NSSI to feel something whether it be pain and/or emotion.

5.1.4 Exploration of the relationships between the components of the ICU with aggression and NSSI

Analyses were conducted to explore the relationship between the components of CU traits (Callousness, Uncaring and Unemotional) and 'Reactive' and 'Proactive' aggression. The findings demonstrated that 'Callousness' followed by 'Uncaring' were significantly associated with 'Proactive' aggression and 'Reactive' aggression respectively. Moreover, it appeared that 'Callousness' and 'Uncaring' components of CU traits were characterised by a dimension of behaviour that included a lack of empathy, guilt or remorse for misdeeds (Callousness), and being characterised by a dimension that included a lack of caring about one's performance in tasks, and the feelings of other people (Uncaring) for both 'Proactive' and 'Reactive' aggression.

Further analyses were also carried out to examine the relationship between the components of CU traits and NSSI. The findings indicated that only the 'Unemotional' component was significantly associated with 'Types' and 'Frequency' of NSSI. Therefore, the 'Unemotional' component of CU traits did differentiate between types of NSSI and 'Frequency' of NSSI which implied that adolescents who exhibited NSSI were more likely to be characterised by a dimension of behaviour that included an absence of emotional expression.

5.1.5 Exploring group differences with CU traits, aggression, and NSSI

A three-factor hierarchical model of the ICU scale had adequate fit for both males and females (Essau et al., 2006). Previous research indicated mean score differences between males and females with males scoring significantly higher on the ICU total score and across the three components of callousness, uncaring and unemotional (Essau et al., 2006; Fanti et al., 2009). Vitale and Newman (2001) also reported that males tended to score higher on all dimensions of psychopathy,

including the CU dimension. However, within the current study there was no significant group difference between genders for the ICU, but female mean scores were higher across the ICU measure, which is not consistent with previous research.

No age differences with the ICU scores were found and this was not consistent with previous research. Essau et al. (2006) found 15 and 16 year-old groups had significantly higher ICU scores compared to 13-14 year-old and 17-18 year-old groups. The findings of the Esaau et al. (2006) study was consistent with the pattern of age-related changes with the suggestion that a normative level of these traits may change over the course of development (Edens, et al., 2001; Seagrave & Grisso, 2002). The difference between the current findings and the Essau et al. (2006) study could be the sample. The current study used adolescents who were all detained in-patients experiencing complex mental health and behavioural difficulties and therefore, may not have followed a 'normal' developmental trajectory, compared to the Essau et al. (2006) German high school sample. Moreover, a range of risk factors (i.e. biological, psychological, sociocultural, environmental) can influence mental health. For example, early disturbances in attachment relationships do not inevitably lead to pathology, but increase the probability for disturbances in developmental process which can lead to future psychopathology (Sroufe, Carson, Levy, & Egeland, 1999). Studies have demonstrated that insecure patterns of attachment, in particular disorganised attachment behaviours, are associated with greater risks for psychopathology, behaviour problems, stress dysregulation, and poor cognitive performance (Cyr, Bakermans-Kranenburg & Van ijzendoorn 2010, Sroufe, 2005, Solomon, & George, 1999). Thus, demonstrating the impact mental health illness can have on a young person's emotional, social, cognitive and psychological development.

Sixteen diagnoses were collapsed into three main diagnostic groups of 'Organic', 'Psychological', and 'Behavioural' (Appendix K) and compared to CU traits, aggression, and NSSI. There were no differences found between the three diagnostic groups and CU traits and aggression. A difference was found between the three diagnostic groups and NSSI. Further inspection of the results found that the 'Organic' group demonstrated a significant difference between the 'Psychological' and 'Behavioural' groups and types of NSSI and 'Frequency' of NSSI. The findings suggested that adolescents within the 'Organic' group presented with fewer 'types' and 'frequencies' of NSSI acts. The results supported previous research, which demonstrated that adolescent participants who experienced psychological and behavioural diagnoses were more likely to engage in acts of NSSI, compared to participants with organic diagnoses (Gratz, Latzman, Tull, Reynolds, & Lejuez, 2011; Nock, joiner, Gordon, Lloyd-Richardson, & Prinstien, 2006).

Young people were compared if they had an 'offending history' or not ('non-offending history'). There was an unexpected finding. Adolescents within the 'non-offending history' group scored significantly higher for aggression compared to the 'offending history' group. It could be suggested that young people who have diagnosis of a serious mental health disorder and exhibit aggressive behaviours might find their mental health diagnosis protected them from prosecution for their aggressive behaviour. Within the adult literature research has found that staff and patients reported differing views for the reasons for aggressive behaviour within in-patient settings. Patients tended to focus on external factors while staff placed an emphasis on the role of mental illness (Nolan, Shope, Citrome, & Volavka, 2009; Duxbury & Whittington, 2005; Duxbury, 2002; Duxbury, 1999; Barlow, & Grenyer, Ilkiw-Lavelle, 2000). Therefore, if staff within in-patient settings held the beliefs that

aggression might be better understood within the context of mental illness, it would not be unconceivable to expect staff within adolescent inpatients to hold similar beliefs. However, further research is necessary surrounding staff beliefs with aggression within an adolescent in-patient setting to enable a fuller understanding of this particular issue.

5.2 Clinical implications

Within an adolescent in-patient setting aggression and NSSI are not uncommon (Barlow et al., 2000; Connor et al., 2003). So, there needs to be a management system in place to try and support young people to reduce their aggressive behaviour and NSSI. 'Behaviour Monitoring' (BM) is one such system that monitored young people's behaviour at one of the services in the study. The BM system recorded all incidents of aggression, NSSI, and suicidal ideation. With support from staff there was an expectation for young people to reduce aggressive and NSSI behaviours, which enabled the young person to move up the incentive levels (from 1 to 6). Level 1 indicated constant observation, and all activities were under close supervision; level 6 demonstrated a sustained period of time without any aggressive and/or NSSI behaviours, and being rewarded with unsupervised time away from the unit. However, the findings have suggested there were relationships between CU traits with different types of aggression and NSSI. This could mean that young people who have higher CU traits could struggle with reducing their aggressive and NSSI behaviours in order to progress up the incentive levels and could become more challenging, and possibly unachievable.

Previously, in an attempt to assess psychopathic characteristics within children and adolescents (Forth et al., 2003; Frick, et al., 2000) identified three personality dimensions similar to those in adults and one dimension was CU traits. There are

concerns about the labeling of children and young people with 'psychopathy' that implies a stable and untreatable dispositional tendency (Hart, Watt, & Vincent, 2002) however, there is clear evidence that these features can change across development (Frick et al., 2003; Lynam, et al., 2007). As yet, there is no research directly investigating the impact of the label "callous-unemotional traits", but there is for the label of 'psychopathy' in children and adolescents. Across studies, the findings have indicated that the term 'psychopathy' does not have any more negative effects than using the term 'conduct disorder' (Murrie, Boccaccini, McCoy, & Cornell, 2007). Therefore, caution needs to be taken if labeling children and adolescents with CU traits. However, this should not detract away from identifying a very small subgroup of antisocial children and adolescents who have high CU traits who are difficult to treat (Frick, 2009).

5.3 Limitations

The results of the current study need to be interpreted in light of several limitations. The first of these is the use of a cross-sectional design, which made it impossible to make any type of causal interpretations regarding the associations of CU traits, aggression, and NSSI. Previous research has implied that psychopathy measures have been shown to have strong methodological variance with measures using similar formats demonstrating substantial correlations (Kimonis et al., 2008). It is possible that within the current study correlations could be inflated due to shared method variance. The current study only used one measure for each variable, which were self-reports (CU traits, aggression, and NSSI). If additional measures had been used and assessed through different methods other than self-report, it would have determined if the measures correlated, but doing so would have increased the amount of time to complete the measures, which may have made it difficult to recruit

participants. Becker et al. (2004) have however suggested that data should be obtained from multiple sources and single data source should be acknowledged as a limitation.

There are general limitations when using self-report questionnaires regarding issues with honest disclosure, and the reporting of behaviours. This may have been particularly pertinent when assessing aggressive and NSSI behaviours, which are not perceived to be socially appropriate behaviours. In contrast, it is also possible that participants who have high CU traits may over-report behaviours especially if they are unconcerned about others' perceptions of them. Within the current study none of the three measures used had components assessing social desirability. Viding et al. (2009) suggested there is under-reporting when self-reported measures were used particularly with young people from clinic-referred samples with significant externalising problems. Yet, Raine et al. (2006) argued that self-reported measures have the advantage that the motivation for actions would be best known to the individual and maybe not known to other people. Despite these caveats, it is suggested that the validity of self-report on psychopathology and personality characteristics tends to increase from childhood to adolescence (Essau et al., 2006). To overcome the concerns of self-report measures future research should investigate the possibility of incorporating a social desirability scale.

The majority of the participants for the current study were from one setting. It was acknowledged that the service did specialise in caring for young people with specific problems. Many of the young people presented with complex social and behavioural difficulties, which conferred a high risk of their developing enduring adult personality disorders; a group often described as having Emerging Personality Disorder (EPD). Therefore, the current sample may have been homogenous. It is

recognised within the different forensic CAMHS (*f*CAMHS) in-patient settings, that services have varying admittance criteria (i.e. autism, emerging personality type presentations, psychosis) and patients can be admitted according to their presentation. If the current study had been inclusive of other *f*CAMHS services, a comparison of the different groups of adolescents may have been possible to explore any potential differences.

A further consideration was the sample, which was adequate to achieve power, but not large. The current sample was predominately 'White British' which limits the generalisability of the findings to other samples with different ethnic compositions. The sample used had a wide range of ages (13 years to 19 years and 11 months), which has the potential to cover an extensive period of adolescent developmental change. The young people in the current study could have been at different points on the developmental trajectory, therefore making any generalisations about adolescents as a group difficult. In the future to overcome this limitation, it may be beneficial to use a smaller age range to explore CU traits, aggression, and NSSI.

Previous research has reported the ICU to be a reliable measure for forensic samples (Kimonis et al., 2008) and community samples (Roose et al., 2009; Essau et al., 2006). Within the current study the internal consistency was examined and resulted in some concerns about the 'Unemotional' component, as it did not achieve satisfactory internal-consistency. Findings from previous research have been variable ranging from 0.45 to 0.64 (Feilhauer et al., 2012). One possible explanation for the poor reliability of the 'Unemotional' component is the limited number (n = 5) of constituent items (Kimonis et al., 2008). Another consideration was the 'Unemotional' component appeared to largely tap into factors specifically related to

emotional expression that may be independent of antisocial behaviour (Roose et al., 2009).

5.4 Future research

The current study has highlighted relationships between CU traits with aggressive behaviours and NSSI. It would be advantageous to use the data collected by the 'Behaviour Monitoring' system to support and compare the findings of the ICU, RPQ, and DSHI measures. Further support could also be provided with the inclusion of the parent measure of the ICU. Difficulties in achieving this might occur in gaining the data from parents, so a young-person's care coordinator could be an option to complete the measure. Outcomes from previous research have suggested the utility of self-reported measures from different sources (e.g. ICU self-report, parent report, and teacher report; Roose et al., 2009). If the study were to be replicated, a recommendation would be to collect longitudinal data. Longitudinal designs are needed to further clarify the relations of CU traits with other variables and to understand normative changes in the level of these traits. Longitudinal studies would have benefits for measuring CU traits and its development trajectory through childhood, adolescence and into early adulthood. It would be important to consider normative data that captured the development variations to compare for any differences.

A quantitative approach was the most appropriate method for investigating the aims of the current study. However, it may be interesting to explore the construct of 'psychopathy' and/or 'callous-unemotional' by employing a qualitative approach with adolescents. At the present time there do not appear to be any studies employing this type of methodology, and it would be valuable to ascertain adolescents views and

beliefs about the constructs measured by the ICU. Further, it might be advantageous to develop an ICU interview, which could be administered by trained clinicians to counter biases and misunderstandings.

Validation of the ICU has been assessed within forensic (Kimonis et al., 2008) and community (Fanti et al., 2009; Roose et al. 2009; Essau et al., 2006) samples, but not within a clinical sample of adolescents. The number of participants in the current study was not sufficient to assess the ICU's validity and reliability. Therefore, future research could explore and assess the reliability and validity of the ICU to see if it is a suitable and meaningful measure within a clinical population of adolescents.

5.5 Conclusion

To conclude, previous research has attempted to identify childhood antecedents of psychopathy, and one focus has been on examining CU traits. However, there was a lack of research exploring CU traits with aggression and NSSI within an adolescent in-patient setting. The current study explored the relationship between CU traits with aggression and NSSI, but the data did not allow for the making of statements about the causal linkage between the stability of CU traits within individuals. The findings suggested that the components of CU traits 'Callousness' and 'Uncaring' were significantly associated with 'Reactive' and 'Proactive' aggression, whilst the 'Unemotional' component was significantly associated with 'DSHI Type' and 'DSHI Frequency'.

Young people who present clinically and have high CU traits with aggression and NSSI have an impact on services, staff and themselves, therefore further research is necessary. The findings may provoke clinical discussion of how best to manage young people with high CU traits within medium secure settings. Due to the nature of

CU traits it is imperative that appropriate and individualised therapeutic programmes are developed to support this small, but vulnerable, challenging and complex subgroup of adolescents.

6.0 References

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Section D

Critical Appraisal

1.0 Introduction

This paper is an account of my personal reflections on the process of writing the current research. It was based on notes kept in my reflective journal and aimed to summarise what I have learnt from the research experience, paying attention to both personal and professional development.

1.1 Origins of the research questions

I have always had an interest in the development of children and adolescents and this interest was augmented with various courses and jobs. It was, however, during my undergraduate psychology degree that I was able to develop my knowledge further by gaining a theoretical understanding of childhood development from different approaches. During the third year of the degree I was introduced to clinical psychology and I knew instinctively that was the area I wanted to work in with children and adolescents.

On finishing my undergraduate degree, I was very fortunate to get an Assistant Psychologist (AP) position working within a secure environment for adolescents. The AP post challenged many of the prejudices I held without realising them at the time! Working in the secure environment I was struck by the enormity of abuse and significant life events that many of the young people had experienced. It struck me that the media would often vilify the young people, who had high profile cases and reported as 'bad', but their own heinous histories would not be told and this has stayed with me.

I changed AP posts to broaden my experience and I worked with young people who had committed offences, but lived within a community setting. Experience

highlighted to me that there was a very fine line between those young people who were identified as requiring forensic rehabilitation only and those young people who had offended but required psychological interventions. Ten years on I am still very curious about the systems that surround young people and their accessibility to treatment. In particular, who or what system determines if someone has offended but has a mental health problem whether they will receive psychological treatment, offending rehabilitation, both, or none.

One of my very first tasks as an AP working in the community was to complete a literature review about the construct of 'psychopathy' within adolescence. My reading of the psychopathy research within adolescence made me very aware about the ethical dilemmas, especially as the psychopathy construct has come downward from the adult psychopathy literature. I was concerned about what it meant to identify a young person as 'psychopathic' in the moment and for the future of the young person. Thus, the construct of 'psychopathy' within an adolescent population has been an area of research that has provoked a lot of thinking for me, but also an area that I felt would keep my interest. A topic that I knew kept my interest was fundamental, as I knew the process of completing the research was long (three years) but for the amount of work that had to be completed within the time frame, it was very challenging.

2.0 Development of the research

Having identified a broad research area, I consulted with a potential field supervisor who had interests in the area of emerging personality characteristics within an adolescent medium secure setting. I also had conversations with other clinical psychologists working in different settings about personality characteristics within

young people and what their thoughts were about 'psychopathy' and in particular, one aspect of psychopathy called 'callous-unemotional (CU) traits'. There seemed to be a positive response from the different professionals and they appeared very encouraging and supportive towards developing a research project within the area of adolescents and CU traits.

The early stages of the research development were very anxiety provoking and difficult. This was partly because I was completing research that was unfamiliar to my allocated academic supervisor. I was able to have discussions with a field supervisor, but felt that the guidance given by the two supervisors was sometimes difficult to align. After a thorough exploration of previous research of CU traits, I identified gaps in the literature and therefore, was able to develop a strong idea for a research proposal.

I found the process of developing a research proposal very challenging, as I had never completed anything like it before. I felt that I was a perplexing student for my academic supervisor, as I seemed unable to grasp some of the basic fundamentals of research. It took me many drafts to get a proposal that was considered acceptable for ethical approval enabling me to recruit potential sites for participants. The process of writing a research proposal was a very steep learning curve, and I believe this was the area where I think I have learnt the most.

3.0 Ethical Approval

Once I had a developed an appropriate proposal, I was able to start the process of gaining ethical approval. At the time of seeking ethical approval many of my peers were experiencing what appeared at the time to be curious challenges to the ethical process, and I was constantly aware of their anxieties. So I had to try and contain my

own anxiety especially as I needed to seek ethical approval from one of only two specialised ethics committees in England. I made the decision to attend my hearing with the ethics committee even though it filled me with fear and dread. My biggest worries were "what if I cannot answer their questions and I look stupid?" but I felt I needed to go and defend my potential research project, as I felt passionate about it. I felt the meeting went well and the committee was more curious than I had expected. Overall I felt my experience of the ethical process was positive. After some minor changes to the proposal, I was able to seek local Research and Development approval for the sites, and this process, varied for each site/trust. One trust's R & D process was very straightforward and they had very clear guidelines, yet another trust's R & D process appeared to be vague and unclear even with direct communication for clarity. However, R & D approval was given for the three sites by the end of the summer 2011, which was still within my timeframe.

4.0 Data collection

4.1 Consent from professionals and parents

At the main research site I was able to start the process of obtaining preliminary consent from the Responsible Clinicians for each unit to approach the young people in their care. As I had the potential to recruit young people under the age of 16 years I also needed to get consent to approach those with 'Parental Responsibility' (parents, carers, and social workers). I initially sent out letters to parents/carers, and emails to social workers. After two weeks I followed up with telephone calls. I certainly underestimated how difficult it was to get consent. Parents stated that they had not received the initial letters, or there was no response from the letters or phone calls.

I was determined that 'Looked After Children' should have the opportunity to participate in the research if they chose to as they are often unrepresented in research. But, getting consent to approach LAC from social workers was a unique challenge. I did appreciate how busy and how demanding the workload was for social worker so I persisted with continued emails, revising the consent form for social workers to try and make it as quick and time efficient as possible and my perseverance was eventually rewarded. I felt the process of getting consent from people that I did not come into contact with was very challenging, and I needed to be adaptive and creative to overcome these difficulties.

4.2 Participant data collection

I piloted the questionnaires with two young people who consented to participate, but were being discharged before the main data collection started. Approval was also sought from the appropriate clinicians. Feedback from the two young people was valuable as it enabled me to think about the order of the questionnaires and how to present them. A change was to deliver the NSSI measure last as it was the most emotive, and it also had the potential to generate a dialogue between the participant and myself.

Young people who are detained in secure settings generally require constant observation, and are assessed as presenting as a risk of aggression to themselves or others and/or a suicide risk, including self-harm. One of my concerns with the non-suicidal self-harm (NSSI) measure was to do with the qualitative data it generated. I had given serious consideration to the measure that I chose, but as far as I was aware it had never been used with an adolescent in-patient population. I had chosen this specific measure as it covered a broad range of self-harm behaviours. I was unsure how the young people would feel about being asked about types and frequency of

NSSI and whether this would trigger unhelpful thoughts and maladaptive behaviours. To try and contain any emotive feelings, I asked the young people how they were feeling and made sure staff were aware that the young person had participated in the research and the types of questionnaires they had completed. Generally my fears were unfounded as the qualitative aspect of the measure allowed participants to talk about their experiences and put them into a context.

From the beginning of data collection through to the last young person I interviewed, I was continually aware of the power differences. I was a professional adult who has children about the same age as the young people I was recruiting. These young people had been detained under Section 3 of the Mental Health Act (2005) and, so I was curious how much of their consent was because they may have felt disempowered and they did not feel they really had a choice. So when young people refused to participate, I was very accepting of their decision, and was encouraged that they felt able to have and make a choice. I worked hard within the contacts I had with the young people during data collection to reduce the possibility of any power differentials using many of the skills engagement and rapport that I have developed over the years.

Before the data collection process commenced I had underestimated how long it would take to collect the data. In order to collect sufficient numbers required within the timescale, I needed to commit to a significant amount of time to recruiting and collecting data to do this. I had not planned for many of the young people to have very busy schedules, and limited availability of time. Therefore, I underestimated the amount of time it would take, which went from 4 months to 6 months. In addition towards the end of data collection I had to rely on practitioners to collect data, as I

was unable to due to time constraints and logistics. Training was given to the other practitioners and I am thankful to all those that helped me in the final weeks.

4.3 Difficulties with data collection

A few days before I was going to one site to collect data the site withdrew from the research. Unfortunately, there had been a miscommunication between the site and myself and even with the National Ethics Committee supporting me and trying to get the site back on board with the research, but the site refused. Due to the late stage of the withdrawal from the research, it was impossible to recruit another site. On reflection there was nothing I could have done about the situation, but just to be mindful of this for future research and to have other sites available. A significant learning point from this experience has been how things can get miscommunicated, so in the future I would be overly inclusive and transparent in an attempt to reduce any misunderstanding.

4.3.1 Data collection at different sites

Once appropriate consent to approach had been obtained I was able to approach the young people. The main data collection site was divided into two separate buildings, one I was very familiar with as I had been on placement there and many of the young people and staff had seen me around and it felt comfortable. However, initially collecting data at the other 'unfamiliar' building raised my anxiety. On reflection I think this was about not feeling in total control. That is, at the 'familiar' building people were aware of who I was and what I was doing and my role, whereas in the 'unfamiliar' building I was unknown and my contact and relationship with the staff on the units was minimal. However, after a few days of being around and explaining who I was and what I was trying to achieve the staff became aware of me as a 'researcher' and were very supportive.

4.4 Method and its limitations

Although I feel reasonably content with my research, I do feel there are some things I would do differently or incorporate to improve the study design. I would have included other measures of CU traits, aggression, and NSSI to compare them against each other to test validity and reliability of the measures, especially as the measures chosen did not have normative data to compare to. As well as additional measures, I would have incorporated one control group(s). Ideally it would have been preferable to have two control groups, one recruited from the community and the second from another in-patient sample, but realistically the number of young people who are detained under Section 3 within a medium secure provision is limited, and matching participant demographic information would be challenging.

There was not the opportunity to measure change in CU triats over time. Given that adolescence is a period of developmental change, it would be interesting to see if there were any changes with this cohort of participants considering CU traits at two specific time points. As this is a retrospective reflection it is unknown whether a favourable ethical opinion would have been obtained to be able to repeat data collection 6 months later. One difficulty that I could envisage would be confidentiality as ethics were very concerned that the data that was collected was kept anonymous.

5.0 Data analysis and familiarisation with quantitative research

For this piece of research a quantitative approach was taken. I felt more comfortable completing a quantitative piece of research, as I had undertaken this type of research for my undergraduate dissertation. However, it had been ten years since I completed that piece of research and I had not completed any research since, so I was

feeling extremely unpracticed. To help reduce some of my anxieties, I acquired two current textbooks dealing with SPSS and statistics. These books along with the statistical teaching helped to develop my confidence with the statistical process. I was aware of the need to revisit and understand the characteristics of different statistical tests and the why and when to use each test.

5.1 Conducting the analysis

This aspect of the research I was particularly excited about, as I was really curious as to what my results would show. As the data collected was from a clinical sample it did not fit the 'normal distribution' so I applied transformations, which aided the levels of skew. Once the data was finally checked, I was able to complete the relatively straightforward tests without any difficulties. I was able to build on my knowledge by completing multiple regressions, which I had never completed before so I did feel a sense of achievement that I have learnt to use a different statistical analysis technique. I have learnt the importance of understanding the statistical analyses that were used and the characteristics of the data set. I also learnt that this process cannot be rushed, and I had forgotten about how long it takes to enter data and to prepare the data set for analysis.

5.2 Writing up

I initially found the literature review a significant challenge. An aspect of this could have been my misunderstanding of what was required by the course as a literature review for the thesis. I became very 'stuck' with generating questions to explore, and on reflection I was exploring the wrong types of questions for a clinical psychology thesis. However, once I had a very clear discussion with my supervisor I was able to generate the right questions and I was able to get started, albeit with a limited timeframe for the first draft. With the power of hindsight I am pleased that

early deadlines were set for the literature review. However, if I was to repeat the process with the knowledge I now have, I feel could have linked my literature review more succinctly to my research paper.

I have mixed feelings about my write-up of the research paper. I am grateful that I have had the time to solely focus on this aspect of the write-up. Academic writing is not a particular strength of mine and I did feel getting the right words on the paper was a huge challenge. I am grateful to my supervisor for his constructive criticisms and challenging me to ask different questions of my research. I feel I have learnt a lot along the way, and although it may have taken me a little longer to grasp what was required, but eventually I was able to construct a piece of work that was of an acceptable standard.

*6.*0 Critique of the Research

Having been through the research process, I feel I have gained a further understanding of psychopathy and it's impact on adolescent personality. The process has also broadened my understanding of the ethical dilemmas of applying the adult construct of 'psychopathy' with an adolescent population. This has been invaluable when conducting and writing up the research. Looking back on the research now, I still believe research in this area should continue to explore CU characteristics within different child and adolescent populations. As yet, research exploring interventions into CU characteristics is in its early infancy, but I think it is imperative that research gets to a position where it can explore outcomes of interventions to find appropriate therapy to support this very small but vulnerable group of young people who exhibit CU characteristics.

A quantitative approach was the most appropriate method for investigating the research questions. However, during the completion of the questionnaires I became aware that some of the young people who had consented would have liked to have been given the opportunity to give qualitative responses to some of the questions. I think there is some mileage in getting young people's views and perspectives of what 'callous-unemotional' means, and to see if qualitatively it is a fluid construct, which is often the way it is written in research. Also, while researching for the background literature I did not appear to find a single paper that explored the construct of psychopathy or CU traits through a qualitative methodology within adolescence, the construct of CU traits was supported by developed questionnaires or by structured diagnostic interviews.

7.0 Reflection of the process

As a whole process, I do feel it has been a valuable experience. I have had the opportunity to meet some wonderful young people, nursing staff and clinicians. I have been humbled by how well many young people have managed living with organic and/or psychological conditions away from their family and friends, and how they cope with their liberty being restricted. I feel that the research has consolidated my desire to work clinically with adolescents who can be marginalised from society and from traditional services. From a personal perspective I feel I have developed my ability to manage a clinical and research caseload simultaneously. I believe I have developed the skills to critically appraise and infer the research, which I will be able to take forward within my clinical psychology career.

Section E

Appendices

Appendix A:

Checklist for measuring study quality (Downs & Black, 1998)

Checklist for measuring study quality:

Reporting

1. Is the hypothesis/aim/objective of the study clearly described?

Yes = 1 No = 0

2. *Are the main outcomes to be measured clearly described in the Introduction or Methods section?* If the main outcomes are first mentioned in the Results section, the question should be answered no.

Yes = 1 No = 0

3. *Are the characteristics of the patients included in the study clearly described?* In cohort studies and trials, inclusion and/or exclusion criteria should be given. In case-control studies, a case-definition and the source for controls should be given.

Yes = 1 No = 0

4. *Are the interventions of interest clearly de- scribed?* Treatments and placebo (where relevant) that are to be compared should be clearly described.

Yes = 1 No = 0

5. *Are the distributions of principal confounders in each group of subjects to be compared clearly described?* A list of principal confounders is provided.

Yes = 2 Partially = 1 No = 0

6. *Are the main findings of the study clearly described?*

Simple outcome data (including denominators and numerators) should be reported for all major findings so that the reader can check the major analyses and conclusions. (This question does not cover statistical tests, which are considered below).

Yes = 1 No = 0

7. *Does the study provide estimates of the random variability in the data for the main outcomes?* In non-normally distributed data the inter-quartile range of results should be reported. In normally distributed data the standard error, standard deviation or confidence intervals should be reported. If the distribution of the data is not described, it must be assumed that the estimates used were appropriate and the question should be answered yes.

Yes = 1 No = 0

8. *Have all-important adverse events that may be a consequence of the intervention been reported?* This should be answered yes if the study demonstrates that there was a comprehensive attempt to measure adverse events. (A list of possible adverse events is provided).

Yes = 1 No = 0

9. *Have the characteristics of patients lost to follow-up been described?* This should be answered yes where there were no losses to follow-up or where losses to follow-up were so small that findings would be unaffected by their inclusion. This should be answered no where a study does not report the number of patients lost to follow-up.

Yes = 1 No = 0

10. *Have actual probability values been reported (e.g. 0.035 rather than <0.05) for the main outcomes except where the probability value is less than 0.001?*

Yes = 1 No = 0

External validity

All the following criteria attempt to address the representativeness of the findings of the study and whether they may be generalised to the population from which the study subjects were derived.

11. *Were the subjects asked to participate in the study representative of the entire population from which they were recruited?* The study must identify the source population for patients and describe how the patients were selected. Patients would be representative if they comprised the entire source population, an unselected sample of consecutive patients, or a random sample. Random sampling is only feasible where a list of all members of the relevant population exists. Where a study does not report the proportion of the source population from which the patients are derived, the question should be answered as unable to determine.

Yes = 1 No = 0 Unable to determine = 0

12. *Were those subjects who were prepared to participate representative of the entire population from which they were recruited?* The proportion of those asked who agreed should be stated. Validation that the sample was representative would include demonstrating that the distribution of the main confounding factors was the same in the study sample and the source population.

Yes = 1 No = 0 Unable to determine = 0

13. *Were the staff, places, and facilities where the patients were treated, representative of the treatment the majority of patients receive?* For the question to be answered yes the study should demonstrate that the intervention was representative of that in use in the source population. The question should be answered no if, for example, the intervention was undertaken in a specialist centre unrepresentative of the hospitals most of the source population would attend.

Yes = 1 No = 0 Unable to determine = 0

Internal validity - bias

14. *Was an attempt made to blind study subjects to the intervention they have received?* For studies where the patients would have no way of knowing which intervention they received, this should be answered yes.

Yes = 1 No = 0 Unable to determine = 0

15. *Was an attempt made to blind those measuring the main outcomes of the intervention?*

Yes = 1 No = 0 Unable to determine = 0

16. *If any of the results of the study were based on "data dredging", was this made clear?* Any analyses that had not been planned at the outset of the study should be clearly indicated. If no retrospective unplanned subgroup analyses were reported, then answer yes.

Yes = 1 No = 0 Unable to determine = 0

17. *In trials and cohort studies, do the analyses adjust for different lengths of follow-up of patients, or in case-control studies, is the time period between the intervention and outcome the same for cases and controls?*

Where follow-up was the same for all study patients the answer should yes. If different lengths of follow-up were adjusted for by, for example, survival analysis the answer should be yes. Studies where differences in follow-up are ignored should be answered no.

Yes = 1 No = 0 Unable to determine = 0

18. *Were the statistical tests used to assess the main outcomes appropriate?* The statistical techniques used must be appropriate to the data. For example non-parametric methods should be used for small sample sizes. Where little statistical analysis has been undertaken but where there is no evidence of bias, the question should be answered yes. If the distribution of the data (normal or not) is not described it must be assumed that the estimates used were appropriate and the question should be answered yes.

Yes = 1 No = 0 Unable to determine = 0

19. *Was compliance with the intervention/s reliable?*

Where there was non-compliance with the allocated treatment or where there was contamination of one group, the question should be answered no. For studies where the effect of any misclassification was likely to bias any association to the null, the question should be answered yes.

Yes = 1 No = 0 Unable to determine = 0

20. *Were the main outcome measures used accurate (valid and reliable)?* For studies where the outcome measures are clearly described, the question should be answered yes. For studies which refer to other work or that demonstrate the outcome measures are accurate, the question should be answered as yes.

Yes = 1 No = 0 Unable to determine = 0

Internal validity - confounding (selection bias)

21. *Were the patients in different intervention groups (trials and cohort studies) or were the cases and controls (case-control studies) recruited from the same population?* For example, patients for all comparison groups should be selected from the same hospital. The question should be answered unable to determine for cohort and case- control studies where there is no information concerning the source of patients included in the study.

Yes = 1 No = 0 Unable to determine = 0

22. *Were study subjects in different intervention groups (trials and cohort studies) or were the cases and controls (case-control studies) recruited over the same period of time?* For a study, which does not specify the time period over which patients were recruited, the question should be answered as unable to determine.

Yes = 1 No = 0 Unable to determine = 0

23. *Were study subjects randomised to intervention groups?* Studies, which state that subjects were randomised, should be answered yes except where method of randomisation would not ensure random allocation. For example alternate allocation would score no be-cause it is predictable.

Yes = 1 No = 0 Unable to determine = 0

24. *Was the randomised intervention assignment concealed from both patients and health care staff until recruitment was complete and irrevocable?* All non-randomised studies should be answered no. If assignment was concealed from patients but not from staff, it should be answered no.

Yes = 1 No = 0 Unable to determine = 0

25. *Was there adequate adjustment for confounding in the analyses from which the main findings were drawn?* This question should be answered no for trials if: the main conclusions of the study were based on analyses of treatment rather than intention to treat; the distribution of known confounders in the different treatment groups was not described; or the distribution of known confounders differed between the treatment groups but was not taken into account in the analyses. In non-randomised studies if the effect of the main confounders was not investigated or con-founding was demonstrated but no adjustment was made in the final analyses the question should be answered as no.

Yes = 1 No = 0 Unable to determine = 0

26. *Were losses of patients to follow-up taken into account?* If the numbers of patients lost to follow-up are not reported, the question should be answered as unable to determine. If the proportion lost to follow-up was too small to affect the main findings, the question should be answered yes.

Yes = 1 No = 0 Unable to determine = 0

Power

27. *Did the study have sufficient power to detect a clinically important effect where the probability value for a difference being due to chance is less than 5%?* Sample sizes have been calculated to detect a difference of x% and y%.

Size of *smallest* intervention group

A. $<n_1 = 0$

B. $n_1–n_2 = 1$

C. $n_3–n_4 = 2$

D. $n_5–n_6 = 3$

E. $n_7–n_8 = 4$

F. $n_8+ = 5$

Appendix B:

Data extraction form

Author:	Date of extraction:
Identification features of the study: ID: Author(s): Article Title(s): Publication:	
Participant characteristics: Age: Gender: Ethnicity: Socio-economic status	
Method factors: Research question(s): Study design: Measures & psychometric properties: Recruitment: Attrition: Inclusion/exclusion criteria: Statistical difference between groups: Statistical analyses: Statistical controls:	
Results: Significant differences in variables: Areas with no significance: Key conclusions:	
Critical evaluation: Sample strengths/bias: Measurement strengths/bias: Confounding variables: Clinical implications:	

Appendix C:

Definitions of abbreviations

Acronyms	Definition
BDI	Beck Depression Inventory
BHS	Beck Hopelessness Scale
CAF	Global Assessment Scale of Functioning
CAFAS	Child and Adolescent Functional Assessment Scale
CGAS	Child Global Assessment Scale
CU	Callous-unemotional
DBT	Dialectical Behaviour Therapy
DSHI	Deliberate Self-Harm Inventory
ITT	Intention-to-treat
ICU	Inventory of Callous-Unemotional traits
KHS	Kardzin Hopelessness Scale
LPI	Life Problems Inventory
RCT	Random Controlled Trial
RPQ	Reactive Proactive Questionnaire
SCL-90	Symptom checklist – 90 items
TAU	Treatment as usual

Appendix D:

Copies of the three questionnaires:

[1]Inventory of Callous-Unemotional traits (ICU)

[2]Reactive Proactive Questionnaire (RPQ)

[3]Deliberate Self-Harm Inventory (DSHI)

Clinical Psychology
104 Regent Road
Leicester
LE1 7LT
0116 223 1679

Date: _____

Participant Identification No:

ICU Youth Version (Questionnaire 1)

Instructions: Please read each statement and decide how well it describes you. Mark your answer by circling the appropriate number for each statement. Do not leave any statement unrated.

	Not at all true	Somewhat true	Very true	Definitely true
1. I express my feelings openly.	0	1	2	3
2. What I think is "right" and "wrong" is different from what other people think	0	1	2	3
3. I care about how well I do at school.	0	1	2	3
4. I do not care who I hurt to get what I want.	0	1	2	3
5. I feel bad or guilty when I do something wrong.	0	1	2	3
6. I do not show my emotions to others.	0	1	2	3
7. I do not care about being on time.	0	1	2	3
8. I am concerned about the feelings of others.	0	1	2	3
9. I do not care if I get into trouble.	0	1	2	3
10. I do not let my feelings control me.	0	1	2	3
11. I do not care about doing things well.	0	1	2	3
12. I seem very cold and uncaring to others.	0	1	2	3
13. I easily admit when I am wrong.	0	1	2	3
14. It is easy for others to tell how I	0	1	2	3

am feeling.				
15. I always try my best.	0	1	2	3
16. I apologise ("say I am sorry") to persons I hurt.	0	1	2	3
17. I try not to hurt others' feelings	0	1	2	3
18. I do not feel remorseful when I do something wrong.	0	1	2	3
19. I am very expressive and emotional.	0	1	2	3
20. I do not like to put the time into doing things well.	0	1	2	3
21. The feelings of others are unimportant to me.	0	1	2	3
22. I hide my feelings from others.	0	1	2	3
23. I work hard on everything I do.	0	1	2	3
24. I do things to make others feel good.	0	1	2	3

Unpublished rating scale by Paul J. Frick, Department of Psychology, University of New Orleans (pfrick@uno.edu).

Clinical Psychology
104 Regent Road
Leicester
LE1 7LT
0116 223 1679

University of Leicester

Participant Identification No:

Date:_____

RPQ (Questionnaire 2)

Instructions: There are times when most of us feel angry, or have done things we should not have done. Rate each item below by putting a circle around 0 (never), 1 (sometimes), or 2 (often). Do not spend a lot of time thinking about the items – just give your first response. Make sure you answer all the items (see below).

How often have you.....	Never	Sometimes	Often
1. Yelled at others when they have annoyed you	0	1	2
2. Had fights with others to show who was on top	0	1	2
3. Reacted angrily when provoked by others	0	1	2
4. Taken things from other students	0	1	2
5. Gotten angry and frustrated	0	1	2
6. Vandalised something for fun	0	1	2
7. Had temper tantrums	0	1	2
8. Damaged things because you felt mad	0	1	2
9. Had a gang fight to be cool	0	1	2
10. Hurt others to win a game	0	1	2
11. Become angry or mad when you don't get your way	0	1	2
12. Used physical force to get others to do what you want	0	1	2
13. Gotten angry or mad when you lost a game	0	1	2
14. Gotten angry when others threatened you	0	1	2
15. Used force to obtain money or things from others	0	1	2
16. Felt better after hitting or yelling at someone	0	1	2
17. Threatened and bullied someone	0	1	2
18. Made obscene phone calls for fun	0	1	2
19. Hit others to defend yourself	0	1	2
20. Gotten others to gang up on someone else	0	1	2
21. Carried a weapon to use in a fight	0	1	2
22. Gotten angry or mad or hit others when teased	0	1	2
23. Yelled at others so they would do things for you	0	1	2

University of Leicester

Clinical Psychology
104 Regent Road
Leicester
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0116 223 1679

Date: _____

Participant Identification No:

DSHI (Questionnaire 3)

This questionnaire asks about a number of different things that people sometimes do to hurt themselves. Please be sure to read each question carefully and respond honestly. Often, people who do these kinds of things to themselves keep it a secret, for a variety of reasons. However, honest responses to these questions will provide us with greater understanding and knowledge about these behaviours and the best way to help people. Please answer yes to a question only if you did the behaviour intentionally, or on purpose, to hurt yourself. Do not respond yes if you did something accidently (e.g., you tripped and banged your head on accident). Also, please be assured that your responses are completely **confidential.**

1a. Have you ever intentionally (i.e., on purpose) cut your wrist, arms, or any other area(s) of your body (without intending to kill yourself)? (circle one):

1. **Yes** 2. **No**

If yes, please complete the following:

1b. How old were you when you first did this? .....

1c. How many times have you done this? .....

1d. How many years have you been doing this? (If you no longer are doing this, how many years did you do this before you stopped?)
.....

1e. Has this behaviour ever resulted in hospitalisation or injury severe enough to require medical treatment? .....

In the questionnaire given to participants, the above format is used for each item, with each index question followed by the five follow-up questions. Like item 1, each of the following items begins with the phrase: Have you ever intentionally (i.e., on purpose)

2. Burned yourself with a cigarette?
3. Burned yourself with a lighter or a match?
4. Carved words into your skin?
5. Carved pictures, designs, or other marks into your skin?
6. Severely scratched yourself, to the extent that scarring or bleeding occurred?
7. Bit yourself, to the extent that you broke the skin?
8. Rubbed sandpaper on your body?
9. Dripped acid on your body?
10. Used bleach, comet, or oven cleaner to scrub your skin?
11. Stuck sharp objects such as needles, pins, staples etc. Into your skin, not tattoos, ear piercing, needles used for drug use, or body piercing?
12. Rubbed glass into your skin?
13. Broken your own bones?

14. Banged your head against something, to the extent that you caused a bruise to appear?
15. Punched yourself, to the extent that you caused a bruise to appear?
16. Prevented wounds from healing?
17. Done anything else to hurt yourself that was not asked about in this questionnaire? If yes, what did you do to hurt yourself?
    .....

Appendix E:

Participant Information Sheet (PIS)

University of Leicester

Clinical Psychology
104 Regent Road
Leicester
LE1 7LT
0116 223 1639

Factors Associated with Aggression And Self-harm in Adolescents

- PARTICIPANT INFORMATION SHEET -

Researcher: Jeanette Forster
Supervised by: Dr Steve Allan and Dr Malcolm Wheatley

We would like to invite you to take part in my research study. Before you decide we would like you to understand why the research is being done and what it would involve for you. We will go through the information sheet you, and answer any questions you have. We suggest this should take about 15 minutes. Ask me if there is anything which is not clear. You can also talk to other people about the study.

Part 1

Why are we doing this research?

There has been very little research completed in the UK with young people in mental health hospitals or units and exploring possible personality characteristics. As well as exploring specific personality characteristics the study aims to see if there are any links to aggression and self-harm. It is suggested there could possibly be a small group of young people with specific personality characteristics who are more likely to find themselves in medium secure environments, and may be not receiving the appropriate help they might necessarily require.

This project is also being carried out in partial fulfilment of the Lead Researcher's (Jeanette Forster) Doctorate in Clinical Psychology.

Why have you been invited?

You have been invited to join the study because your service works with people who have difficulties with their aggression and self-harm. Approximately 80 other young people will also be invited to take part in this research project.

Do you have to take part?

It is up to you to decide to join the study. If you do, you will be asked to sign a consent form saying you would like to take part. You will receive a copy of this Information Sheet and signed consent form for you to keep. Your Responsible Clinician and /or Social Worker, Parent, Guardian will also be asked to provide consent for your participation. If they give consent, but you decide that you do not want to take part, then you will **not** be asked to participate in the study. You are free to withdraw at any time, without giving a reason. This would not affect the standard of care you receive.

What will happen to you if you take part?

If you are happy to be in the study I will ask you to complete three questionnaires with the researcher. It is thought that the questionnaires will take up to 45 minutes to complete. You may complete this in one session, or if you prefer, it can be split into

two sessions. All sessions will take place in a private room. Taking part in the study will not affect your educational timetable or your normal therapy/treatment. Once you have completed the questionnaires that will be the end of your participation in the study and your data will be anonymously recorded.

What are the possible benefits of taking part?
I cannot promise the study will help you, but the information I get from this study will help to inform mental health practitioners to develop or improve interventions that could be made available for young people.

What will happen if you don't want to carry on with the study?
You have the right to withdraw from the study at anytime. If you choose to withdraw after your data has been collected, your data will be identified and destroyed.

What if there is a problem?
Any complaint about the way you have been dealt with during this study or any possible harm you might suffer will be addressed. If you have a concern about any aspect of this study, you should speak to me or Dr Malcolm Wheatley (Consultant Clinical Psychologist) and we will do our best to answer any questions. If you remain unhappy and wish to complain formally, you can do this by contacting and Independent Complaints Advocacy Service (ICAS) on **0300 456 8347**. Further details can be obtained from the NHS website (www.nhs.uk/pages).

Will my taking part in this study be kept confidential?
All information which is collected about you during the course of the research will be kept strictly confidential, and any information about you which leaves the hospital will have your name and address removed so that you cannot be recognised. All data will be held on an encrypted memory stick and only I will have access to the passwords and data. The memory stick will be kept on my person or locked in a filing cabinet at my home.

Who has reviewed the study?
All research in the NHS is looked at by independent group of people, called a Research Ethics Committee, to protect your interests. The study has been reviewed and given favourable opinion by North East, Northern and Yorkshire Research Ethics Committee. In addition, the research has also been looked at by a local NHS research committee.

What if I have more questions?
If you have any questions about the study, you can contact me on 0116 223 1639 between the hours of 9am-5am, Monday to Friday.
Or
Jeanette Forster
Trainee Clinical Psychologist
Leicester Doctoral Course in Clinical Psychology
104 Regent Road
Leicester
LE1 7LT
jf156@le.ac.uk

Thank you very much for reading this!

Appendix F:

Consent and assent forms

University of Leicester

Clinical Psychology
104 Regent Road
Leicester
LE1 7LT
0116 223 1679

Factors Associated with Aggressions and Self-harm in Adolescents

- CONSENT FORM – Young Person -

Researcher: Jeanette Forster
Supervised by: Dr Steve Allan and Dr Malcolm Wheatley

Participant Identification No:

Please initial box

I confirm that I have read and understand the information sheet dated 01/04/2011 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason. ☐

I understand that relevant sections of my medical notes and data collected during the study will be looked at by the names researchers above, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records. ☐

I agree to take part in the above study. ☐

Name (please print) _____ Signature _____

Date _____

Name (of person taking consent) _____ Signature _____

Date _____

I would / would not (please delete) like a summary of the overall results when the study is completed in May 2012.

Address_____

Signature _____

Date _____

University of Leicester

Clinical Psychology
104 Regent Road
Leicester
LE1 7LT
0116 223 1639

Consent Form for Responsible Clinician

Examining callous – unemotional traits and the relationship with proactive and reactive aggression, and non-suicidal self-injury within an adolescent in-patient population.

Participant Identification No:

Researcher: Jeanette Forster
Supervised by: Dr Malcolm Wheatley and Dr Steve Allan

Please Initial

I confirm that I have and understood the information sheet dated 01/04/2011 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

I understand that _____'s (participant's name) participation is voluntary and that s/he is free to withdraw at anytime without giving any reason, and this would not affect the treatment that s/he receives. ☐

I understand that relevant sections of _____'s (participant's name) medical notes and data collected during the study will be looked at by the named researchers above, where it is relevant to his/her taking part in this research. I give permission for these individuals to have access to his/her records. ☐

I understand that all information will be kept completely confidential, unless s/he is at immediate risk of harming others or him/herself or discloses any information about any illegal activity. ☐

I would/would not (please delete) like a summary of the results when this study is completed. ☐
Address_____

I agree for _____ (participant's name) to take part in the above study ☐

Name of child (please print) _____

Name of RC (please print) _____

Signature (of RC) _____

Date _____

Name (of person obtaining consent)_____

Signature_____ Date _____

University of Leicester

Clinical Psychology
104 Regent Road
Leicester
LE1 7LT

0116 223 1639

Consent Form for Social Services

Examining callous – unemotional traits and the relationship with proactive and reactive aggression, and non-suicidal self-injury within an adolescent in-patient population.

Participant Identification No:

Researcher: Jeanette Forster
Supervised by: Dr Malcolm Wheatley and Dr Steve Allan

Please Initial

I confirm that I have and understood the information sheet dated 01/04/2011 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

I understand that _____'s (participant's name) participation is voluntary and that s/he is free to withdraw at anytime without giving any reason, and this would not affect the treatment that s/he receives. ☐

I understand that relevant sections of _____'s (participant's name) medical notes and data collected during the study will be looked at by the named researchers above, where it is relevant to his/her taking part in this research. I give permission for these individuals to have access to his/her records. ☐

I understand that all information will be kept completely confidential, unless s/he is at immediate risk of harming others or him/herself or discloses any information about any illegal activity. ☐

I would/would not (please delete) like a summary of the results when this study is completed. ☐
Address_____

I agree for _____ (participant's name) to take part in the above study ☐

Name of child (please print) _____

Name of Social Worker (please print)_____

Signature (of Social Worker_____

Date _____

Name (of person obtaining consent) _____

Signature_____Date _____

University of Leicester

Clinical Psychology
104 Regent Road
Leicester
LE1 7LT
0116 223 1639

Consent Form for Parental Responsibility

Examining callous – unemotional traits and the relationship with proactive and reactive aggression, and non-suicidal self-injury within an adolescent in-patient population.

Participant Identification No:

Researcher: Jeanette Forster
Supervised by: Dr Malcolm Wheatley and Dr Steve Allan

Please Initial

I confirm that I have and understood the information sheet dated 01/04/2011 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

I understand that my child's participation is voluntary and that s/he is free to withdraw at anytime without giving any reason, and this would not affect the treatment that s/he receives. ☐

I understand that relevant sections of my child's medical notes and data collected during the study will be looked at by the named researchers above, where it is relevant to his/her taking part in this research. I give permission for these individuals to have access to his/her records. ☐

I understand that all information will be kept completely confidential, unless s/he is at immediate risk of harming others or him/herself or discloses any information about any illegal activity. ☐

I would/would not (please delete) like a summary of the results when this study is completed. ☐

Address_____

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

Name of child (please print) _____

Name of parent (please print) _____

Signature (of parent) _____Date_____

University of Leicester

Clinical Psychology
104 Regent Road
Leicester
LE1 7LT
0116 223 1679

Factors Associated with Aggressions and Self-harm in Adolescents

- Assent Form for Participants -

Participant Identification No:

Researcher: Jeanette Forster
Supervised by: Dr Malcolm Wheatley and Dr Steve Allan

Please circle

Have you read (or had read to you) the information sheet for this project?	Yes / No
Has somebody explained this project to you?	Yes / No
Do you understand what this project is about?	Yes / No
Have you asked all the questions you want to?	Yes / No
Have you had your questions answered in a way you understand?	Yes / No
Do you understand that it is OK to stop taking part at any time?	Yes / No
Are you happy to take part?	Yes / No

If any answers are 'no' or you do not want to take part, do not sign your name!

Name (please print) _____Signature _____

Date _____

The person who explained this project to you needs to sign too

Name (please print) _____Signature _____
Date _____

I would / would not (please delete) like a summary of the overall results when the study is completed in May 2012.

Address_____

Signature _____Date _____

Appendix G:

Ethical and R & D consent

NRES Committee North East - Northern & Yorkshire
Room 002
TEDCO Business Centre
Viking Business Park
Rolling Mill Road
Jarrow, Tyne & Wear
NE32 3DT

Telephone: 0191 4283545
Facsimile: 0191 4283432

28 July 2011

Mrs Jeanette Forster
38 Park Road
Cosby
Leicester
LE9 1RL

Dear Mrs Forster

Study title:	**Examining callous–unemotional traits and the relationship with proactive and reactive aggression, and non-suicidal self-injury within an adolescent in-patient population.**
REC reference:	**11/NE/0104**
Protocol number:	**N/A**

Thank you for your letter of 26 June 2011, responding to the Committee's request for further information on the above research.

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

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, subject to the conditions specified below.

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

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

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).

Approved documents

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

Document	*Version*	*Date*
Investigator CV	Jeanette Forster	01 April 2011
Other: Summary CV for student (signed/authorised copy)	Jeanette Forster	01 April 2011
Other: Summary CV for supervisor (student research)	Dr Steve Allan	01 April 2011
Participant Consent Form: Social Services Consent Form	Version 1	01 April 2011
Participant Consent Form: Responsible Clinician Consent Form	Version 1	01 April 2011
Participant Consent Form: Parent or Guardian Consent Form	Version 1	01 April 2011
Participant Consent Form: Participant Consent Form	Version 1	01 April 2011
Participant Consent Form: Participant Assent Form	Version 1	01 April 2011
Participant Information Sheet: factors associated with aggression and self-harm in adolescents	Version 1	01 April 2011
Protocol	Version 1	01 April 2011
Questionnaire: ICU (Youth Version)		
Questionnaire: RPQ		
Questionnaire: DSHI		
REC application	Version 3.1	01 April 2011
Response to Request for Further Information	Covering Letter	26 June 2011

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) 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 NRES 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 website.

Further information is available at National Research Ethics Service website > After Review

11/NE/0104	**Please quote this number on all correspondence**

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

Yours sincerely

pp

Professor Peter Heasman
Chair

Email: kerri.jude@sotw.nhs.uk

Enclosures: "After ethical review – guidance for researchers"

Copy to: *Mr David Clarke, Leicestership Partnership Trust, Daisy Peake Building, Towers Hospital, Gypsy Lane, Leicester, LE5 0TD*

8th August 2011

Jeanette Forster
38 Park Road
Cosby
Leicester
LE9 1RL

Dear Jeanette

Re: Examining callous-unemotional traits and the relationship with proactive and reactive aggression, and non-suicidal self-injury within a adolescent inpatient population.

I write further to the above project which is supervised at the [redacted] by Dr Malcolm Wheatley. I confirm that the following paperwork has now been received:-

- ONLINE IRAS Application Form including details of study sponsorship
- Copy of research proposal
- Approval letter from NHS Research Ethics Committee

and that [redacted] approves the study.

You are required to provide updates when requested and to comply with any other auditing requirements of [redacted]. Please note that any changes to the research protocol must be agreed and be subject to an NHS REC amendment, if appropriate before implementation. You must also notify me of early termination of the research, or of the completion of the project.

Please send a copy of the final research report following completion, and notification of any publications or conference presentations arising from the research.

Yours sincerely

Geoff Dickens
Research Manager and Head of Nursing Research

Cc: Malcolm Wheatley, Adolescent Service
Paul Monks, Adolescent Service

Appendix H:

Statement of Epistemological Position

The research was conducted from a positivist epistemological position, based on the assumption that the constructs of callous-unemotional traits, aggression, and non-suicidal self-injury were measureable through the application of reliable and valid scientific procedures. Quantitative research methods were used to consider the information and therefore were driven by this epistemology.

Appendix I:

Chronology of research process

Research Proposal submitted for Peer Review	February 2011
Research Proposal submitted to National Ethics Committee	March 2011
National Ethics Committee meeting	May 2011
Ethical approval received	August 2011
Research and Development approval received	October 2011
Data collection	September 2011 - February 2012
Literature Review completed	February 2012
Data analysis	March 2012
Thesis submission	April 2012
Dissemination	October 2012

Appendix J:

Target Journal

Journal of Abnormal Child Psychology

Journal of Abnormal Child Psychology brings together the latest research on psychopathology in childhood and adolescence with an emphasis on empirical studies of the major childhood disorders (the disruptive behavior disorders, depression, anxiety, and pervasive developmental disorders). Studies focus on the epidemiology, etiology, assessment, treatment, prognosis, follow-up, and developmental course of child and adolescent disorders. Studies highlighting risk and protective factors, the ecology and correlates of children's behavior problems, and advances in prevention and treatment are featured.
The *Journal of Abnormal Child Psychology* is the official journal of the International Society for Research in Child and Adolescent Psychopathology, a multidisciplinary scientific society.

Editorial procedure
Double-blind peer review

This journal follows a double-blind reviewing procedure. Authors are therefore requested to submit:

A blinded manuscript without any author names and affiliations in the text or on the title page. Self-identifying citations and references in the article text should be avoided.

A separate title page, containing title, all author names, affiliations, and the contact information of the corresponding author. Any acknowledgements, disclosures, or funding information should also be included on this page.

Manuscript Submission

Submission of a manuscript implies: that the work described has not been published before; that it is not under consideration for publication anywhere else; that its publication has been approved by all co-authors, if any, as well as by the responsible authorities – tacitly or explicitly – at the institute where the work has been carried out. The publisher will not be held legally responsible should there be any claims for compensation.

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originate from the authors.

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Authors should submit their manuscripts online. Electronic submission substantially reduces the editorial processing and reviewing times and shortens overall publication times. Please follow the hyperlink “Submit online” on the right and upload all of your manuscript files following the instructions given on the screen.

New submission requirement
Authors – NEW SUBMISSION REQUIREMENT AS OF NOVEMBER 1, 2011: A Disclosure of Conflict of Interest form signed by each author must be included with the manuscript submission. Submissions received without the signed Disclosure of Conflict of Interest form(s) cannot be sent out for peer review. The Disclosure of Interest form may be found on and downloaded from the Journal of Abnormal Child Psychology Homepage.

Title Page

The title page should include:

- The name(s) of the author(s)
- A concise and informative title
- The affiliation(s) and address(es) of the author(s)
- The e-mail address, telephone and fax numbers of the corresponding author

Abstract

Please provide an abstract of 150 to 250 words. The abstract should not contain any undefined abbreviations or unspecified references.

Keywords

Please provide 4 to 6 keywords which can be used for indexing purposes.

Text
Text Formatting

Manuscripts should be submitted in Word.

- Use a normal, plain font (e.g., 10-point Times Roman) for text.
- Use italics for emphasis.
- Use the automatic page numbering function to number the pages.
- Do not use field functions.
- Use tab stops or other commands for indents, not the space bar.
- Use the table function, not spreadsheets, to make tables.
- Use the equation editor or MathType for equations.
- Save your file in docx format (Word 2007 or higher) or doc format (older Word versions).

Word template (zip, 154 kB)

Manuscripts with mathematical content can also be submitted in LaTeX.
LaTeX macro package (zip, 182 kB)

Headings

Please use no more than three levels of displayed headings.

Abbreviations

Abbreviations should be defined at first mention and used consistently thereafter.

Footnotes

Footnotes can be used to give additional information, which may include the citation of a reference included in the reference list. They should not consist solely of a reference citation, and they should never include the bibliographic details of a reference. They should also not contain any figures or tables.

Footnotes to the text are numbered consecutively; those to tables should be indicated by superscript lower-case letters (or asterisks for significance values and other statistical data). Footnotes to the title or the authors of the article are not given reference symbols.

Always use footnotes instead of endnotes.

Acknowledgments

Acknowledgments of people, grants, funds, etc. should be placed in a separate section before the reference list. The names of funding organizations should be written in full.

Manuscript Format

All JACP manuscripts should be submitted to Editorial Manager in 12-point Times New Roman with standard 1-inch borders around the margins.

APA Style

Page length: 35 pages; Text must be double-spaced; APA Publication Manual standards must be followed.

Terminology

Please use the standard mathematical notation for formulae, symbols etc.:

Italic for single letters that denote mathematical constants, variables, and unknown quantities

Roman/upright for numerals, operators, and punctuation, and commonly defined functions or abbreviations, e.g., cos, det, e or exp, lim, log, max, min, sin, tan, d (for derivative)

Bold for vectors, tensors, and matrices.

Scientific Style

Please always use internationally accepted signs and symbols for units (SI units). Generic names of drugs and pesticides are preferred; if trade names are used, the generic name should be given at first mention.

Reference list

The list of references should only include works that are cited in the text and that have been published or accepted for publication. Personal communications and unpublished works should only be mentioned in the text. Do not use footnotes or endnotes as a substitute for a reference list.

Reference list entries should be alphabetized by the last names of the first author of each work.

Journal article Harris, M., Karper, E., Stacks, G., Hoffman, D., DeNiro, R., Cruz, P., et al. (2001). Writing labs and the Hollywood connection. Journal of Film Writing, 44(3), 213–245.

Article by DOI Slifka, M. K., & Whitton, J. L. (2000) Clinical implications of dysregulated cytokine production. Journal of Molecular Medicine, doi:10.1007/s001090000086

Book Calfee, R. C., & Valencia, R. R. (1991). APA guide to preparing manuscripts for journal publication. Washington, DC: American Psychological Association.

Book chapter O'Neil, J. M., & Egan, J. (1992). Men's and women's gender role journeys: Metaphor for healing, transition, and transformation. In B. R. Wainrib (Ed.), Gender issues across the life cycle (pp. 107–123). New York: Springer.

Online document Abou-Allaban, Y., Dell, M. L., Greenberg, W., Lomax, J.,

Peteet, J., Torres, M., & Cowell, V. (2006). Religious/spiritual commitments and psychiatric practice. Resource document. American Psychiatric Association. http://www.psych.org/edu/other_res/lib_archives/archives/200604.pdf. Accessed 25 June 2007.

Journal names and book titles should be italicized.

For authors using EndNote, Springer provides an output style that supports the formatting of in-text citations and reference list.

EndNote style (zip, 3 kB)

Tables

All tables are to be numbered using Arabic numerals.

Tables should always be cited in text in consecutive numerical order.

For each table, please supply a table caption (title) explaining the components of the table.

Identify any previously published material by giving the original source in the form of a reference at the end of the table caption.

Footnotes to tables should be indicated by superscript lower-case letters (or asterisks for significance values and other statistical data) and included beneath the table body.

Springer accepts electronic multimedia files (animations, movies, audio, etc.) and other supplementary files to be published online along with an article or a book chapter. This feature can add dimension to the author's article, as certain information cannot be printed or is more convenient in electronic form.

Submission

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A collection of figures may also be combined in a PDF file.

Spreadsheets

Spreadsheets should be converted to PDF if no interaction with the data is intended.

If the readers should be encouraged to make their own calculations, spreadsheets should be submitted as .xls files (MS Excel).

Specialized Formats

Specialized format such as .pdb (chemical), .wrl (VRML), .nb (Mathematica notebook), and .tex can also be supplied.

Collecting Multiple Files

It is possible to collect multiple files in a .zip or .gz file.

Numbering

If supplying any supplementary material, the text must make specific mention of the material as a citation, similar to that of figures and tables.

Refer to the supplementary files as “Online Resource”, e.g., "... as shown in the animation (Online Resource 3)", “... additional data are given in Online Resource 4”.

Captions

For each supplementary material, please supply a concise caption describing the content of the file.

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In order to give people of all abilities and disabilities access to the content of your supplementary files, please make sure that

The manuscript contains a descriptive caption for each supplementary material

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Integrity of research and reporting

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Manuscripts submitted for publication must contain a statement to the effect that all human studies have been approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki. It should also be stated clearly in the text that all persons gave their informed consent prior to their inclusion in the study. Details that might disclose the identity of the subjects under study should be omitted.

The editors reserve the right to reject manuscripts that do not comply with the above-mentioned requirements. The author will be held responsible for false statements or failure to fulfill the above-mentioned requirements.

Conflict of interest

Authors must indicate whether or not they have a financial relationship with the organization that sponsored the research. This note should be added in a separate section before the reference list.

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The article will be published online after receipt of the corrected proofs. This is the official first publication citable with the DOI. After release of the printed version, the paper can also be cited by issue and page numbers.

Appendix K:

Table of collapsed diagnoses

Table 14: Sixteen diagnoses collapsed into three diagnostic groups of Organic, Psychological, and Behavioural

Organic	Psychological	Behavioural
Schizophrenic/psychotic	Organic mood disorders	Conduct disorders
ASD/Asperger's	Post traumatic stress disorder	Hyperkinetic disorders
Mild mental retardation	Emotionally unstable personality disorder	Mixed conduct
Moderate mental retardation	Eating disorders	Paedophilia
Epilepsy	Attachment disorders	
	Fetishism	