Attachment Patterns in Children with ADHD

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Declaration

I confirm that the work contained within this doctorate thesis is my own.

Elizabeth Forde **01.08.2007**

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Contents

Page Number

Contents

Page Number

Contents

Page Number

Contents

Contents

Page Number

Tables and Figures

Page Number

FIGURES

TABLES

Word Count: 26,822

Abstract

Objectives

Researchers have suggested that attachment theory may provide a meaningful perspective on the development of the core behaviours displayed in ADHD. In particular, it has been proposed that a relationship may exist between the behaviours displayed in ADHD and an insecure attachment relationship (e.g. Stiefel, 1997; Erdman, 1998; Clarke et al., 2002). This is because of the similarities observed between the behaviours displayed in ADHD and the behaviours displayed in an insecure attachment pattern. This study explores the attachment patterns of children with ADHD, and considers whether their attachment patterns are associated with other difficulties (e.g. social/emotional problems) and parent/guardian levels of stress.

Method

Initially, the attachment patterns of a sample of children with ADHD were identified. A between groups comparative analysis was then employed to compare the attachment patterns of children with ADHD and the normative data. The ADHD sample comprised two groups, (i) children that were looked after and accommodated and (ii) children that were living with their biological parents. In this study looked after and accommodated children represented a high risk comparison group for ADHD and early disruptive experiences. The attachment patterns of these two groups of children were also compared. Children with insecure and secure attachment classifications were then

compared on measures of internalising and externalising problems and parent/guardian stress.

Results

Overall, children with ADHD did not display a significantly higher proportion of insecure attachment patterns than children from the normative data. Although, children that were looked after and accommodated did display a higher percentage of insecure attachment patterns compared to children that live with their biological parents, this difference was not significant. Additionally, there was no difference between the scores of secure and insecure children with ADHD in the following areas: social problems, oppositional problems, emotional problems, anxiety problems and problems with perfectionism. However, the parents/guardians of children with insecure attachment patterns showed significantly higher levels of stress compared with the parents/guardians of children with a secure attachment pattern.

Conclusions

The findings of the current study do not support the previous research which has found evidence in support of an association between ADHD and high rates of attachment insecurity. Despite these findings, it is argued that for children with ADHD and an insecure attachment pattern, consideration should be given to exploring the child's behaviours within the context of the parent-child attachment relationship. For these children, attachment theory might offer additional help in formulating interventions instead of viewing problematic behaviours exclusively in terms of ADHD. A number of

possible explanations are proposed for the findings in this study and their implications are discussed with reference to the previous research.

1. Introduction

1.1 Overview of Study

Attention Deficit Hyperactivity Disorder (ADHD) is described in the DSM-IV as a developmental disorder characterised by difficulties in inattention, impulsiveness and hyperactivity (Barkley, 1998). Diagnosis of ADHD is first made in childhood between the ages of 3 and 7 years with symptoms persisting for some individuals into adulthood (Faraone et al., 2006). It is a worldwide phenomenon affecting approximately 8% to 12% of children (Biederman & Faraone, 2005) and prevalence estimates show that approximately 4% of children in Britain have ADHD (Daley, 2006). ADHD is associated with a high co-morbidity with other disorders and impacts on social, cognitive, emotional and academic abilities (Milberger et al., 1995).

There have been several theories proposed to account for the development of ADHD and these can be grouped under biological, environmental, and psychosocial causes. Current theories on the development of ADHD include genetic, neuropsychological, diet, lead poisoning and inadequate parenting skills. Despite the long research history investigating a cause for ADHD none has clearly been able to explain all the symptoms of the disorder and researchers continue to look for a more comprehensive model. At present ADHD is recognised as involving a multi-factorial causation involving the interaction between biology, environment and genetic factors (Tannock, 1998). The divergent perspective of professionals with regards to the cause, diagnosis and treatment

of ADHD has created much controversy and debate. One outcome has been a move away from viewing ADHD in terms of a disease model. A prominent example of this is the reformulation of ADHD within an attachment theory framework.

Researchers have highlighted that attachment theory may provide an important account on the development of ADHD (Erdman, 1998). Attachment theory suggests that behaviour occurs and is important within the context of the social environment (Golding, 2004). This is first evident in the parent-child attachment relationship where the child's behaviours reflect a process of communicating and interacting with the parent (Golding, 2004). Researchers have considered that the main behaviours expressed in ADHD could be understood as a method of gaining attention from a parent/carer that is unresponsive and unavailable to the child's needs (Stiefel, 1997, Ladnier & Massanari, 2000). Furthermore, it has been proposed that there may be an association between early family stressors, trauma and attachment problems with the behaviours expressed in ADHD (Stiefel, 1997, Ladnier & Massanari, 2000). In particular, it has been suggested that a relationship may exist between the behaviours described in ADHD and an insecure attachment relationship (Stiefel, 1997). This is because of the similarities seen between the behaviours expressed in ADHD and the behaviours expressed in an insecure attachment pattern (Erdman, 1998).

Although several researchers (e.g. Ladnier & Massanari, 2000) have implied that an association exists between insecure attachment patterns and ADHD, the existing evidence base is limited and varied. Two main studies were identified specifically investigating the proposition that attachment insecurity is associated with ADHD. However, the results of these studies have been conflicting. A study by Clarke et al. (2002) has provided support for an association between ADHD and insecure-resistant and insecure-disorganised attachment pattern. Conversely, a subsequent study undertaken by Pinto et al. (2006) found no association between ADHD and a disorganised attachment pattern.

A high risk population that have early disruptive experiences and a high prevalence rate of both ADHD and insecure attachment patterns are children that are looked after and accommodated (LAAC). Additionally, limited research has been carried out investigating the attachment patterns of LAAC with ADHD. The aim of this current study is to investigate the attachment patterns of children with ADHD. This study will also examine children's attachment patterns for their association with (i) other areas of difficulty, including social and oppositional problems and (ii) parent/guardian stress. The attachment patterns of children with ADHD will be identified using a measure of attachment patterns in middle childhood – the Manchester Child Attachment Story Task (Green et al., 2000).

In order to provide a background for the discussion of attachment patterns in children with ADHD a review of ADHD is first presented. This will include diagnostic procedures; aetiology, treatment and issues surrounding the disorder. The introduction will also provide an overview of attachment theory, identification of attachment patterns, associated research and the implications of attachment theory. This will be followed by an account of the association between ADHD and attachment theory. The introduction will conclude with an overview of LAAC and a summary of the research on ADHD and attachment patterns in this population sample.

1.2 Attention Deficit Hyperactivity Disorder

1.2.1 Overview of ADHD

Attention Deficit Hyperactivity disorder (ADHD) is described in the DSM-IV as a developmental disorder characterised by the co-existence of problems in the primary areas of (i) inattention, (ii) impulsiveness and (iii) hyperactivity (Barkley, 1998). Inattention in ADHD is associated with difficulties in maintaining sustained attention on tasks (Douglas, 1983), whereas impulsiveness is linked to being unable to inhibit behaviours when responding to environmental demands (Barkley, 1998). The third core feature of ADHD, hyperactivity, refers to excessive over activity (e.g. fidgeting) that appears unrelated and irrelevant to the context in which it is occurring (Barkley, 1998).

Diagnosis of ADHD is made in childhood between the ages of 3 and 7 years and is often first recognised when the child enters the school system (Goldman et. al., 1998). There has been considerable variations in prevalence rates quoted dependent on the diagnostic criteria used (Barkley, 1998) but current prevalence rates are estimated to be approximately 4% (Daley, 2006). In Scotland the number of children with ADHD in 2002 was estimated to be 46,750 (Scottish Medicine Consortium, 2002; cited in Scottish Health Statistics, 2006). Gender differences are evident with incidence rates for boys being four times that of girls (Gershon, 2002). ADHD was once believed to be a disorder of childhood with symptoms abating in adulthood (Hill & Schoen, 1996).

However, it is now known that ADHD can persist into adulthood with estimated prevalence rates between 1.2% and 3.5% (Farone et al., 2006).

1.2.2 ADHD and co-morbidity

Children with ADHD have a high risk of co-morbid difficulties including conduct disorder (CD), oppositional defiant disorder (ODD), mood disorders and learning disabilities (Goldman et. al., 1998). It is estimated that approximately 50% to 60% of children with ADHD also have co-morbid CD and ODD (Angold et al., 1999; Kadesjo et al, 2001) and about 20% to 30% meet the criteria for affective disorders (Biederman et al., 1991). Co-morbidity with other disorders can make the diagnostic procedure for ADHD more difficult, influence the treatment options given and influence the efficacy in the delivery of treatments (Kutcher et al., 2004). ADHD is also associated with functional impairments that delay developmental progress in the areas of cognitive, behavioural, emotional, academic and relationship skills (Barkley, 1998). It is typically with difficulties in these areas that health professionals have seen a rise in referrals for children with ADHD-related problems (Mellor et. al., 1996).

1.2.3 Diagnosis of ADHD

There is no single specific test for ADHD and making a diagnosis consists of taking a holistic multi-disciplinary team and multi-informant approach to assessment across settings (SIGN, 2001). The aim of an ADHD assessment is to try and determine if there are developmentally inappropriate levels of the three core symptoms and the degree to

which these impact on the child's functioning (i.e impairment in academic, social and occupational functioning). Assessment normally consist of (i) a detailed history of the child's development and symptom presentation, (ii) neuropsychological assessment, (iii) completion of ADHD rating scales, (iv) direct observation of the child across settings (v) other supplementary assessments (e.g. school, speech and language etc.) (vi) physical examination and (vii) parent/teacher/child interviews (Goldman et al., 1998; SIGN, 2001).

Currently there are the two main diagnostic systems outlining the necessary criteria for receiving a diagnosis of ADHD. These are the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV; American Psychological Association (APA), 1994), and the International Classification of Diseases, Tenth Edition (ICD-10; World Health Organisation (WHO), 1992). The ICD-10 applies the term hyperkinetic disorder (HKD) to describe the core features of the DSM-IV equivalent of ADHD. The DSM-IV is predominantly used in America and the ICD-10 in Europe. Both systems are implemented in the United Kingdom to make a diagnosis, however; the DSM-IV is by far the most common.

Both diagnostic systems are similar with (i) diagnosis made in childhood, (ii) the expression of developmentally inappropriate levels of inattention, hyperactivity and impulsiveness, and (iii) impairment in social, occupational or academic functioning. The differences between the two classification systems are found in the emphasis given to the symptoms and the way in which the symptoms are grouped together (Taylor et al.,

1998). The ICD-10 is the more restrictive of the two classification systems, as it requires the presence of all the three core symptoms, has additional strict criteria that need to be satisfied for its occurrence across situations and that there is an absence of co-occurring disorders (Taylor et al., 1998). Unlike ICD-10, the DSM-IV allows sub-typing of the disorder based on the core symptoms. These are (i) predominantly inattentive (ii) predominantly hyperactive and (iii) combined hyperactivity/inattentive (DSM-IV, 1994).

Differences between the two classification systems impact on how ADHD is seen and managed. One of the main controversies surrounding ADHD is related to diagnosis. Researchers have highlighted that theories of causation of ADHD have not been static over the years and the emphasis placed on each of the core features has differed (Mellor et al., 1996). The evidence for the validity and clinical usefulness of DSM-IV subtypes of the disorder remain inconclusive (Faraone et al., 2000). Further questioning the validity and reliability of ADHD is the issue of co-morbidity. The high rate of co-existing disorders seen in ADHD has led some researchers to suggest that what is being expressed is a range of behaviours falling along a spectrum (Mellor et al., 1996).

A literature review undertaken by Goodman and Poillion (1992) examining the causes and features of ADHD found 39 articles on the main characteristics of ADHD and 25 articles addressing the aetiology of the disorder. These articles identified 69 different features associated with ADHD and 38 possible causes with little agreement between authors (Goodmam & Poillion, 1992). The conclusion reached was that there is no

definite behavioural pattern for identifying ADHD and as a result professionals are left with an anomaly of how best to intervene and manage these children (Goodman & Poillion, 1992).

The debate surrounding the characteristics and classification of ADHD has resulted in a wide array of prevalence rates being reported (Timimi & Taylor, 2004). For example prevalence rates in America have generally been higher than the UK due to the classification system used to aid diagnosis. A study examining if the ICD-10 HKD and the DSM-IV ADHD were comparable in identifying children with the disorder found that the DSM-IV diagnostic criteria identified a wider cluster of children (Tripp et al., 1999). However, there was a significant overlap between the two sets of children identified by the classification systems (Tripp et al., 1999). As all children display several of the core symptoms of ADHD at some point in their development, the question of how pervasive and acute these symptoms need to be to receive a diagnosis must be resolved (Mellor et al., 1996). In addition, both the DSM-IV and ICD-10 diagnostic items do not help differentiate between developmentally inappropriate and normal levels of inattention, hyperactivity and impulsiveness and do not provide professionals with a method to incorporate the ancillary assessments undertaken (Biederman & Faraone, 2005). The assortment of opinions regarding ADHD led The US National Institute of Health (NIH; 2000) to conclude that it:

"raises questions about the literal existence of the disorder, whether it can be reliably diagnosed"

NIH (2000, pg.183).

1.2.4 Aetiology of ADHD

The scientific debate surrounding ADHD is not limited to issues regarding diagnosis. A variety of explanations has been put forward to account for the causes of ADHD and researchers still disagree on the exact aetiology. Historically, there have been a number of early theories proposed to account for the aetiology of ADHD which is reflected in changes in how the disorder is conceptualised. These changes include a shift from viewing it as being related to a form of brain disease (e.g. minimal brain damage and minimal brain dysfunction) to a deficit in impulse control (Tannock, 1998). What researchers do nowadays appear to agree on, is that ADHD involves a multifaceted aetiology involving a complex interplay between biology, environment and genetic variables (Tannock, 1998).

Current theories of ADHD can be divided into three main categories (i) biological accounts (e.g. genetic and neurological theories), (ii) environmental accounts (e.g. toxins, and diet) and (iii) psychosocial accounts (e.g. parenting) (Daley, 2006). This list in not exhaustive and a complete review of all the possible causes of ADHD is beyond the current scope of the literature review. The focus will be placed on the most current aetiologies proposed to explain the symptoms of ADHD. These will be genetic factors, neuropsychological factors, brain structure, environmental and psychosocial influences.

Genetic Causes

Research into the role of genetic factors in the development of ADHD suggests that children are predisposed to inherit ADHD. Genetic research tries to establish if there is a family history of the disorder and, if it is inherited, how it is passed on (Tannock, 1998). Support for a genetic explanation of ADHD is based on research from three areas, (i) family, (ii) twin and (iii) adoption studies. Overall the evidence base for these studies has supported the view that ADHD is passed on in families (Faraone & Doyle, 2001).

It has been shown that there is a positive family history for the disorder with approximately 10% to 35% of first degree family members displaying symptoms (Biederman et al., 1992). Furthermore if a parent has ADHD then there is a 57% increased risk of the child inheriting this disorder (Biederman et al., 1995a). The general outcome of twin studies has shown that there is a greater concordance for ADHD among monozygotic than dizygotic twins again, suggesting a genetic basis for the disorder. For example, a twin study by Goodman and Stevenson (1989) showed a 51% concordance rate for ADHD in monozygotic twins compared to a concordance rate of 30% in dizygotic twins. Adoption studies have also found a greater prevalence rate of ADHD among biological relatives of adoptive siblings being brought up in separate environments (van der Oord et al, 1994).

Studies in search of a genetic cause for ADHD are now focusing on molecular genetics to help disentangle which genes may be associated with the disorder. To date research has implicated variations in two main genes that may be linked to developing ADHD. These are (i) the dopamine transporter gene and (ii) the D4 dopamine receptor gene (Tannock, 1998). Emphasis has been placed on the involvement of dopamine genes for the following reasons: (i) many pharmacological treatments of ADHD (e.g. methylphenidate) successfully reduce the core symptoms of ADHD which are targeted at the dopamine system and (ii) evidence from neuroimaging studies using positron emission tomography (PET), and magnetic resonance imaging (MRI) methods has highlighted certain areas of the brain (e.g frontostriatal circuitry) in which dopamine activity is high (Tannock, 1998, Daley, 2006).

Genetic research into the development of ADHD has not been able to provide a complete account for the cause disorder. A critical review of the literature by Joseph (2000) highlights that research evidence from family studies and twin studies although demonstrating a familial transmission for the disorder, cannot be taken to indicate a genetic cause is involved. This is because these studies also emphasis the role of shared environmental aspects on the course of the disorder (Joseph, 2000). Furthermore, Joseph (2000) argues that adoption studies on ADHD are inadequate due to methodological issues. For example, none have explored adopted children's biological families and no direct comparison has been made between adoptees biological and adoptive families thereby revealing little about the role of genetics in ADHD (Joseph, 2000).

Additionally, research in molecular genetics investigating the dopamine genes has not been without its critics. For example, a recent meta-analysis of studies in molecular genetics concluded that the implication of a dopamine gene as a cause of ADHD is not definite (Purper-Ouakil et al., 2005). Overall, the evidence base for a genetic cause in the development of ADHD is not absolute leading Joseph (2000) to conclude that for ADHD:

> ***" a role for genetic factors is not supported and that future research should be directed toward psychosocial causes"***
>
> (Joseph, 2000, pg. 561).

Neuropsychological Causes

Theories proposing a neuropsychological explanation of ADHD help to clarify the biological processes involved and their association to the symptom expression of ADHD (Daley, 2006). As executive dysfunction[1] is frequently found in ADHD it has been influential in guiding neuropsychological accounts about the disorder (e.g. Barkley, 1997). Theories about ADHD based on executive dysfunction include: malfunction of inhibitory control (Barkley, 1997), difficulties associated with motivational processes (Sonuga-Barke, 1994), and difficulties in systems regulating reward and punishment (Quay, 1997). For example, Barkley's (1997) behavioural inhibition model of ADHD suggests that a deficit in behavioural inhibition seen in ADHD reduces the four

[1] Executive functions are involved in the performance of planning, inhibition, sustained attention and working memory (Lezak, 1995).

executive functions ability to regulate goal directed behaviour which results in behaviour being managed based on immediate consequences (Barkley, 1997).

Similar to the debate surrounding a genetic cause of ADHD, no one neurological theory can clearly account for the development of the disorder. The exact type of problem in inhibitory control in ADHD remains elusive due to its complex structure which has impacted on how it is defined and assessed in studies (Tannock, 1998). Poor performance on neurological tests such as delayed response tasks and tasks of motor inhibition have been taken to signify the presence of impulsiveness (Tannock, 1998). However, as these tests involve the use of a variety of cognitive processes and cannot differentiate between them, poor performance could also be attributed to a number of other processes, not just to impulsiveness (Tannock, 1998). In addition, neuropsychological theories focus on a core deficit to explain the development of ADHD. Neurological studies do not consider that the symptoms of inattention and hyperactivity/impulsiveness may differ in their neural and developmental pathways (Tannock, 1998).

Brain Structure

Research into differences in brain structure seen in children with ADHD compared to children without has been possible through the advances in neuroimaging techniques such as magnetic resonance imaging (MRI), computerised tomography (CT), position emission tomography (PET) and single photon emission computerised tomography (SPECT). Neuroimaging studies predominately have investigated areas of under- and over- activity in the brains of children with ADHD. The research findings to date support the use of these techniques in investigating the cause of ADHD, as differences in brain structure have been shown predominantly in the basal ganglia, cerebellum and prefrontal cortex (Tannock, 1998).

However, conflicting study findings have been demonstrated, leading some researchers to propose that these differences are a reflection of the different pathways in the development of ADHD (Eliez & Reiss, 2000). Additionally, differences in brain structure cannot be generalised to all children with ADHD, as large scale group studies are necessary in which participant selection is based on a specific diagnostic criteria (Tannock, 1998). Importantly, anomalies evident in the brain cannot be interpreted as a cause for ADHD. It is now known that other factors including, developmental progress (Tannock, 1998) and environmental experiences are actively involved in the development of brain structure (Schore, 2000).

Environmental and Psychosocial Influences

A number of environmental (e.g. diet and toxins) and psychosocial influences (e.g. parenting) have been investigated in trying to explain the aetiology of ADHD. The theory that ADHD was caused by certain food additives received much media attention after Feingold (1974) suggested that colour additives in food were responsible for hyperactivity and the removal of them from the diet would alleviate symptoms. Studies investigating the theory concluded that this idea was incorrect and ADHD is not caused by food additives in the diet (Conners, 1980). However, food additives may contribute to aggravating the symptoms of ADHD (Goldstein & Goldstein, 1995).

Studies into lead exposure have shown that elevated levels in the body are associated with the expression of ADHD. However this finding is only applicable to a small percentage of the total number of people with ADHD and therefore cannot be considered as a main aetiology for ADHD (Needleman et al., 1990). Prenatal smoking and a combination of prenatal alcohol consumption and postnatal chaotic environments have been shown to be associated with hyperactivity (Nanson & Hiscock, 1990). Prenatal exposure to drugs, for example cocaine and heroine, are linked to problems in attention (van Barr & de Graff, 1994). What these studies highlight is that exposure to alcohol and drugs during pregnancy may be a risk factor in developing ADHD. However, it is difficult to extrapolate the direct impact these have on the development of ADHD from the impact of being brought up in a chaotic environment (Goldstein & Goldstein, 1995).

Genetic research has highlighted that ADHD should be seen as an interaction between a genetic predisposition to the disorder and environmental variables (Tannock, 1998). A further explanation for the development of ADHD is that a child may have a predisposition to the disorder which is expressed on exposure to environments that are characterised by chaotic family lifestyles and inadequate parenting skills (Johnson & Mash 2001). Rutter et al. (1975) identified six environmental variables which were associated with psychological difficulties including (i) low socio economic status, (ii) marital conflict, (iii) maternal mental health difficulties, (iv) criminality in parents, (v) larger family size and (vi) placement in care. A significant correlation has been shown between these six factors and ADHD and its associated difficulties (Biederman et al., 1995b). Coercive parent-child interactions, martial discord and parental alcohol/drug abuse have all been documented as risk factors for ADHD (Hinshaw, 1994).

The suggestion that coercive parent-child interactions may play a role in the expression of ADHD implies that a reciprocal relationship is involved, whereby the child's behaviour impacts upon how the parent responds to him/her and likewise the parental response will impact upon how the child responds (Patterson, 1986). A negative pattern of interaction may emerge which is influenced by negative parent-child dyads. Parenting studies provide evidence in support of this theory whereby attendance on parenting skills training programmes which target coercive cycles, has been associated with a reduction in the expression of behavioural symptoms of ADHD (Bor et al., 2002).

The aetiology of ADHD due to family factors and parenting has not been shown to be a definite cause of ADHD for several reasons including (i) it is difficult to disentangle ADHD from conduct disorder and oppositional defiant disorder and (ii) it is necessary to identify what family factors predispose a child to develop ADHD and which factors are a response to ADHD (Carr, 1999).

1.2.5 Treatment of ADHD

Interventions for the treatment of ADHD often require a multi-modal approach targeting not only symptom reduction but also co-morbid disorders and associated difficulties. As children with ADHD represent a heterogeneous population, treatment approaches should be individualised based on the child's specific needs and often there will be several areas to treat (SIGN, 2001). Research into treatment interventions for ADHD is predominately based on one large scale study the Multimodal Treatment Study of ADHD (MTA; Jensen et al., 1999a) which focused on two predominant treatment approaches to ADHD, pharmacological and psychosocial.

Pharmacological Treatment

The most popular medications used to treat the core features of ADHD are stimulants. The two main stimulants prescribed in the UK for the treatment of ADHD are methylphenidate (Ritalin) and dexamphetamine (SIGN, 2001). These drugs are

considered to be short-acting in that the benefits can be seen soon after ingestion but are only evident for a few hours (DeNisco et al., 2005). As a result, several dosages are necessary in the day to attain the maximum gains of the drugs, although a slow release type is now available which may make this unnecessary (DeNisco et al. 2005). The SIGN (2001) guidelines recommend that the child is started on a low dose, altering the dosage according to how he/she responds. Close monitoring for side effects and regular reviews of the child's medication should also be undertaken (SIGN, 2001). A review of stimulant medication by Swanson et al. (1993) showed that while they were effective in reducing the core symptoms of ADHD in the short-term, long term improvements were not found in areas such as academic performance and behaviour problems. Many other types of medication are available in treating ADHD but tricyclic antidepressants (TCA's) have been established as the best alternative medication to stimulants (SIGN, 2001).

Debate on the use of medication for treating ADHD has included (i) ethical issues regarding the use of stimulants with children to change their behaviour (Perring, 1997), (ii) medication side effects, (iii) the long term evidence for the efficacy for their use (Pelham et al., 1986) and (iv) there impact on neurological development (Sonuga-Barke, 2003). Particular concerns have arisen regarding the increase in diagnosis of ADHD and the associated rise in prescribing medication, particularly stimulants to treat the disorder. In Scotland, there has been a continual increase in prescribing rates with a total rise of 15.6% between 2004/2005 and 2005/2006 (Scottish Health Statistics, 2006). Some

authors argue that this increase in pharmacological treatment is the result of greater public awareness and interest in the disorder rather than an increase in prevalence rates (Swanson et al., 1993), whereas others argue it is a reflection of unnecessary and inappropriate use of medication (Hancock, 1996). Research has found that over-prescribing has not been demonstrated within community populations and uncertainty regarding assessment may lead to misdiagnosis and subsequently to inappropriate treatment in clinical populations (Jensen et al, 1999b).

The issue of side effects for stimulants is a continuing topic with reports of increased risk of substance abuse, tics and delayed growth (Biederman & Faraone, 2005). Recent studies have challenged these views showing that medication in ADHD is a protective factor in substance abuse (Faraone & Wilens, 2003), that there may not be an increased risk of motor-tics in those with a family history (Spencer et al., 1999) and delayed growth can be averted if medication is stopped during adolescence (Klien et al., 1988). However, studies have also shown that the height of children with ADHD is less than would be predicted (Rapport et al, 2002) and further research needs to be undertaken on the efficacy of non stimulant medication to treat those at risk of motor-tics (Biederman & Faraone, 2005). Critics have argued that the reason ADHD has been seen as having a biological basis is due to the effective treatment of the core symptoms with medication. However, the effect of stimulant medication is not unique to children with ADHD (Jureidini, 1999b).

Psychosocial Interventions

Psychological interventions are mainly implemented to treat the co-morbid disorders and associated difficulties seen in ADHD rather than directly targeting the core symptoms. These interventions can be used alone or in conjunction with medication (SIGN, 2001). A review of the evidence for empirically supported psychological interventions has shown behavioural interventions to be most effective (Pelham et. al, 1998). Behavioural interventions consist of a wide variety of techniques but the most helpful tend to be behavioural parenting training involving contingency management techniques and behavioural classroom interventions (Pelham et. al, 1998). There has been limited evidence supporting the use of cognitive training (Ialongo et. al, 1993) with social skills training being more effective when combined with behavioural programmes (Kazdin, 1996).

The results from studies on early intervention programmes have shown behavioural programmes to be particularly beneficial in the treatment of the associated difficulties in ADHD. For example, a study by Bor et al., (2002) comparing a waiting list control group to standard and enhanced behavioural family intervention found that both behavioural interventions lowered the behavioural problems of the children with ADHD. Parent training has also demonstrated a reduction in the symptoms of ADHD in pre-school children and the effects were equivalent to that seen in older children on medication (Sonuga-Barke et al., 2001).

The MTA study was a randomised control study comparing the efficacy of medication, behavioural and community care in the treatment of ADHD. There were four treatment conditions; (i) community care control, (ii) medication only, (iii) behavioural intervention only and (iii) combined medication and behavioural. The behavioural treatment condition consisted of parenting training, classroom interventions and child focused interventions. Participants for the study were children with ADHD aged between 7 and 9 years. Approximately 96 children were randomised to each of the treatment conditions and the study took place across six different sites in America (Jensen et al., 1999a).

The main findings of the study showed that all children demonstrated a reduction in symptoms but that medication was more effective than behavioural interventions at reducing the core symptoms of ADHD (Jensen, et al., 1999a). Furthermore, the behavioural intervention was found to be no better than the control group at reducing ADHD symptoms with both medication and the combined condition shown to be more effective (Jensen et al., 1999a).

At a first look these results seem to indicate that medication should be the treatment choice for ADHD. However, psychologists have pointed out a number of issues with the study's design and with the interpretation of its results (Boyle & Jadad, 1999). Further analysis of the results found that, although medication was more effective than

behavioural methods at reducing the core symptoms of ADHD, behavioural methods were equally effective in targeting the other associated difficulties (e.g. family relationships, aggression and academic performance) of ADHD (Jensen et al., 1999c). Lower dosages of medication were also found to be used when a combined approached to treatment was implemented (Jensen et al., 1999c).

Furthermore, Boyle & Jadad (1999) argued that participants in the study may not reflect a representative sample of children with ADHD, as participants were likely to have been highly motivated to take part and treatments may not be representative of those in real life environments. It has also been highlighted that the sequencing order of the combined treatment condition in the study is important as behavioural treatments have been shown to be less effective if medication precedes it (Cunningham, 1999). Additionally, medication can reduce parental motivation to engage with behavioural techniques (Pelham et al., 1986). As medication was administered before the behavioural component it may have influenced the study outcomes (Rubia & Smith, 2001).

1.2.6 Summary of Section

As noted at the beginning of this section, ADHD has been shown to be one of the most common disorders of childhood and perhaps also one of the most controversial. ADHD has gained significant media attention over the years and its validity and reliability as a disorder has been questioned (Mellor et al., 1996; Jureidini, 1996). A number of issues

have surrounded ADHD which have been raised by the research studies into the disorder. As discussed throughout the section these issues relate to diagnosis, increase in prevalence rates, the aetiology and treatment. Reasons such as these have made ADHD one of the most studied childhood disorders. However, despite the vast research evidence, there is little professional agreement on these issues.

Currently no single theory on the development of ADHD can adequately explain all the symptoms seen in the disorder. Researchers have particularly suggested that there has been a failure to attend to the role that parenting, emotional issues and other family factors play in contributing to ADHD. However, there has been limited research in this area (Carlson et al., 1995a; Jureidini, 1996). The lack of a cohesive theory for ADHD has led some researchers to recommend that future work be directed at investigating other influences on the disorder such as psychosocial influences (Joseph, 2000)

1.3 Attachment Theory

Researchers have now begun to draw upon the concepts of attachment theory to help explain a possible pathway in the development of ADHD, and to help clarify how the behaviours observed may be explained in relation to parent-child attachment patterns (Erdman, 1998; Clarke et al. 2002, Ladnier & Massanari, 2000). These researchers have proposed that attachment theory can provide crucial insight into the origin of ADHD and the associated difficulties that have often been overlooked. The following section will

provide an account of attachment theory before presenting current models of ADHD derived from it and the associated research findings.

1.3.1 Overview of Attachment Theory

Attachment theory developed from the work of John Bowlby (1969/82) who defined attachment as:

" special type of social relationship, that of attachment to a caregiver"

(Bowlby, 1969/82, pg. 376).

Bowlby did much to further our understandings of the child's early bond to his/her mother and other caregivers. He consolidated the extensive research findings by himself and his colleagues and outlined the tenets of attachment theory in his "Attachment and Loss" trilogy (Bowlby, 1969/82, 1973, 1980). The key formulation of his assumptions were (i) the infant has attachment behaviours which serve to maintain proximity to the attachment figure thereby ensuring future survival, (ii) these behaviours are organised within an attachment behavioural system which is activated on separation from the attachment figure (iii) the infant's attachment relationship becomes internalised in a working model and (iv) difficulties in attachment relationships may be associated with later psychopathology (Carlson & Sroufe, 1995b).

Bowlby's work represented a shift away from social learning and psychoanalytic secondary-drive[2] explanations of the infant's tie to its mother (Cassidy, 1999). He developed several of his concepts about the biological basis of attachment by drawing from the research findings of ethologists at the time. Ethological research indicated that attachment behaviours in mammals, although innate, will only elicit a response in the young when specific cues from the caregiver are accessible.

Bowlby applied the ethological idea to the infant-mother relationship. He suggested that infant attachment behaviours such as sucking, crying and smiling are triggered in response to an increase in stress due to separation from the attachment figure, with the goal of increasing/maintaining proximity to the attachment figure (Bowlby, 1969/82). Attachment behaviours were seen as an adaptive response to separation by maintaining proximity to the attachment figure which would offer protection/care to the infant, ensuing future survival (Bowlby, 1969/82). The evolutionary function of attachment behaviour is to offer protection of the infant from danger, by keeping the primary caregiver close (Bowlby 1969/82). As the child develops, attachment behaviours change (e.g. crying-language, crawling-walking) but the end goal remains the same, increase proximity to the main caregiver (Bowlby,1969/82).

Bowlby (1969/82) proposed a motivational control system to account for the activation/termination of proximity seeking to the attachment figure. He called this the

[2] Secondary drive theories explain that the formation of the infant-mother relationship is the result of the mother feeding the infant and this positive experience becomes associated with the mother (Cassidy, 1999).

attachment behaviour system. The activation of the attachment behavioural system occurs on separation from the attachment figure which results in the unfolding of attachment behaviours with the aim of increasing proximity. Once proximity has been achieved the process stops (Bowlby 1969/82). In this way the attachment behaviour system is responsible for regulating proximity to the attachment figure (Bowlby, 1969/82).

The formation of the attachment relationship is developed within the context of the attachment figure's ability to respond to the infant's attachment behaviours/proximity seeking. The quality of the attachment relationship is therefore dependent on the care provided and is influenced by two essential attachment figure qualities, accessibility and responsiveness (Bowlby, 1973). Accessibility refers to the attachment figures physical and emotional availability to the infant, whereas responsiveness refers to the attachment figure's ability to accurately and sensitively respond to the infant's needs (Bowlby, 1973). According to Bowlby the attachment figure is considered to be truly available when both these features are present. If the infant's attachment behaviours are suitably managed a secure pattern of interaction will be established.

The quality of the attachment relationship and early attachment experiences will affect the child's concept of self and later development. According to Bowlby (1973), the infant will develop certain expectations about the responsiveness and availability of the attachment figure. On the basis of the quality in the attachment relationship and

attachment experiences, the child will have begun to acquire and form expectations about the self, the world and others. These experiences take the form of mental representations and are based on past dyadic interaction experiences that occurred between the child and his/her attachment figure. These mental representations are referred to as the internal working model (IWM; Bowlby, 1973). Bowlby wrote:

" In the working models of the world that anyone builds, a key feature is his notion of who his attachment figures are where they may be found, and how they may be expected to respond."

(Bowlby, 1973, p. 236)

The IWM is thought to function at the unconscious level and is considered to remain relatively stable across the lifespan (Bowlby, 1980). It assists the infant in understanding the environment, how he/she perceives the self, helps in choosing, planning and managing what attachment behaviours to use and helps predict the behaviour of the attachment figure (Bretherton & Munholland, 1999). It is believed to help the infant develop a sense of felt security (Bretherton, 1985). Therefore if the child receives dependable, consistent care, support and protection and his/her needs are met then the child will probably develop an assured and confident IWM (Bowlby, 1973). Conversely if the child grows up in an environment that is chaotic, uncertain, and unpredictable or where there is an unresponsive and unavailable attachment figure, the child is likely to develop an IWM characterised by distrust, low self esteem and unpredictability and may lead to later emotional and behavioural problems (Bowlby, 1973).

Fundamental to the infant-mother attachment relationship is emotional regulation which is achieved with the activation and termination of proximity seeking. Appropriate management of infant proximity seeking assists the infant regulate his/her emotions. Disparity in the quality of care provided creates differences in the quality of the attachment relationships thereby influencing later self regulation skills (Carlson & Sroufe, 1995). The IWM is thought not only to influence the infant's attachment behaviours and emotional regulation skills but also attention and memory and impacts on later development. The mental representation of the self that the child develops is therefore very important.

Bowlby (1969/82) suggested that the development of attachment relationship occurs over a series of four phases and that these emerge within a critical time period after which the opportunity for attachment formation is missed. The first three phases take place within the infant's first year and the final phase before the age of five. Bowlby (1973) believed that the development of a positive attachment relationship is critical for psychological well- being.

1.3.2 Attachment Patterns

Bowlby acknowledged that individual differences exist between infants in how they manage their attachment behaviours and evaluate the responsiveness/availability of the attachment figure. It is the IWM that shapes the basis on which differences in attachment patterns are formed. The work of Mary Ainsworth (1979) extended Bowlby's attachment theory by developing an assessment method for identifying differences in the attachment relationship. She developed a laboratory method called the Strange Situation based on her detailed longitudinal naturalistic studies of infant-mother interactions in Ghana and Baltimore (Ainsworth, 1963). Her work emphasised the importance of the secure base from which the child can explore the environment and the interaction between attachment behaviour and exploration (Ainsworth et al., 1978).

The Strange Situation classifies attachment relationships based on the infant's behaviour displayed on separation and reunion with his/her mother. According to Ainsworth (1979) the separation experienced by the child from the attachment figure and the subsequent reactions by the child to separation will indicate the security or anxiety that the child feels. In particular, it is the infant's behaviour at reunion that can be categorised into explicit patterns of responding (Ainsworth et. al., 1978). These behaviours showed the infant's pattern of emotional regulation and felt security.

The Strange Situation method consists of 8 three-minute episodes that alter between the infant being put in a new environment, being separated and reunited with the mother and being placed with a stranger in the presence and absence of the mother. The procedure involves the infant, the mother and a stranger (Ainsworth et. al., 1978). The infant's reactions to these situations are then coded and categorised into one of three types of attachment pattern. The attachment patterns identified by Ainsworth et al. (1978) were: type A-insecure-avoidant, type B-secure and type C-insecure-resistant.

Those infants classified as secure (type B) in the strange situation were visibly upset on separation from the attachment figure, gained proximity to her at reunion and resumed his/her play activity. The development of a secure attachment relationship is associated with the development of an IWM with the protective benefits of developing trusting relationships, self-esteem, emotional regulation skills and resilience (Ainsworth, 1979).

Two types of insecure attachment patterns were identified type A-insecure-avoidant and type C-insecure-resistant. Type A-insecure-avoidant infants were classified by displaying little upset at separation from the attachment figure; avoiding/ignoring her at reunion and reacting similarly to a stranger. Those infants classified as insecure-resistant (type C) in the strange situation become very distressed during separation from the attachment figure, may appear angry and are difficult to comfort on reunion (Ainsworth, 1979).

Insecure attachment patterns are associated with an IWM characterised by negative, cynical infant appraisals about the self and his/her attachment figure based on experiences of unresponsive and inconsistent interactions with the attachment figure (Carlson & Sroufe, 1995b). It has been suggested that insecure-avoidant infants have experienced inflexible patterns of emotional regulation leading to emotional regulation skills characterised by misrepresentation of emotional experiences (Carlson & Sroufe, 1995b). For insecure-resistant infants when distressed, being comforted may not result in the restoration of felt security due to experiences of irregular attachment figure accessibility/responsiveness (Carlson & Sroufe, 1995b). This is thought to be associated with the development of emotional regulation skills of heightened arousal.

In their repeated use of the Strange Situation technique, Main and Solomon (1990) identified that not all infants could be classified according to the three types of attachment patterns. They discovered a new category of attachment pattern called insecure-disorganised/disorientated (type D). Infants classified as insecure-disorganised displayed diverse and contradictory patterns of behaviour on separation and reunion with the attachment figure. Behavioural characteristics seen within this category included freezing, incomplete movements/expressions and confusion. The infant displaying an insecure-disorganised attachment pattern frequently has an attachment figure that has been a base for both fear and protection (Main & Solomon, 1986).

The characteristics associated with the insecure-disorganised attachment pattern are often associated with infant maltreatment, abuse and neglect (Main & Solomon, 1990). According to attachment theory the IWM of infants classified as insecure-disorganised significantly influences the child's later behaviour due to early unresponsive and threatening interactions with the attachment figure (Carlson & Sroufe, 1995b). Attachment theory proposes that the IWM of infants classified as insecure-disorganised is characterised by difficulties in regulating emotions related to stressful events, increased risk of externalizing behaviour problems, relationships characterised by mistrust and for some dissociative behaviour (van IJjzendoorn et al., 1999).

The Strange Situation procedure has become the main research tool in measuring attachment patterns in infants up to 20 months old. Studies investigating the distribution of attachment patterns in normative samples of infants has shown approximately 66% classify as secure, 22% insecure-avoidant and 12% insecure-resistant (Ainsworth et al., 1978). A meta-analysis evaluating the global distribution of attachment patterns in normative samples using the Strange Situation has found similar distribution patterns (van IJzendoorn & Kroonenberg, 1988). The global distribution of attachment patterns in infants are 65% secure, 21% insecure-avoidant and 14% insecure resistant (van IJzendoorn & Kroonenberg, 1988).

The insecure-disorganised attachment pattern is believed to be particularly relevant to clinical samples. A meta-analysis on insecure-disorganised attachment pattern has estimated it to occur in approximately 15% of normative samples (van Ijzendoorn et al.,

1999). The distribution of attachment patterns in normative samples when the insecure-disorganised category is included is: 55% secure, 22% insecure-avoidant, 7.5% insecure-resistant and 14.7% insecure-disorganised (van Ijzendoorn et al., 1992). A meta-analysis of the distributions of attachment patterns in clinical samples has found them to be similar to those seen in normative samples when child difficulties are the main problem identified (van Ijzendoorn et al., 1992). The distribution of attachment patterns in clinical samples where the primary problem are child difficulties has been found to be approximately 51% secure, 15.7% insecure-avoidant, 3.7% insecure-resistant and 29.6% insecure-disorganised (van Ijzendoorn et al., 1992). However, distribution patterns diverge from the norm in clinical samples when the primary problem is maternal difficulties (van Ijzendoorn et al., 1992). In these samples approximately 22.5% classify as secure, 28.3% insecure-avoidant, 8% insecure-resistant and 41.4% insecure-disorganised (van Ijzendoorn et al., 1992). Overall studies have shown a higher rate of insecure-disorganised attachment in clinical samples.

The identification of attachment patterns using the Strange Situation procedure is limited to infant attachment. Attachment theory suggests that attachment persists throughout the life course and extensive research has extended the work of Bowlby and Ainsworth in developing assessment measures of attachment for middle childhood, adolescence and adulthood. Research has shown that the distribution of attachment patterns in childhood is similar to that seen from the Strange Situation (Green et al., 2000). In normative samples of children using the MCAST to measure attachment representations

approximately 62.3% are classified as secure, 26.5% insecure-avoidant and 7.6% insecure-resistant (Green et al., 2000). Furthermore, the distribution of insecure-disorganised pattern in a low risk sample of children using the MCAST found the same distribution as that found in other studies (e.g. Main, 1995) of normative samples (Green et al., 2000).

Evidence for the continuity of attachment patterns in childhood has come from two key longitudinal studies (Main & Cassidy., 1988; Wartner et al., 1994). These studies assessed the attachment patterns of infants at age 1 using the strange situation and again at age 6. Main and Cassidy. (1988) found an 86% correlation between the attachment patterns of a normative sample of children in infancy and at age 6. The findings of the study were later replicated by another longitudinal study which found an 82% concordance between attachment patterns in infancy and at age 6 (Wartner et al., 1994). The finding for the stability of attachment patterns from infancy through to childhood is impressive. Based on children's developmental progress change would be expected in the quality of the attachment relationship, attachment behaviours and care-giving (Grossman at al., 1999). Furthermore, developmental progress in childhood often makes attachment behaviours more difficult to capture than in infancy (Grossman at al., 1999).

Attachment patterns continue to remain important in adulthood. The distribution of attachment representations in normative samples in adulthood have been measured using the Adult Attachment Interview (AAI; George et al., 1985, cited in van IJzendoorn & Bakermans-Kranenburg, 1996). Studies of attachment representations in mothers have

shown a distribution of approximately 58% autonomous, 24% dismissing and approximately 18% preoccupied (van IJzendoorn & Bakermans-Kranenburg, 1996). Adolescents and fathers in normative samples display similar distributions of AAI classifications of attachment representations to those found in mothers (van IJzendoorn & Bakermans-Kranenburg, 1996). In clinical samples a higher rate of insecure attachment representations have been found compared with low risk samples (van IJzendoorn & Bakermans-Kranenburg, 1996).

1.3.3 Implications of Attachment Theory

Attachment theory is now one of the most influential approaches contributing to our understanding of possible trajectories in emotional and behavioural development (Thompson, 2000). As discussed in the previous section, the infant's experience of the early attachment relationship will influence his/her emotional regulation skills, coping and problem solving skills, self esteem, communication and psychological health (Ainsworth, 1979).

Overall, a secure attachment pattern is associated with good-quality trusting reciprocal relationships, good self esteem and healthy emotional and cognitive functioning (Ainsworth, 1979). In contrast insecure attachment patterns have been associated with difficulties in forming trusting relationships and a greater display of externalising and internalising problems such as conduct disorder, depression and aggression (Lewis et al.

1984). Difficulties in problem solving and social skills have also been linked with insecure attachment patterns (Lamb et al., 1985). Evidence from studies of high risk populations and studies of child maltreatment has documented an associated between attachment history and the development of insecure attachment patterns particularly insecure-disorganised (Carlson & Sroufe, 1995b). Several studies investigating disorganised attachment patterns have shown it to be associated with aggression, antisocial and controlling behaviours (Lyons-Ruth et al., 1993; Lyons Ruth & Jacobvitz, 1999).

Additionally, it is now recognised that attachment is not only responsible for explaining the organisation of early experiences but also has a direct impact on brain development. Research has demonstrated that maltreatment and early traumatic experiences impede cognitive development (Schore, 2001). Research into the development of psychological problems cannot be accounted for by genetics alone and it is explained by the interaction between genetic and environmental influences. For the infant, the critical environmental influence is the attachment relationship (Siegle, 1999). Early experiences can alter the structure of the brain by influencing, which neural links become connected and which become redundant (Siegel, 1999). Research is now demonstrating that the attachment figure is the psychobiological regulator of the way experiences influence the development of the infant's nervous system (Schore, 2000).

The work by Schore has demonstrated that early maltreatment and trauma can prevent the growth of synaptic connections that aid us in environmental adaptation and appraisal of threats. The insecure-disorganised attachment pattern is associated with the behavioural expression of traumatic psychobiological changes in brain structure (Schore, 2001). Research has shown that ineffective emotional regulation evident in insecure attachment patterns are also linked to the changes in the limbic system which is responsible for environmental adaptation, modulating new learning and developmental adjustments linked to the increase in attachment behaviours (Schore, 2001).

The right hemisphere of the brain is responsible for socioemotional information processing and becomes structurally altered by traumatic experiences. The orbitofrontal cortex area of the brain is specifically identified as being associated with attachment and is responsible for regulation of experiences (Schore, 2001). Schore (2001) argues that if the attachment figure is sufficiently responsive and accessible to the infant's cues then synaptic connections between the orbitofrontal cortex and other areas of the brain take place ensuring secure attachments and functional adaptation to stress. As researchers believe that infant brain development takes place within a critical period (Schore, 2001), for some maltreated and traumatised children the attachment relationship experienced will visibly change the brain's neurobiological make-up which cannot be restored (Siegel, 1999).

In summary attachment research has suggested that insecure attachment relationships associated with unresponsive and dangerous care is a risk factor for later development of externalising and internalising problems. A secure attachment pattern can cultivate healthy brain development whereas traumatic attachment experiences may led to enduring alterations to the structure of the brain. It is important to acknowledge that although the research has shown consistency between early infant attachment patterns and their later attachment patterns (Wartner et. al., 1994) it is now known that this is related to stability in the environment (Carlson & Sroufe, 1995b). That is, if there are significant modifications in the attachment figure's environmental situation then it will follow that there will be changes in the child (Carlson & Sroufe, 1995b). Furthermore, for some maltreated children, early intervention may lead to further growth and development of the brain as it does contain a little plasticity. However, the critical window of opportunity for emotional experience is within the first two years (Schore, 2001).

1.3.4 Challenges for Attachment Theory

Attachment theory is faced with a number of challenges about the assessment and theory of attachment security as the focus has moved beyond infancy to across the life course (Thompson & Raikes, 2003). Critics of attachment theory have argued that attachment researchers have designed a significant number of attachment measures without properly addressing the validity of them (Solomon & George, 1999), whereas others have challenged the usefulness of the concept of the IWM (Belsky & Cassidy, 1994). The

main difficulty highlighted with attachment measures beyond infancy is that none have been recognized as the ideal on which other measures can be benchmarked (Thomson & Raikes, 2003).

As the IWM is not a concrete construct and this creates difficulty with expanding attachment theory (Solomon & George, 1999). For example how does the IWM develop and is it consciously available? (Solomon & George, 1999). Furthermore the link between attachment security, risk factors and later development continues to be a complicated issue. Attachment researchers are now addressing attachment development in adulthood, multiple attachments, the nature of IWM and what impacts on insecure children becoming secure (Solomon & George, 1999).

1.4 Attachment Theory and ADHD

1.4.1 Overview of Attachment Theory and ADHD

Current accounts of the development of ADHD have been criticised for neglecting the psychological factors associated with the presentation of the disorder and for placing the focus of the behavioural expression of the disorder within the individual child (Jureidini, 1996; Clarke et al, 2002). Some researchers have suggested that the presentation of ADHD should be viewed within the wider family system and more specifically from an attachment theory perspective. Attachment theory has been applied to help outline a possible pathway for the development of the disorder within the family context (Erdman, 1998; Clarke et al. 2002, Ladnier & Massanari, 2000). In particular it has been proposed

that ADHD may occur within the experience of an insecure attachment relationship (Erdman, 1998; Clarke et al. 2002, Ladnier & Massanari, 2000).

It has been suggested that a correlation exists between the expression of the symptoms of ADHD and insecure attachment relationships (Stiefel, 1997). As reviewed in section 1.3, attachment theory emphasises the importance of the infant-attachment figure relationship in developing self regulation skills and those with an insecure attachment pattern are at a higher risk of later problems with behaviour and emotional regulation (Carlson & Sroufe, 1995b). Researchers have argued that there may be several sources in the development of ADHD and attention deficits may on occasion signify problems in self regulation skills (Carlson et al., 1995a). Difficulties in managing self regulation skills are associated with problems in self-soothing, impulse control and inhibition, characteristics that are parallel to the symptoms displayed in ADHD (Ladnier & Massanari, 2000). These are the same areas that a secure attachment relationship positively influences. For example, research has shown that a secure attachment pattern helps to regulate impulse control (Olson et al., 1990), increase attention (Maslin-Cole & Spieker,1990) and assist social functioning (Lewis et al., 1984).

It has also been suggested that impulsivity, hyperactivity and attention seeking may be a protective adaptation to an insecure attachment pattern (Lieberman & Pawl, 1990) and represent a method employed to manage proximity to the attachment figure (Speltz, 1990). Furthermore a longitudinal study by Carlson et al. (1995a) investigating hyperactivity and inattention in middle childhood found that the main predictor of

inattention was the quality of early caregiving, even when compared against biological and temperament factors.

1.4.2 Models of ADHD based on Attachment Theory

Research in the area of attachment and ADHD is relatively new and a literature search identified two key articles proposing a model for the development of ADHD within an attachment theory framework. The models are based on (i) demand-dissatisfaction cycle (Stiefel, 1997) and (ii) on developmental trauma (Ladnier & Massanari, 2000).

Demand-dissatisfaction cycle

Stiefel (1997) proposed a possible pathway in the development of ADHD based on clinical observations, assessments and treatment of 14 children with the disorder. His evaluation of these cases led him to propose a model of ADHD (see Figure 1 pg. 45) based on early family stressors that lead to difficulties in the attachment relationship. As a result of early family stressors, a negative pattern of interaction is established and serves to further exacerbate the attachment relationship (Stiefel, 1997). According to Stiefel (1997), for certain groups of children, disruption to the attachment relationship due to family stressors may be a risk factor in the formation of the symptoms of ADHD. The model outlined provides various possible entry points for intervening in the stressful parent-child relationship.

Five main categories of early family stressors were identified that increased in incidence during pregnancy and during the infant's first year of life. These stressors are

hypothesised to result in an increased risk of ADHD. The stressors identified are thought to result from (i) perinatal and antenatal factors, (ii) a lack of social support, (iii) the parenting role, (iv) negative maternal views of the father and (iii) other life factors (Stiefel, 1997). It is proposed that these categories interact in a negative way with other factors in the development of the disorder. For example, postnatal depression may impact on the caregivers parenting ability which in turn would affect the interaction patterns between mother and infant (Stein et al., 1991).

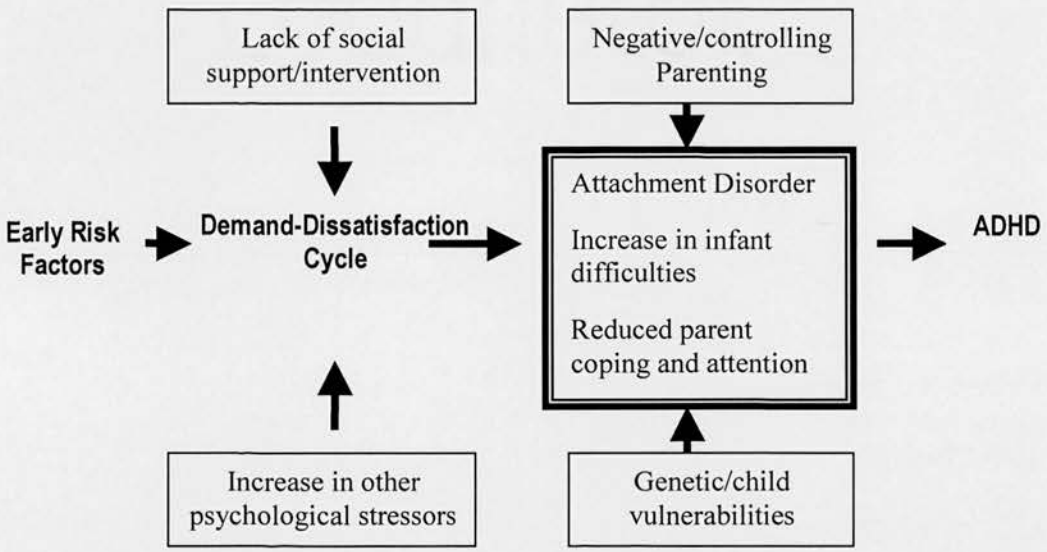
The development of ADHD occurs when these early family stressors are combined with other stressors or patterns of interaction which Stiefel (1997) called the "demand-dissatisfaction cycle". The demand-dissatisfaction cycle refers to an early adverse pattern of interaction between risk factors of parent-child variables (e.g. temperament, irritability) and the environment. Consequently, the development of a reciprocal relationship may be problematic. The early difficulties created by the demand-dissatisfaction cycle implicate two potential trajectories in future development (Stiefel, 1997).

The first pathway implies that a normal developmental trajectory may be followed. This would result in the reduction of the demand-dissatisfaction cycle through increased social support, changes in environmental circumstances or specific interventions which augment parental coping strategies or changes in the behaviour of the infant (Steifel, 1997). The second pathway proposes that there is a continuation of family stressors

which may be exacerbated by other stressors (e.g. financial). This leads to a negative parent-child interaction pattern characterised by increased parental frustration and a rise in the use of negative/punitive parenting techniques, thereby negatively impacting the parent-child attachment relationship (Steifel, 1997). Evidence in support of this has comes from research studies demonstrating that punitive patterns of parent-child interactions seen in children with a diagnosis of ADHD are associated with attachment difficulties (Isabella & Belsky, 1991).

Stiefel (1997) argues that insecure-resistant and insecure-disorganised attachment patterns are especially pertinent in his model of ADHD. He proposes that the behaviours displayed in insecure resistant-pattern may help account for the difficulties of inattention/impulsivity seen in ADHD. For example, studies have shown that a resistant attachment pattern is linked with lower performance on measures of regulating impulsivity and delaying gratification (Arend et al., 1979). However, these studies must be interpreted with care due to the small sample size (Stiefel, 1997). Stiefel's (1997) model was derived from his observations of 14 children with the disorder but the attachment patterns of these children were not directly measured and therefore it is not possible to determine for definite the type of insecure attachment pattern these children displayed.

Figure 1[3]: Pathway to the development of ADHD based on family stressors and disruption of the attachment relationships (Stiefel, 1997).



Model of ADHD based on developmental trauma

Ladnier and Massanari (2000) have constructed a developmental model of ADHD which aims to explain not only the development of the disorder but also recommend appropriate treatment interventions based on a family systems approach. It is based on the concepts found in attachment theory and the model focuses on three main areas (i) bonding breaks, (ii) development deficits and (iii) ADHD symptoms (see Figure 2 pg. 49). The theory behind this model is that early disruption of attachment relationships

[3] Figure 1 represents Stiefels (1997) model of the development of ADHD as cited in page 56.

leads to the development of attachment deficits which are subsequently expressed as the symptoms of ADHD (Ladnier & Massanari, 2000).

Ladnier & Massanari, (2000) use the term bonding breaks to refer to the disruption of the attachment relationship due to early trauma experiences. Bonding breaks are characterised by prenatal or postnatal experiences that result in physical/emotional trauma and are associated with developmental deficits. Developmental deficits are used in the model to describe attachment related deficits (e.g. deficits in emotional, self regulation and relating skills) arising from a bonding break. These difficulties are thought to subsequently impede/impinge upon the formation of secure attachment relationship (Ladnier & Massanari, 2000). It is proposed that the combination of bonding breaks and associated developmental deficits, with a lack of adequate parenting will result in the expression of ADHD.

Three main assumptions are implied by the model (i) children diagnosed with ADHD have encountered a disruption/breaking of the attachment relationship prior to 2 years of age, (ii) this break has impeded the development of a secure attachment relationship between the infant and his/her attachment figure, resulting in the development of deficits in the child (e.g. cognitive, emotional regulation skills, relating skills etc.) and (iii) the child's family context was not adequate in helping him/her to counteract those deficits (Ladnier & Massanari, 2000). The three core features of the model are further

elaborated by the identification of sub-categories of bonding breaks, attachment deficits and the symptoms of ADHD.

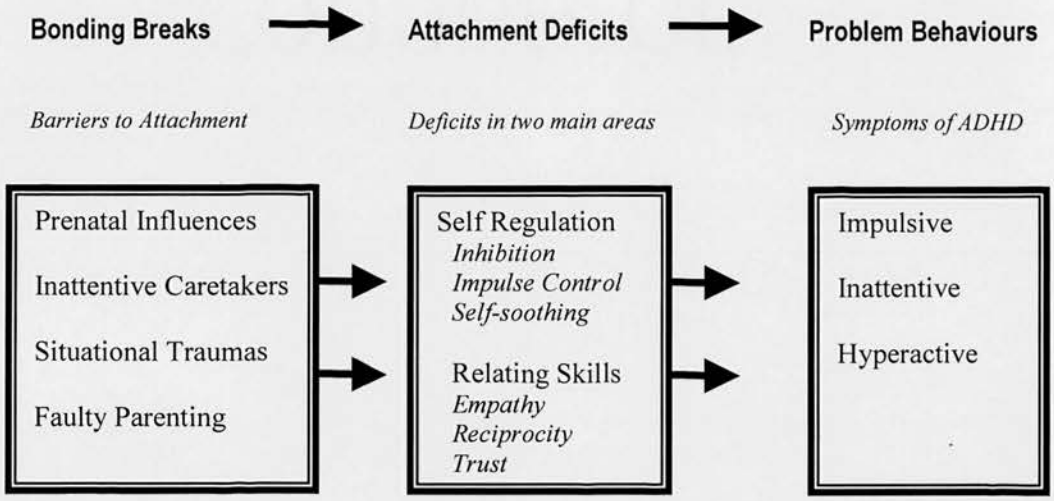
Four main categories of bonding breaks have been identified. These are (i) prenatal factors (e.g. alcohol/drug ingestion), (ii) inattentive care giving (absence of warmth in care-giving, lack of attunement and synchronicity with the infant), (iii) faulty parenting (e.g. parental role characterised by a lack of caring, trustful relationships, lack of clear boundaries for children and child exposure to conflict), and (iv) situational traumas (e.g. external events out with caregiver control). For example, prenatal bonding breaks refer to an array of behaviours such as maternal smoking, alcohol and drug ingestion while pregnant, which may result in the infant being born in a state of hyperarousal. It is hypothesised that this contributes to the development of hyperactivity/impulsivity. Ladnier and Massanari (2000) propose that a hyperaroused state prevents the infant from securely attaching to the attachment figure as he/she is unable to attend to the attachment cues exhibited. Furthermore, traumatic experiences such as physical/sexual abuse, neglect and insecure attachment relationships result in the child becoming hypervigilant to signals of danger in their environment which may cause the central nervous system to be in a state of constant hyperactivity (Ladnier & Massanari, 2000).

The authors' assessment and research of children with ADHD have identified and provided evidence in support of these four types of bonding breaks. They have shown that the majority of children with ADHD experience more than one type of bonding break and some all four types. Ladnier and Massanari (2000) report consistently identifying the bonding break they refer to as "faulty parenting" in children with ADHD.

Two main categories of attachment deficits are proposed within this model (i) self-regulation (e.g impulsive control, self-soothing, inhibition and initiative) and (ii) relating skills (e.g. reciprocity, respect, affection and expression). These are supported by the ADHD research showing irregularities in the prefrontal striatial areas of the brain which are responsible for the regulation of emotions and attachment (Castellanos et al., 1996). Ladnier and Massanari (2000) suggest that these two types of attachment deficits result in the problematic behaviours displayed by children with ADHD. They argue that these symptoms are not the result of a genetic aetiology but are caused by experiences of bonding breaks in the parent-child attachment relationship.

Figure 2[4]: Developmental Model of ADHD based on Attachment Theory

(Ladnier and Massanari, 2000).



1.4.2 Studies on insecure attachment patterns in children with ADHD

The two models described above have focused on the impact of stressors on the disruption of attachment relationships which is expressed in the behaviours described in ADHD. These models suggest that the symptoms of ADHD may arise within the framework of an insecure attachment relationship, emphasising the similarities seen between the behaviours of ADHD and those expressed by the insecurely attached child. Research has been able to show that when parental responding is negatively influenced by external factors, children may respond in a disorganised manner (Lyons-Ruth, 1996; Cummings & Cicchetti, 1990). A negative pattern of interacting is thereby established

[4] Figure 2 represents Ladnier and Massanari (2000) developmental model of ADHD cited in pg 36.

based on the reciprocal relationship which serves to strengthen the adverse responding between parent-child (Patterson, 1986) and helps to consolidate an insecure attachment relationship (Erdman, 1998).

Although much of the research assumes that an association may exist between the symptoms of ADHD and attachment insecurity, studies specifically investigating the attachment patterns of children with ADHD are virtually non-existent. A literature search in the area identified two key articles that specifically investigated the attachment patterns in children with ADHD. A study by Clarke et al. (2002) and Pinto et al. (2006).

Clarke et al. (2002) specifically investigated the association between ADHD and attachment. The study compared the attachment representations of 19 boys with ADHD to a control group aged between 5 and 10 years. Children in the control group were recruited from schools and consisted of children of hospital staff. Data on the attachment representations of the participants were collected using three measures: the separation anxiety test, family drawing test and interview. Overall the results showed significant differences between the two groups in terms of their attachment representations (Clarke et al., 2002). Specifically, ADHD was found to be associated with insecure attachment representations.

Results from the separation anxiety test revealed that children with ADHD were (i) more likely to display intense behavioural reactions in response to separations, (ii) show less

self-reliance in separations, (iii) displayed more hostile coping strategies in response to separations and (iv) report more negative descriptions of parent-child interactions compared to the control group (Clarke et al., 2002). The key findings of the self interview showed that compared to a control group, children with ADHD have a less developed sense of self, giving a more negative self concept characterised by less flexibility to change (Clarke et al., 2002). Children with ADHD again differed from the control group on the family drawing test, reporting families characterised by tension, hostility, anger and dissociation. The study findings led Clarke et al. (2002) to conclude that the attachment representations of children with ADHD are consistent with insecure-disorganised and insecure-resistant attachment patterns.

The study researchers suggest that these findings indicate that the three core symptoms of ADHD and the associated difficulties are a method of gaining attention from a caregiver that is unavailable and unresponsive to the child's needs. The findings of the study seem to contradict those of previous studies which have investigated negative parent-child interactions in children with ADHD (e.g. Danforth et al., 1991). They argue that in these studies the use of medication to alleviate negative parent-child interactions has been interpreted as evidence supporting the view that negative interactions is the result of predominantly child related variables (Clarke et al., 2002). As the majority of children with ADHD in this study were taking medication the findings seem to suggest that the use of medication may actually be concealing underlying difficulties in the attachment relationship (Clarke et al., 2002).

Furthermore Clarke et al. (2002) argue that their study may also offer an account for the limitations of treatment interventions seen in ADHD (e.g. returning of symptoms once medication has been stopped/ lack of generalisation of behaviour management interventions). They suggest that for children with ADHD displaying insecure attachment patterns, the current treatments only alleviate temporarily the behavioural expression of the disorder as they do not directly address the child's internal working model. It therefore may be necessary to initially address attachment related difficulties in these children with ADHD before applying interventions aimed at symptom reduction. This could produce more enduring treatment outcomes (Clarke et al., 2002). The researchers acknowledge that not all children with ADHD have insecure attachment patterns and that current treatments may be sufficient for these children.

A subsequent longitudinal study by Pinto et al. (2006) explored whether ADHD was associated with disorganised attachment in infancy. The study took place from the antenatal period to when the child was 7 years old. The findings of the study showed that no association existed between disorganised attachment pattern and ADHD. Furthermore the prevalence rate for ADHD was comparable to that found in the general population (Pinto et al., 2006). However, the Pinto et al. (2006) study did show an association between ADHD and infant disorganised attachment based on teacher rated measures that they could not explain. The Pinto et al. (2006) study appears to contradict the findings of the Clarke et al. (2002) study and the clinical observations of Stiefel

(1997) and Ladnier and Massanari, (2000). Although this study did not find an association between infant disorganised attachment and ADHD, it did not investigate the association between ADHD with the other types of attachment insecurity.

These two studies represent the initial research specifically exploring the proposition of an association between ADHD and attachment insecurity. However, the findings from them are contradictory. The Clarke et al. (2006) study supports the literature which has hypothesised a link between ADHD and insecure attachment patterns whereas the Pinto et al. (2002) study finds no association between ADHD and disorganised attachment pattern. More research needs to be carried out investigating ADHD and insecure attachment patterns as many questions still remain in this area. For example, are the findings in these studies characteristic of children with ADHD or limited to their sample.

1.5 Looked After and Accommodated Children: A High Risk Population

1.5.1 Overview of LAAC

A population that are known to be a high risk sample for early disruptive experiences and has high rates for both ADHD and insecure attachment patterns are children who are looked-after and accommodated (LAAC). The term "Looked-after and accommodated children" (LAAC) refers to children who are placed within the care system predominantly as a result of inadequate care and safety being provided within the home

environment. The term LAAC is inclusive of a variety of care options including children living with (i) extended family (kinship), (ii) foster carers, (iii) residential accommodation and (iii) secure accommodation. The defining feature of this population is their disruptive early experiences (Social Work Inspection Agency, 2006).

These children may become looked after for a variety of reasons including concerns about the physical, social, psychological and educational welfare. However, other possible reasons for entry into the care system do exist such as sudden parental loss. The family backgrounds of children who enter the care system are typically characterised by: atypical families, family instability, maltreatment, abuse and neglect (Wolkind & Rutter, 1973; Beddington & Miles, 1989; Stein et al., 1994; Stein et al., 1996).

The conditions these children experience prior to their entry into the care system has been shown to significantly increase their risk for the development of problems in behaviour and emotion (Kashani et al., 1987; Livingston et al., 1993). For example maltreatment (e.g. neglect and physical/sexual abuse) has been shown to be associated with the development of insecure attachment patterns (England & Sroufe, 1981; Minnis & Del Priore, 2001) and ADHD has been correlated with both sexual abuse and separation anxiety (Livingston et al., 1993). Attachment theory is frequently applied in providing an explanation for the behavioural and emotional difficulties regularly seen in children that are or have been looked after (Zeanah, 2000; Leathers, 2002).

1.5.2 ADHD and LAAC

High rates of overactivity/inattention are often found in children who are looked after and accommodated, in particular if placed in institutional care (Deutsch et al., 1982; Roy et al., 2000). Studies have reported that approximately 23% of adopted children have ADHD (Deutsch et al., 1982). A study by Meltzer et al., (2004) reported that ADHD represented a common disorder of LAAC in Scotland with a estimated prevalence rate of 11%.

Studies have highlighted a link between the symptoms of ADHD and early institutional care (Kreppner et al., 2001). The elevated rates of ADHD in this population have led some researchers to query if it might represent a particular type of deprivation syndrome (Kreppner et al., 2001). Evidence from these studies initially seems to indicate that ADHD for some institutionalised children may be different to that seen in other populations of children with the disorder. However, as the researchers acknowledge, it remains to be seen if the symptoms of ADHD evident in this population are different to those in clinical practice.

Following on from these studies, researchers began addressing the question to which degree that children with ADHD in institutional settings had co-morbid difficulties with attachment relationships. It has been suggested that there is a critical association between attachment difficulties and ADHD (Kreppner et al., 2001). Researchers have argued that there may be several sources in the development of ADHD and attention

deficits may on occasion signify problems in self regulation skills and attachment (Carlson et al., 1995; Sroufe et al., 1999).

A study by Roy et al., (2004) addressed the question if there was an association between ADHD and attachment problems by comparing children with ADHD in foster care to children with ADHD in institutional settings. The findings of the study indicated that for boys brought up in institutional care there was deficiency in attachment relationships with both caregivers and peers and this was associated with ADHD. However, the researchers could not conclude if the characteristics of ADHD represented difficulties in attachment.

1.5.3 Attachment and LAAC

Attachment problems in LAAC have been well documented (Minnis & Del Priore, 2001). Insecure attachment patterns are particularly relevant to LAAC as these children often have difficulty in forming a secure attachment to a caregiver due to their background history and early disruptive experiences (Minnis & Del Priore, 2001). As discussed in section 1.3 insecure attachment patterns develop in the context of unresponsive and unavailable caregiving features which are often present in the background history of these children.

An extensive investigation of the attachment relationships of 52 foster children showed that children when placed in care initially maintain a strong attachment relationship to their biological mother but that this declines as the child gets older (Marcus, 1991).

Furthermore, the longer a child remains in their current placement the stronger the attachment relationship becomes with the foster mother. The study showed that the quality of the attachment relationship between the child and the foster parents is more positive than with their biological parent (Marcus, 1991).

The association between child maltreatment and type of attachment pattern was addressed in a study by Egeland and Sroufe (1981) of 31 foster children using the Strange Situation. At 12 months infants that were abused tended to be classified as insecure-avoidant and infants that were neglected for the majority were classified as insecure-resistant. Infants were reassessed at 18 months. Infants who had been abused and previously classified as insecure-avoidant were for the majority re-classified as secure (75%) or remained avoidant (25%). Infants that had been neglected and categorised as insecure-resistant at 12 months changed to secure (47%) or avoidant (37%) at 18 months (Egeland & Sroufe, 1981). The results of the Egeland and Sroufe (1981) study showed support for the proposition of attachment theory that early maltreatment was linked with an anxious attachment at 1 year and can lead to the development of an insecure-avoidant attachment relationship. It was also found that a secure attachment pattern in maltreated infants at 18 months was linked to greater family support and being cared for in a supportive environment. The findings of the Egeland and Sroufe (1981) study have been replicated by subsequent studies investigating the attachment patterns in abused and neglected children (e.g. Lamb et al., 1985; McWey, 2004).

In addition, LAAC are thought to represent a high risk group for the occurrence of insecure-disorganised attachments. Studies on adopted and instiutionalised children have shown a high prevalence rate of insecure-disorganised attachments. For example in a study on 55 infants adopted prior to the age of 1 approximately 36% were classified as insecure-disorganised (van London et al., 2001; cited in Juffer et al., 2005). This was further supported by a study carried out by Dozier et al., (2001) who found that approximately 34% of adoptive infants were classified insecure-disorganised.

1.5.4 Summary of Section

LAAC represent a high risk population sample characterised by early disruptive experiences and high rates of insecure attachment patterns and ADHD. LAAC experience numerous breaking of bonds/family stress associated with the development of insecure attachment patterns which are expressed behaviourally. Much of the research has found that the development of childhood psychopathology in LAAC can be linked to difficulties in attachment due to a background history characterised by trauma, abuse, neglect, separations and losses. It is now known that three of the major symptoms seen in ADHD are also evident in traumatised children i.e. hyperactivity, impulsivity and impaired social functioning (van der Kolk 1994). This is particularly important as treatment of the symptoms of ADHD may not lead to lasting changes if attachment difficulties go untreated (Clarke et al., 2002). To date limited research has been carried out comparing the attachment patterns of LAAC with ADHD to clinical samples of children with ADHD that live with their biological parents.

1.6 The Present Study

The incentive for this study was based on the observation that overall the research base investigating attachment patterns in children with a diagnosis of ADHD is limited. Further research in the area is particularly important in light of the literature that suggests that the development of ADHD is associated with insecure attachment patterns and by ignoring attachment related difficulties in this population treatment outcome may be limited. Limited research has investigated the attachment patterns in children with ADHD and has presented contradictory findings. One study provided support of an association between ADHD and insecure attachment patterns (Clarke et al., 2002) and the other did not (Pinto et al., 2006).

Further research is needed in the area as these findings may not be representative of children with ADHD in general and requires further validation. LAAC represent a population that has been shown reliably and consistently to have a high representation of early disruptive experiences. In addition there is limited research exploring the attachment patterns in LAAC with a diagnosis of ADHD and how they compared with a clinical sample of children with a diagnosis of ADHD that live with their biological parents.

1.7 Aims of the Present Study

The main objective of the current study is to investigate the attachment patterns in children with ADHD. The study will be done by (i) comparing the proportion of attachment patterns between children with ADHD and data from previous studies and (ii) comparing the distribution of attachment patterns between two groups of children with ADHD (i.e. Group 1: high risk sample with early disruptive experiences and ADHD; Group 2: children with ADHD). In addition, the study will examine children's attachment patterns for their association with (i) other areas of difficulty, including social and oppositional problems and (ii) parent/guardian stress.

Attachment representations in preschool children are normally assessed using the Strange Situation. However, as the population under study are school age children, attachment representations will be assessed using the Manchester Child Attachment Story Task (MCAST; Green et al., 2000).

1.8 Study Hypotheses

In relation to attachment patterns in children with ADHD the following hypotheses for the study were formed:

Hypothesis 1: Compared with the normative data, children with a diagnosis of ADHD will have a higher proportion of insecure attachment patterns, as measured by the MCAST.

Hypothesis 2: In comparison to children that live with their biological parents, looked after and accommodated children (LAAC) with ADHD will demonstrate a higher proportion of insecure attachment patterns and a lower proportion of secure attachment patterns, as measured by the MCAST.

Hypothesis 3: In comparison to children with a secure attachment pattern, children with an insecure attachment pattern will demonstrate higher scores on the following indices: social, emotional, oppositional, anxious, and perfectionism, as measured by the Conner's Rating Scale.

Hypothesis 4: In comparison to the parents/guardians of children with a secure attachment, the parents/guardians of children with an insecure attachment pattern will demonstrate higher levels of stress, as measured by their total stress score on the Parenting Stress Index.

2. Method

2.1 Study Design

A between groups comparative analysis was applied to investigate the proportion of attachment classifications between children who had a diagnosis of ADHD and data from previous studies. Between groups comparisons were also made to explore the proportion of attachment patterns between children that were looked after and accommodated (LAAC) and children that live with their biological parents.

2.2. Power Calculation

There is limited available research investigating the attachment patterns in children with a diagnosis of ADHD on which to base the calculation of statistical power. Two studies (Stiefel, 1997; Ladnier & Massanari, 2000) have proposed possible pathways of developing ADHD based on small n designs. Therefore, statistical power for the study was determined based on the article by Clarke et al. (2002) and using Cohen's (1992) method. To determine the number of participants necessary to attain statistical power for the study, Cohen's (1992) statistical formula to detect a relationship between categorical variables and a one-tailed between group tests of difference was applied. Following Cohen's (1992) statistical formula, using the standard alpha level of .05 and power at .80, the study would require 39 participants (N=39) to detect a relationship between categorical variables and 26 participants (N=26) in each group to detect a large sized difference (r = .50).

2.3 Ethical Approval

Ethical approval for the study was obtained from a local Research Ethics Committee (Appendix 7.1). Research and development management approval was also granted by the local Primary Care NHS Trust (Appendix 7.2).

2.4 Participants

Participants in the study were children who had a diagnosis of ADHD and their parent(s)/guardian(s). Children in the study were aged between 6 to 9 years (mean age = 7.18). In the study's sample, two groups of children who had received a diagnosis of ADHD were identified. These were children with a diagnosis of ADHD who were living with their biological parents (n = 26; non-LAAC group) and children with a diagnosis of ADHD who were looked after and accommodated (n = 11; LAAC group). Diagnosis of ADHD was established by the same paediatrician for all children using the DSM-IV diagnostic classification system and in accordance with the recommendations of the SIGN guidelines (2001).

2.4.1 Non-LAAC Group

Participants in the non-LAAC group were recruited from the Clinical Psychology Department. Twenty four boys and 2 girls with a diagnosis of ADHD who were living with their biological parent(s) and their parent(s) made up the non-LAAC group (mean age = 7.07). At the time the study was undertaken 23 participants in the non-LAAC group were taking stimulant medication for the symptoms of ADHD.

2.4.2 LAAC Group

Participants in the LAAC group were also identified from the Clinical Psychology Department. Children in the LAAC group comprised of 9 boys and 2 girls (mean age = 7.45) and their guardian(s). Ten participants in the LAAC group were taking stimulant medication for the symptoms of ADHD. The distribution of care options for children in the LAAC group were: 9 children were in kinship care and 2 children were adopted.

2.4.3 Study Inclusion and Exclusion Criteria

Inclusion Criteria

To take part in the study the following inclusion criteria were adhered to for all participants:

1. Children had received a diagnosis of ADHD.
2. Diagnosis had been established for a minimum of 1 year.

3. The children were aged between 6 and 9 years.

An additional inclusion criterion for children that were looked after and accommodated was that they had to have been placed into their guardian(s) care no later than age 5.

Exclusion Criteria

The principal exclusion criteria were:

1. Receiving psychological interventions that specifically targeted attachment difficulties.
2. Presence of a brain injury.
3. Diagnosis of a learning disability.
4. Diagnosis of autism spectrum disorder.
5. The presence of other significant medical or psychological conditions.

Children that were looked after and accommodated were also excluded from the study if they were residing in a secure unit.

2.4.4 Participant Identification and Recruitment

Potential participants for the study were identified from the Clinical Psychology Department database and by members working with the Child Psychology Team. Adhering to the inclusion and exclusion criteria a total of 125 families were identified as being eligible to participate in the study. Initially, families were sent a letter (Appendix 7.3) inviting them to take part. The parent(s)/guardian(s) also received an information sheet (Appendix 7.4) about the study and their child received a developmentally appropriate version of the information sheet (Appendix 7.5). A consent form for parent(s)/guardian(s) (Appendix 7.6) and a child assent form (Appendix 7.7) were provided with a returning stamped address envelope, should the family decide to participate.

On receiving the consent/assent forms, the researcher contacted participants directly to answer any further questions and to arrange a suitable time and date to meet with the family. At the time of contact, participants were given the option to meet at their health centre, the psychology department or at their home. Participants were also asked if their child was currently being treated with medication for their symptoms of ADHD. In addition guardian(s) of children in the LAAC group were asked to indicate the length of time the child had been residing with them.

2.4.5 Total Participant Response Rate

In total 125 families were identified as being suitable to participate in the study. Eighty one children were living with their biological parent(s) (non-LAAC group) and 44 children were looked after and accommodated (LAAC group). In the non-LAAC group 30 families out of 81 consented to participate in the study. However, three participants were subsequently excluded from the study as they were on a waiting list to be assessed for autism. A further participant was excluded due to incomplete data.

In the LAAC group, 15 families out of 44 consented to take part in the study. Of the 15 families, four had to be excluded due to incomplete data and technical difficulties with recording equipment.

2.5 Distribution of Attachment Classifications in Previous Studies

Similar distributions of attachment classifications have been found in low risk samples in infancy using the Strange Situation and also in childhood using the MCAST (refer to section 1.3.2). In addition research has shown continuity of attachment patterns between infancy and childhood (refer to section 1.3.2). The evidence for the distribution and continuity of attachment classifications in infancy and childhood have been concluded from well researched detailed naturalistic (Ainsworth et al., 1978) and longitudinal studies (e.g. Wartner et al., 1994).

To compare the proportion of attachment patterns in children with a diagnosis of ADHD, available data from previous studies were utilized. The data from the Green et al. (2000) study was used for comparison. Data on the proportion of attachment classifications (Appendix 7.8) from this study was chosen as it applies the same measure (i.e. MCAST) as the current study to identify the attachment patterns in childhood. Furthermore, their results were similar to the previous attachment research in infancy (e.g. van IJzendoorn & Kroonenberg, 1988) on the distribution of attachment patterns.

2.6 Description of Measures

The selection of measures for the study was based on addressing the key research hypotheses posed by the study. The measures chosen were (i) the Manchester Child Attachment Story Task (Green et al., 2000), (ii) the Parenting Stress Index-Short Form (Abidin, 1995) and (iii) the Conners' Parent Rating Scale-Revised Long Form (Conners, 2000). These measures are described in detail below.

2.6.1 Manchester Child Attachment Story Task (MCAST)

Attachment patterns in children with ADHD were assessed using the MCAST (Appendix 7.9). The MCAST is a developmentally-appropriate semi-structured play method designed to assess the attachment patterns of children aged between 4 and 9 years (Green et al., 2000). It aims to identify the child's mental representation of attachment relationships by eliciting patterns of behaviour that stem from the IWM

(Green et al., 2000). The MCAST interview is structured based on a doll play method. The doll play technique applied in the MCAST is derived from the work of Bretherton et al. (1990). The MCAST interview is made up of a control vignette and four attachment related vignettes. These vignettes were developed from features of the AAI (Green et al., 2000). The administration and completion of the MCAST should take approximately 15- 20 minutes in total.

The procedure for the MCAST initially involves familiarising the child with the play materials, which consists of a dolls house and furniture. From a selection of dolls the child is asked to pick a child doll to represent him/herself and a doll to represent the attachment figure (Green et al., 2000). The child doll is referred to by the child's name followed by the word doll (e.g. Chloe doll). The adult doll is given the name representative of the attachment figure (e.g. mummy doll). The child is then presented with the control breakfast vignette. The child is asked to complete the vignette by asking him/her to show and tell what happens next in the story (Green et al., 2000). The purpose of the control vignette is to provide a baseline of the child's behaviour and to help distinguish issues related to the child's temperament from that of attachment behaviour. This is done by assessing the child's engagement with the task, anxiety, symbolic play, oppositional behaviours and overactivity (Green et al., 2000).

Following the control vignette, four vignettes related to specific attachment stressors are presented. These are (i) a nightmare vignette, (ii) illness vignette, (iii) hurt knee vignette and (iv) a shopping vignette (Green et al., 2000). The first stage of each attachment vignette involves an induction period where there is an increase in arousal in the child doll. The second stage of each vignette involves the child playing out the conclusion of the story. When the story is finished the interviewer explores the purpose of the play and the extent which the child doll's distress is alleviated by enquiring what the child/mummy doll is feeling and thinking (Green et al., 2000). After the four attachment vignettes are concluded the child is asked to engage in free play using the materials available.

The MCAST interview is video-taped to allow for detailed coding and rating of the procedure. The coding of the MCAST is based on previous attachment research, drawing on concepts from the Strange Situation, the Adult Attachment Interview (AAI) and the work of Main and Solomon (1990) on disorganised attachment (Green et al., 2000). The idea behind the coding is that the content of the child's completed narrative will result in an analysis comparable to that obtained through the observation of attachment behaviour as seen in the Strange Situation (Green et al., 2000). The structure of the completed narrative is examined and provides data on the child's mental representation of the attachment relationship.

The coding of each of the attachment vignettes is based on a 9 point scale and the ratings are grouped into four categories. These are (i) predominant strategy (ii) coherence of narrative, (iii) total D score (total disorganisation score) and (iv) bizarre content (Green et al., 2000). The predominant strategy category rates attachment behaviours (e.g. proximity, caregiver behaviour) within the story completion. The coherence of narrative category is rated on the characteristics of effective discourse (e.g. quality, manner, quantity and relevance) (Green et al., 2000). The total D score provides a rating on the amount of disorganised behaviour within the story completion. It is based on elements from both the D coding system in the Strange Situation (Main & Solomon, 1990) and the U coding system in the AAI (Green et al., 2000). Supplementary ratings are made based on bizarre themes emerging in the story that are not reality based with the attachment vignette. These may include the death of parent/child doll (Green et al., 2000). These four categories provide an overall vignette classification based on the predominant interpersonal strategy used throughout the story (Green et al., 2000).

The MCAST's individual vignette classification categorises the child's interpersonal strategy into (i) A-insecure-avoidant, (ii) B-secure, (iii) C-insecure-resistant and (iv) PD-pervasive disorganisation. The overall MCAST attachment classification is determined by combining each of the four individual vignette classifications to identify the main strategy applied (Green et al., 2000). The authors have devised a coding system whereby an overall MCAST attachment classification of insecure is given if two or more individual vignettes are classified as insecure. The pattern of insecurity is based on the

main type of insecurity across vignettes (i.e. avoidant/resistant/pervasive disorganisation; Green et al., 2000).

The MCAST has demonstrated good inter-rater reliability on categorical attachment classifications including between secure and insecure classifications (94%) and between D and non- D classifications (82%) (Green et al., 2000). The MCAST has also shown good content validity and stability of attachment classifications over time (e.g. 76.5% of avoidant, secure, resistant and 69% of disorganised classifications remained constant; Green et al., 2000). Furthermore, initial studies have also found a relationship between ratings of child pervasive disorganisation on the MCAST with maternal unresolved status on the Adult Attachment Interview (Goldwyn et al., 2000).

2.6.2 Parenting Stress Index Short Form (PSI/SF)

The PSI/SF (Appendix, 7.10) was included in the study to assess the overall level of parent/guardian stress within the context of their relationship with their child. The PSI/SF is a brief validated measure of parent stress derived from the Parenting Stress Index (PSI; Abidin, 1995). It was developed to address concerns with the length of time taken to complete the PSI (Abiden, 1995). The PSI/SF is a self-report measure consisting of 36 items, each describing the principal elements of the parent-child relationship (Abidin, 1995). Items are rated on a 5 point scale ranging from strongly agree (SA) to strongly disagree (SD). Two items are rated using an alternative

numerical scale ranging from 1 to 5. The alteration in response design is cued for these items (Abidin, 1995). Respondents are required to circle the response that largely reflects their own view towards items.

Items on the PSI/SF are subdivided into five category scores. These are (i) defensive responding, (ii) parental distress (PD), (iii) parent-child dysfunctional interaction (P-CDI), (iv) difficult child (DC) and (v) total stress. The defensive responding category evaluates if the respondent's answers are biased towards representing him/herself more positively and underestimating difficulties in the parent-child relationship (Abidin, 1995). The PD subscale is designed to assess the level of parental distress in response to their parenting role. It is evaluated within the context of personal issues (e.g. conflict with partner) that are directly influencing child rearing competence (Abidin, 1995). The P-CDI scale measures the extent to which parent-child interactions are not rewarding. It also evaluates parental perceptions that the child does not live up to what they had expected (Abidin, 1995). The DC score assesses child characteristics that make him/her undemanding or challenging to cope with. The PSI/SF total stress score determines the general level of stress the parent is experiencing (Abidin, 1995).

The PSI/SF produces raw scores for each of the 5 categories which are then converted to percentiles. Overall raw scores for each category are obtained by adding the scores of category items. Scores falling within the 15^{th} to 80^{th} percentile are considered to be within the normal range (Abidin, 1995). Scores above the 85^{th} percentile range are

judged to be clinically significant. An overall total stress score above the 90th percentile indicates clinically significant levels of parent stress (Abidin, 1995). The PSI/SF has good test re-test reliability with alpha reliability coefficients ranging from .78 to .90 (Roggmann et al., 1994). It is highly correlated with the PSI with a total stress score correlation of .94. Overall Abidin (1995) has shown the psychometric properties of the PSI/SF to be good.

2.6.3 Conners' Parent Rating Scale-Revised Long Form (CPRS-R:L)

The CPRS-R:L (Appendix 7.11) was selected to provide a range of information on a number of different aspects of child behavioural characteristics. The CPRS-R:L is designed to assess internalizing and externalizing difficulties in children aged between 3 years and 17 years. The CPRS-R:L is frequently used to assess for the symptoms of ADHD, however, it can also be applied in measuring difficulties in areas such as social problems and oppositional problems (Conners, 2000). It consists of 80 items that are divided into 14 subscales. Respondents are required to rate individual items based on their child's behaviour over the previous month (Conners, 2000). Items are rated "not true at all", "just a little true", "pretty much true" and "very much true".

The CPRS-R:L produces raw scores and t-scores. T-scores on the CPRS-R:L are based on a large normative sample and allow for independent profiles on the form for both males and females. Total raw scores for each of the 14 subscales are calculated by

adding the numbers rated for individual items within the subscale. These are then converted into t-scores. T-scores on the CPRS-R:L above 65 are usually interpreted as representing a clinically significant problem. Scores of 56 to 65 are taken to indicate the presence of difficulties whereas t-scores less than 30 to 55 indicate no problems with child behaviour (Conners, 2000). The psychometric properties of the CPRS-R:L have been extensively evaluated and have been shown to be of a high standard. The CPRS-R:L has demonstrated good test re-test reliability, good internal reliability, and has good established validity (Conners, 2000).

2.7 Study Procedure

The same assessment procedure and measures were applied for all participants by the study researcher. Adhering to the assessment protocol allowed consistency in the study for all participants. Participants were assessed either at home or at their local health centre.

Firstly, on meeting each participant, the nature of the study was again explained and emphasis placed on the right not to take part, to withdraw from the study at anytime and confidentiality. The researcher also enquired if there were any further questions. Further questions about the study were responded to by the researcher prior to commencing the study protocol. The study commenced by the parent(s)/guardian(s) being asked to complete the PSI/SF and CPRS-R:L. It was explained to the parent(s)/guardian(s) how to complete each of the questionnaires. The questionnaires

were completed in the presence of the researcher. On occasion the parent(s)/guardian(s) requested clarification to items on the questionnaires. These questions were responded to immediately by the researcher. For all participants in the non-LAAC group it was the mother who completed the questionnaires. In the LAAC group the child's female carer completed them.

Following the completion of the questionnaires by the child's parent(s)/guardian(s), the administration of the MCAST began. The MCAST involves the use of a video camera to record the procedure for later analysis. Initially, the child was shown a demonstration of how the camera operated and was provided with the opportunity to work it, thereby decreasing any possible intrusiveness caused by its presence. All child participants appeared to enjoy the camera demonstration and did not refer to its presence or seem aware of it during the administration or completion of the MCAST.

Following the camera demonstration, it was set to record the MCAST protocol. The child was asked to assist the researcher in setting up the dolls house. The set up of the dolls house involves placing the furniture in it. The MCAST requires the minimum amount of furniture for two bedrooms, a kitchen and a living room. Involvement of the child in setting up the dolls house was helpful in engaging their attention for the MCAST vignettes. The child was then asked to select a doll to represent him/her self and a mummy doll. The selection of dolls initiated the MCAST procedure (refer to

section 2.5.1 for MCAST protocol). The child completed the control vignette, the four attachment related vignettes and a free play vignette of their choice. On completion of their free play vignette the camera was switched off. The researcher then explored with the child how they felt about finishing the stories. All child participants reported that they enjoyed making up stories and playing with the dolls house.

The researcher verbally thanked participants for taking part in the study. Parent(s)/guardian(s) and children were also sent a thank you letter of participation (Appendix 7.12). In addition the parent(s)/guardian(s) of children were offered the opportunity to request a follow up meeting with the researcher to discuss the study findings once complete.

The scoring of the PSI/SF and the CPRS-R:L was completed by the study researcher according to their scoring procedure (refer to section 2.5.2 and 2.5.3 for details). Data from the MCAST digital video recordings were transferred onto video-tapes and the MCAST interviews were then analysed by the researcher and rated according to the criteria developed by Green et al. (2000; refer to section 2.5.1 for details). The researcher had completed formal training in the administration and coding of the MCAST. In order to provide reliability on the interview classifications, 15 of the MCAST interviews were further rated by another researcher who also had formal training on the MCAST procedure. Inter-rater reliability on the MCAST interviews was 90%. On completion of the scoring of the PSI/SF, the CPRS-R:L and the rating of the

MCAST the researcher transferred the information for all participants to the Statistical Package for the Social Sciences (SPSS), Version 14 for statistical analysis.

2.8 Ethical Considerations

As the research required children to participate in the study ethical principles relating to research in children were abided by. The study design was developed taking into account the developmental level of the child. Considerations included that child participation be kept at a minimum by using a measure to assess attachment patterns that was developmentally appropriate, brief and only needed to be completed on one occasion. The MCAST was selected based on these requirements. The information sheet for children was composed being mindful of their developmental level and level of understanding. Short simple sentences were used, written in terms that would be familiar to the children. To ensure that children understood the information parent(s)/guardian(s) were required to read the information sheet to their child.

The parent(s)/guardian(s) of the children also received an information sheet detailing what participation in the study would involve for them and their child. Informed consent for children to take part in the study was obtained by each parent/guardian giving written consent for their child. In addition children were asked for their assent. The assent form for children was designed taking into consideration the child's developmental level. The

parent(s)/guardian(s) also signed a consent form indicating their understanding of what participation in the study would involve for them.

Consideration was also given to the use of a digital video camcorder in recording the MCAST procedure. The MCAST procedure requires the data from the interviews to be recorded on a digital video camcorder and saved for later detailed rating of the procedure. As the MCAST was designed to be developmentally appropriate, it is assumed that the use of a video camcorder in the procedure was considered in the design. Therefore the use of a video camcorder in the MCAST procedure would be unlikely to cause any adverse effects. In the unlikely event should the use of the video camcorder cause discomfort to the participant then the procedure should be stopped.

Prior to commencing the MCAST interview, children were asked if they still wanted to take part. It was also re-iterated that they did not have to take part and that they could stop the interview at anytime without having to give an explanation. Furthermore, it was explained that the information they gave as part of the study could not be identified as having come from them. On confirmation of agreement to take part, the researcher provided a demonstration to participants of how the camcorder operated, thereby helping to reduce possible discomfort caused by its presence. Additionally, during the MCAST procedure the researcher monitored how participants were responding to the presence of the video camcorder.

Once the MCAST interview was complete data from the digital video camcorder was transferred onto video-tapes for analysis. In order to protect the participants' confidentiality, the MCAST interviews were then erased from the digital video camcorder (once transferred onto video tape) and securely stored in a locked filing cabinet. Furthermore, to ensure anonymity of participants' data, numbers were assigned to each. All data once rated was then transferred onto a database which was password protected and stored on a laptop computer.

3. Results

3.1 Overview of Results

The first section of the results describes how the data were examined in preparation for undertaking the main statistical analysis. This was done to check parametric properties of the data. The second section of the results delineates the statistical analyses applied to test the study hypotheses. The statistical tests used were the chi-square test, Fisher's exact test and the independent samples t-test. The final section of the results provides a summary of the statistical analysis.

For complete output from preparation of the data for analysis and descriptive statistics refer to Appendix 7.13 and for the main statistical analysis outlay refer to Appendix 7.14.

3.2 Preparation of the data for analysis

For each non-categorical variable (i.e. parenting stress and non-ADHD indices of the Conner's Rating Scale e.g. social problems, oppositional etc.) a histogram was plotted and descriptive statistics applied to look at the distribution of the data. To evaluate if the scores in each variable were normally distributed, the values of skewness and kurtosis from the descriptive statistics output were examined. Additionally, to test if the distribution of each variable was normal the Kolmogorov-Smirnov test was applied.

The examination of the variable parenting stress and the variables of oppositional problems, anxiety problems, emotional problems and social problems (non ADHD indices of the Conner's Rating Scale) were all shown to be normally distributed by the Kolmogorov-Smirnov test. That is for each of these variables the Kolmogorov-Smirnov test was not significant ($p > .05$) indicating that the distribution for each of these variables was not different from that of a comparable normal distribution.

However, the distribution of data for the variable perfectionism (non ADHD index of the Conner's Rating Scale) was not normally distributed. The Kolmogorov-Smirnov test was significant ($p < .05$), indicating that the distribution of the variable was different to a comparable normal distribution. A square root transformation ($\sqrt{\times}i$) of the variable perfectionism was applied to correct the non-normal distribution of the data. The Kolmogorov-Smirnov test was performed on the transformed variable. The test was not significant ($p > .05$) indicating that the data was normally distributed

3.3 Descriptive Statistics

Descriptive statistics were performed to explore the proportion of attachment patterns within the total ADHD sample. Participants displayed a higher percentage of secure (43.2%) and insecure-avoidant (24.3%) attachment patterns compared to insecure-resistant (21.6%) and disorganised (10.8%). Refer to Figure 1 for the proportion of attachment patterns in the total ADHD sample.

Descriptive statistics were also performed to identify the proportion of attachment patterns in each of the two groups of children with ADHD (i.e. Group 1: LAAC; Group 2: non-LAAC). Refer to Appendix 13 for the proportion of attachment patterns in the two groups of children with ADHD.

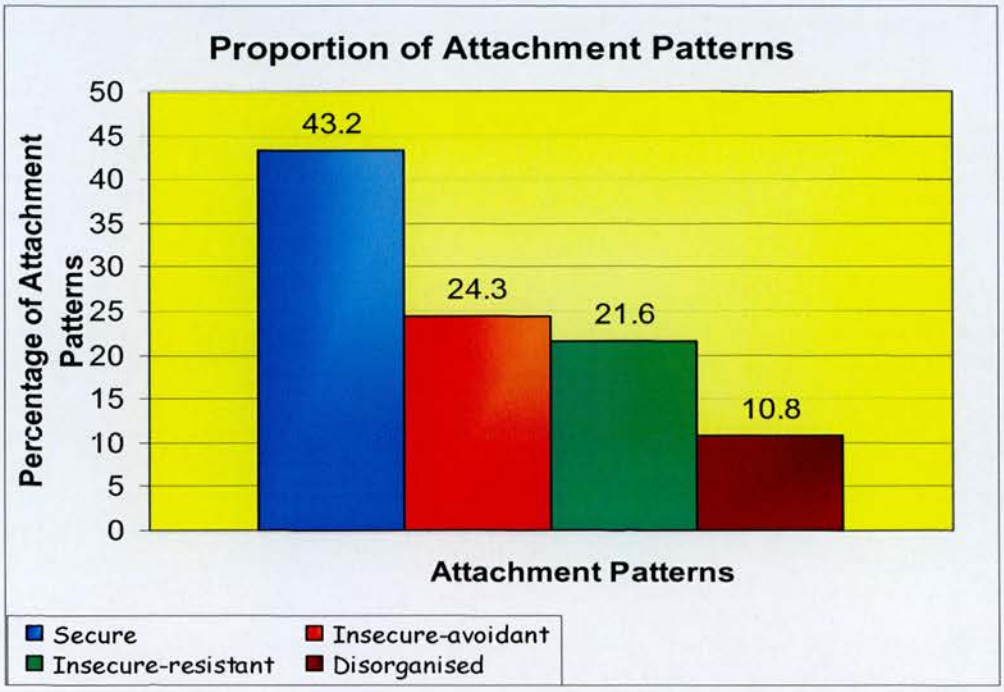


Figure 3: Comparison of the percentage of each attachment pattern within the ADHD sample.

Statistical Analyses

On completion of examining the data for analysis and the square root transformation, the main statistical analyses of the data were performed. The chi-square test was applied to investigate hypothesis one and the Fisher's exact test was performed to examine hypothesis two. Hypotheses three and four were examined using the independent samples t-test.

3.3.1 Hypothesis 1

Compared with the normative data, children with a diagnosis of ADHD will have a higher proportion of insecure attachment patterns, as measured by the MCAST.

Using a chi-square test, the proportion of insecure attachment classifications (i.e. insecure-avoidant, insecure-resistant) was compared between the two groups. No significant difference was found in the proportion of insecure attachment patterns between the two groups (χ^2 (1, N = 84) = 2.16, p > .05).

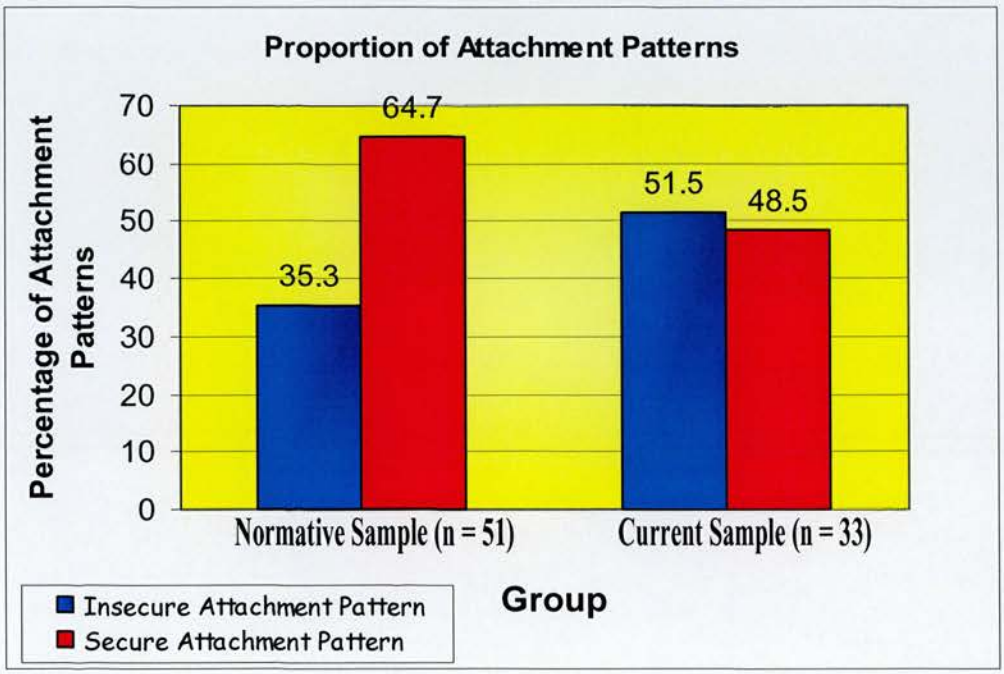


Figure 4: Comparison of the proportion of insecure and secure attachment patterns between a normative sample and children with ADHD.

3.3.2 Hypothesis 2

In comparison to children that live with their biological parents, LAAC (looked after and accommodated children) with ADHD will demonstrate a higher proportion of insecure attachment patterns and a lower proportion of secure attachment patterns, as measured by the MCAST.

Figure 3 (below) shows that looked after and accommodated children (LAAC Group) had a higher percentage of insecure attachment patterns (72.7%) and a lower percentage of secure attachment patterns (27.3%) compared with children that live with their biological parents (insecure = 50%, secure = 50%).

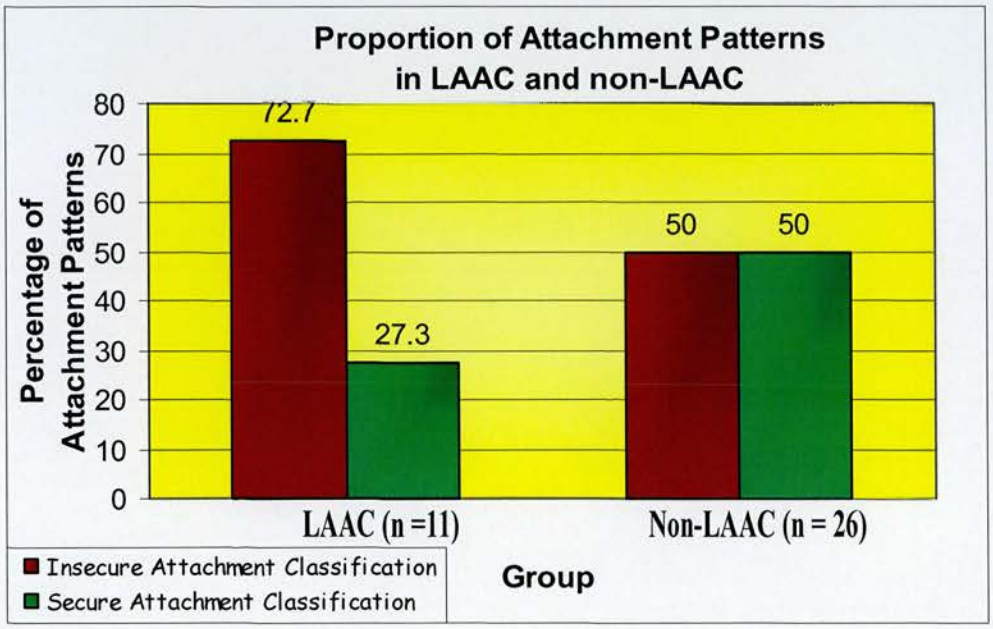


Figure 5: Comparison of the percentage of insecure and secure attachment classifications between Looked After and Accommodated children and children living with their biological parents.

In order to investigate hypothesis two the Fisher's exact test was performed. No significant difference was shown in the proportion of attachment patterns between the two groups (P = .28, Fisher's Exact Test >.05).

3.3.3 Hypothesis 3

In comparison to children with a secure attachment pattern, children with an insecure attachment pattern will demonstrate higher scores on the following indices: social, emotional, oppositional, anxious, and perfectionism, as measured by the Conner's Rating Scale.

Independent samples t-tests detected no significant differences between participants with insecure attachment patterns and participants with secure attachment patterns on the non-ADHD indices of the Conner's Rating Scale.

These included the oppositional index (t (35) = 0.66, p >.05), the anxious-shy index (t (35) = 0.49, p > .05), the social problem index (t (35) = 0.44, p > .05), the emotional liability index (t (35) = 0.60, p > .05,), and the perfectionism index (t(35) = 0.46, p > .05).

Refer to Table 1 for a comparison of the mean scores on the non-ADHD indices of the Conner's Rating Scale for participants with insecure and secure attachment patterns.

Non-ADHD indices of the Connor's Rating Scale	**ADHD Participants – Insecure** Mean (SD) (N= 21)	**ADHD Participants- Secure** Mean (SD) (N=16)
Oppositional	20.71 (5.14)	19.56 (5.36)
Anxious-Shy	10.47 (7.42)	11.62 (6.29)
Social Problems	7.90 (3.61)	7.31 (4.42)
Emotional Liability	6.09 (1.81)	5.68 (2.38)
Perfectionism (Based on transformed data)	2.7 (1.08)	2.8 (1.15)

Table 1: A Comparison of the mean scores of the non-ADHD indices on the Connor's Rating Scale for participants classified and secure and insecure.

3.4.4 Hypothesis 4

In comparison to the parents/guardians of children with a secure attachment, the parents/guardians of children with an insecure attachment pattern will demonstrate higher levels of stress, as measured by their total stress score on the Parenting Stress Index.

An independent samples t-test showed there was a significant difference between the total stress scores of the parents/guardians of participants with insecure attachment patterns and the parents/guardians of participants with secure attachment patterns ($t(35) = 2.9$, $p < .05$).

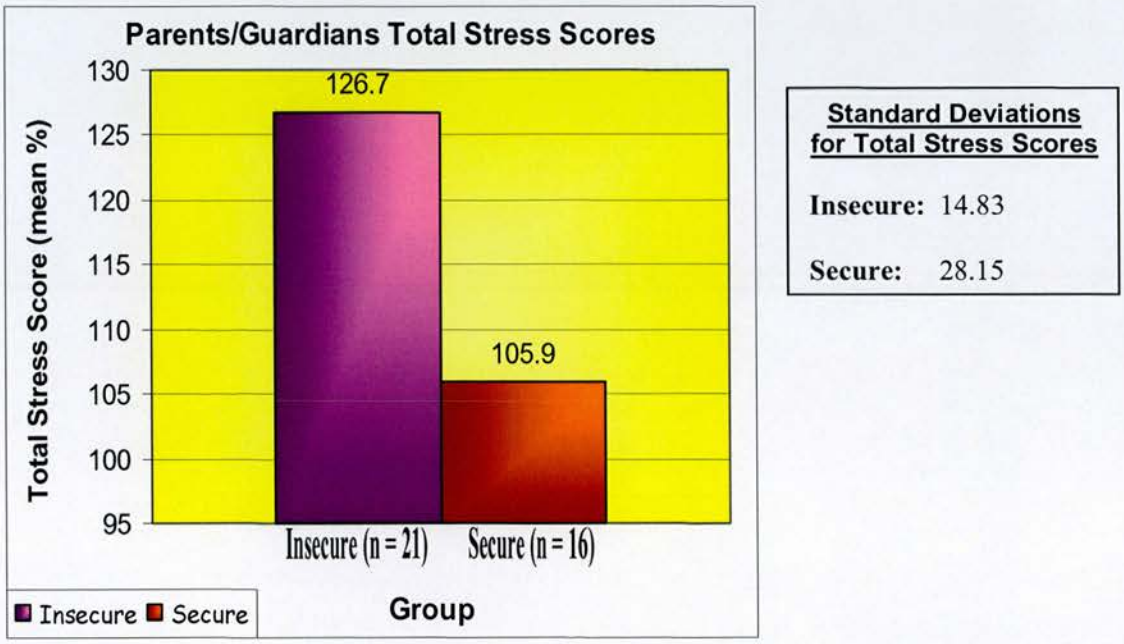


Figure 6: A comparison of parents/guardians mean total stress scores across insecure and secure attachment groups.

3.4 Summary of Results Section

Hypothesis 1 – There was no significant difference in the proportion of insecure attachment patterns between children with ADHD and children from the normative sample. Therefore, the null hypothesis could not be rejected.

Hypothesis 2 – There was no significant difference in the proportion of insecure attachment patterns between children that were looked after and accommodated (LAAC) and children that live with their biological parents. Therefore, the null hypothesis could not be rejected.

Hypothesis 3 – There was no significant difference in scores on the Conner's Rating Scale indices of social, emotional, oppositional, anxiety and perfectionism, between children with secure and insecure attachment patterns. Therefore, the null hypothesis could not be rejected.

Hypothesis 4 – The parents/guardians of children with insecure attachment patterns showed significantly higher levels of stress compared with the parents/guardians of children with a secure attachment pattern. Therefore, the null hypothesis was rejected.

Refer to Table 2 for a summary of the results of the study in relation to each of the proposed hypotheses.

Hypotheses	Table/figure	supported/rejected
H 1: Comparison of attachment patterns between normative sample and ADHD sample.	Refer to Figure 3	Rejected
H 2: Comparison of attachment patterns between LAAC and non-LAAC with ADHD.	Refer to Figure 4	Rejected
H 3: Comparison of difficulties on non-ADHD indices of Conner's Rating Scale between participants with secure and insecure attachment patterns.	Refer to Table 1	Rejected
H 4: Comparison of levels of stress between the parents/guardians of participants with secure and insecure attachment patterns	Refer to Figure 6	Supported

Table 2: Summary of findings in relation to each of the hypotheses.

4. Discussion

4.1 Overview of Discussion

The present study investigated the attachment patterns of children with ADHD. This was done by (i) comparing the distribution of attachment patterns between a sample of children with ADHD and a normative sample, and (ii) comparing the distribution of attachment patterns between two groups of children with ADHD (i.e. Group 1: a high risk sample with early disruptive experiences and ADHD; Group 2: children with ADHD).

In addition, the study examined children's attachment patterns for their association with (i) other areas of difficulty, including social and oppositional problems and (ii) parent/guardian stress. This was done by looking at children's insecure/secure attachment patterns and (i) their scores on the non-ADHD indices of the Conner's Parent Rating Scale and (ii) their parent/guardian total stress scores as measured by the Parenting Stress Index.

The discussion section of the study will initially provide a summary and interpretation of the results. The findings of the study will then be discussed in relation to each of the proposed hypotheses. This will be followed by reflecting on the methodological considerations of the study. Finally, the discussion will explore the theoretical and clinical implications of the study findings and directions for future research.

4.2 Interpretation of Findings

Hypothesis 1: The results showed that there was no significant difference in the proportion of insecure and secure attachment patterns between a sample of children with ADHD and a normative sample. This finding implies that the distribution of attachment patterns in children with ADHD does not differ from the proportion of attachment patterns seen in the child population generally.

Hypothesis 2: The results showed that there was no significant difference between the insecure and secure attachment patterns of children with ADHD that are looked after and accommodated and children that live with their biological parents. This finding indicates that children with ADHD who are looked after and accommodated are no more expected to display a greater proportion of insecure attachment patterns than children with ADHD who live with their biological parents.

Hypothesis 3: There was no significant difference in scores on oppositional problems, social problems, anxiety problems, emotional problems and problems with perfectionism between children with insecure and secure attachment patterns. This finding implies that children with ADHD and an insecure attachment pattern are no more expected to have problems in the above areas than children with ADHD and a secure attachment pattern.

Hypothesis 4: Compared with the parents/guardians of children with a secure attachment pattern, the parents/guardians of children with an insecure attachment pattern reported significantly higher levels of stress. This finding indicates that the parents/guardians of children with ADHD and an insecure attachment pattern are more likely to have higher levels of stress than parents/guardians of children with ADHD and a secure attachment pattern.

4.3 Discussion of Hypotheses

The next section in the discussion will focus on the results of the study in relation to the proposed hypotheses. Initially, an overview of the hypotheses will be presented and discussed in relation to the literature on ADHD. The findings for each individual hypothesis will then be discussed and evaluated with reference to the previous research in the area.

4.3.1 Overview of Hypotheses

In order to provide an overview of the hypotheses, initially a summary of some of the key points made in the introduction will be discussed. This will facilitate a review of the study's hypotheses derived from the literature and provide a context for their development. This will be followed by a discussion of the findings for each of the individual hypotheses.

As discussed in section 1.2, ADHD is described in the DSM-IV as a developmental disorder characterized by co-occurring difficulties with inattention, hyperactivity and impulsiveness. The prevalence of ADHD and the increased rise in referrals to mental health services for ADHD-related problems has been observed with concern among allied health professionals (e.g. Jureidini, 1996; Mellor et al., 1996). The concerns about this disorder reflect the complexities involved in the aetiology, diagnosis and treatment of ADHD (Mellor et al., 1996). For example, no single theory on the development of ADHD can adequately account for all the behaviours displayed in this disorder. Despite no single theory been able to explain all the behaviours described in ADHD, this disorder tends to be viewed as having a biological basis with a medical approach to treatment governing intervention options (Mellor et al., 1996). The concerns regarding ADHD have led researchers to suggest that there has been a failure to attend to the role that parenting, emotional issues and other family factors play in contributing to the development of the disorder (Jureidini, 1996).

One outcome has been a move away from viewing ADHD in terms of a disease model to reformulating this disorder within an attachment theory framework (Refer to section 1.4). Attachment theory has been applied to help outline a possible pathway for the development of ADHD within the family context. Two models were described in the literature (i.e. demand-dissatisfaction cycle, Stiefel (1997) and a model based on developmental trauma, Ladnier & Massanari, 2000) proposing potential pathways in the development of ADHD based on attachment difficulties, family stressors and trauma.

These models specifically proposed that there may be an association between ADHD and an insecure attachment relationship. Despite this proposition, research investigating an association between attachment insecurity and ADHD has been limited. The literature review identified two studies (Clarke et al., 2002; Pinto et al., 2006) that had examined this association, the results of which were conflicting. Clarke et al. (2002) supported the association between ADHD and attachment insecurity, whereas Pinto et al. (2006) did not.

The perspective that attachment theory might provide a meaningful context in which to interpret the behaviours displayed in ADHD, combined with a lack of research investigating the association between attachment insecurity and ADHD highlighted the need for further research in the area. The aim of this study was to further investigate the attachment patterns in children with ADHD. Hypothesis one was therefore developed to specifically examine the assertion that ADHD was associated with an insecure attachment pattern. Hypothesis one proposed that in comparison with the normative data, children with a diagnosis of ADHD would have a higher proportion of insecure attachment patterns.

Hypothesis two was developed to expand on hypothesis one by further examining the attachment patterns in two different groups of children with ADHD. There has been limited research undertaken comparing the attachment patterns in different samples of children with ADHD. In this study looked after and accommodated children were included to represent a high risk comparison group for ADHD and attachment

insecurity. This was derived from the research suggesting that looked after and accommodated children are a high risk population for both ADHD and insecure attachment patterns (Roy et al., 2004; Refer to section 1.5). Therefore in hypothesis two it was suggested that in comparison to children that live with their biological parents, LAAC (looked after and accommodated children) with ADHD would demonstrate a higher proportion of insecure attachment patterns and a lower proportion of secure attachment patterns.

Attachment theory (Refer to section 1.3) suggests that an insecure attachment pattern is associated with difficulties in forming trusting relationships and a greater display of externalizing and internalizing problems including aggression, oppositional behaviours and depression (Lewis et al., 1984). Conversely, a secure attachment pattern is associated with good quality trusting reciprocal relationships and healthy emotional and psychological functioning (Ainsworth, 1979). Based on the accumulation of evidence supporting an association between attachment insecurity and potential difficulties in emotional and behavioural functioning, it was hypothesized that in comparison to children with a secure attachment pattern, children with an insecure attachment pattern would demonstrate higher scores on the indices of: social, emotional, oppositional, anxiety and perfectionism.

The final hypothesis explored the assertion that in comparison to the parents/guardians of children with a secure attachment, the parents/guardians of children with an insecure

attachment pattern would demonstrate higher levels of stress. Similar to the points raised above, attachment insecurity has been associated with stress in the attachment relationship. For example, when parental attention is impeded by other factors (i.e. stressors); the child may develop strategies to regain their attention. This may take the form of impulsive, disruptive behaviours. Negative parental responding to these behaviours may develop into a negative pattern of interaction that can help establish an insecure attachment relationship (Patterson, 1986, Erdman, 1998). Therefore, hypothesis four was developed to examine the association between attachment insecurity and parental/guardian stress in children with ADHD.

4.3.2 Hypothesis 1: Comparison of insecure and secure attachment patterns between children with ADHD and a normative sample.

Based on the suggestion that ADHD may develop within the context of an insecure attachment relationship (Stiefel, 1997; Ladnier & Massanari, 2000), it was hypothesised that children would display a higher proportion of insecure and a lower proportion of secure attachment patterns compared with the existing normative data. In order to investigate hypothesis one, the insecure attachment patterns in the analysis were composed of insecure-avoidant and insecure-resistant. The analysis of the data revealed there was no significant difference in the proportion of insecure and secure attachment patterns between children with ADHD and the normative data. This finding appears to support the research by Pinto et al. (2006) who also found no association between attachment insecurity and ADHD.

However, this finding goes against the previous research which has shown an association between ADHD and attachment insecurity (e.g. Clarke et al., 2002) and the theories proposing ADHD is associated with attachment insecurity (Stiefel et al., 1997). These researchers have proposed that the attachment patterns of insecure-resistant and insecure-disorganized are specifically relevant to children when considering the association between attachment and ADHD (Stiefel, 1997; Clarke et al., 2002). This is because the description of behaviours displayed by children with these attachment patterns and ADHD are similar e.g. hyperactivity, inattention, impulsiveness.

As mentioned above, the insecure attachment patterns used in this analysis were that of insecure-avoidant and insecure-resistant. However, the insecure-disorganised attachment pattern was not included in the analysis, although a number of children had been classified in this category within the ADHD sample. This was because the normative sample did not allow for a direct comparison to be made between the two samples with the inclusion of the disorganized attachment pattern. Therefore it is possible that one explanation for a failure to find a difference in the proportion of insecure attachment patterns between the two groups was that the disorganized category was not included in the comparison. This may have impacted on the results, given that the previous research has specified that both insecure-resistant and insecure-disorganized attachment patterns might be associated with ADHD. Had the disorganized attachment pattern allowed for direct comparison between the two studies, it is possible that a difference may have been found.

It is also possible that had the disorganized category been included, it may have impacted little on the study findings. As previously noted, the initial findings of this hypothesis could be interpreted as providing further support for the Pinto et al. (2006) study, as they also failed to find an association between ADHD and attachment insecurity. The research by Pinto et al. (2006) investigated the assertion that ADHD was associated with attachment insecurity by examining whether disorganized attachment "in infancy" would be associated with later development of ADHD in childhood. The findings of the study showed no clear cut association between infant disorganized attachment and later development of ADHD in a sample of mother-child attachment relationships (Pinto et al., 2006). Adding to the Pinto et al. (2006) research, this study could be taken to indicate that there is also no association between ADHD and insecure-avoidant and insecure-resistant attachment classifications.

Furthermore, not all studies have shown the distribution of attachment classifications to differ between normative and clinical samples. In fact research has shown the distribution of attachment classifications in clinical samples to be equivalent to normative samples. A meta-analysis on the distribution of attachment classifications in clinical samples has shown the distribution to be similar to the normative samples when child difficulties were the main problem identified (van IJzendoorn et al., 1992). Van IJzendoorn et al. (1992) showed that the distribution in attachment patterns only diverged from the norm in clinical samples when maternal difficulties have been identified as being the primary problem. This finding may provide a further explanation

for why there was no difference in the proportion of attachment patterns between the two groups.

Although there was no significant difference shown in the insecure attachment patterns of children with ADHD and the data from the normative sample, it is worth mentioning that the proportion of insecure-resistant attachment patterns was higher in children with ADHD (Refer to Appendix 8 and 13). This would appear to suggest evidence of a trend that children with ADHD might have a higher rate of insecure-resistant attachment patterns. Furthermore, there was no evidence of an equivalent trend in the distribution of the insecure-avoidant attachment pattern in children with ADHD (Refer to Appendix 8 and 13). This trend could be interpreted as preliminary evidence in support of the research suggesting that ADHD is related to an insecure-resistant attachment pattern (Stiefel, 1997; Clarke et al. 2002; Golding, 2004).

4.3.3 Hypothesis 2: Attachment patterns in LAAC and non-LAAC with ADHD.

The analysis of hypothesis two found no significant difference in the proportion of attachment patterns between the two groups of children with ADHD (i.e. children that were looked after and accommodated and children that were living with their biological parents). Looked after and accommodated children were included in the study sample as they represent a high risk population for both early disruptive experiences and ADHD. Given the background history of children that are looked

after and accommodated (refer to section 1.5.) the research has shown an accumulation of evidence in support of high rates of insecure attachment patterns within this population (Minnis & Del Priore, 2001). It was therefore expected that in a sample of children with ADHD, those who were looked after and accommodated would display a higher proportion of insecure attachment relationships compared to children living with their biological parents. However, the results of hypothesis two showed that there was no significant difference in the attachment patterns between the two groups.

The finding that the two groups did not differ significantly is definitely surprising and not easy to interpret. One explanation put forward is that it is possible that the background histories of both samples were more similar than expected. For example, research has showed that the background histories of children in care are mainly characterized by chaotic family environments and family dysfunction (Beddington & Miles, 1989). At the same time research has also found greater family dysfunction (DuPaul et al., 2001) and environmental adversity (McGee et al., 1991) in families with children with ADHD compared to families with children without ADHD. Furthermore parent-child interactions have been shown to be less positive and more controlling in children with ADHD compared to children without ADHD (DuPaul et al., 2001). For example, high levels of control have been predicted within the context of the parent-child attachment relationship in the presence of both hyperactivity and non-compliance (Campbell et al., 1991).

Given the evidence reported above, it is possible that factors including family dysfunction and environmental adversity negatively impacted on the development of a positive parent-child attachment relationship in children that were living with their biological parents. At the same time the research has also shown these factors to negative influence the attachment patterns of children in care (Wolking & Rutter, 1973; Stein et al., 1994). Therefore in the current study, children in the looked after and accommodated group may not have represented a high risk sample compared to children that were living with their biological parents, as both may have experienced similar background histories.

This highlights a potential methodological flaw in the current study as no measure was included to examine in detail the background histories of the two groups of children with ADHD. In addition there was no independent way of knowing that children that were in the looked after and accommodated group had disruptive early experiences because these children may have come into care for a variety of reasons not just chaotic parenting. However, if this was an adequate explanation, it would be predicted that the testing of hypothesis one would have shown a different distribution of attachment patterns for the entire ADHD sample compared with the normative data. Despite the absence of a measure for the background characteristics of the groups, one would still expect that a difference would have been found given the extensive research demonstrating an association between attachment insecurity and being looked after.

Research investigating the elevated rates of ADHD seen in looked after and accommodated children and their association with attachment difficulties has often focused on children that have been institutionalized (Kreppner et al., 2001). In the current study, the looked after and accommodated group comprised children that were adopted and children residing in kinship care. It is possible that the association between elevated rates of ADHD and insecure attachment difficulties is not as strong in children residing in other care options (i.e. residential, secure, kinship etc.). Nevertheless, this explanation cannot fully explain the finding that children in the looked after and accommodated group did not show a significant difference in insecure attachment patterns compared to children living with their biological parents.

Similar to hypothesis one, it is worth noting, that the proportion of attachment patterns between the two groups revealed a trend in support of hypothesis two. A higher percentage of insecure attachment patterns and a lower percentage of secure attachment patterns was seen in children that were looked after and accommodated compared to children living with their biological parents (refer to Figure 2 pg.85). Although, not significant the trend seen is consistent with the research findings that has shown an association between early disruptive experiences, being in care and the development of an insecure attachment pattern (Minnis & Del Priore, 2001). It is possible that the trend of a higher proportion of insecure attachment patterns and lower proportion of secure attachment patterns in the LAAC group would have been

significant if a number of participants within this group had not had to be excluded due to technical problems with the camcorder. These participants had completed all the study measures; however, the MCAST data could not be analyzed even though it had been recorded successfully due to technical difficulties. In conclusion then the findings of hypothesis two did not show a significant difference between the attachment patterns of the two groups.

4.3.4 Hypothesis 3: Attachment patterns and their association with difficulties in other areas of functioning.

Hypothesis three proposed that compared to children with a secure attachment pattern, children with an insecure attachment pattern would have higher scores in the following areas: social problems, anxiety problems, oppositional problems, emotional problems and problems with perfectionism. However, the analysis of the data showed no significant difference between the two groups. This implies that children with an insecure attachment pattern and children with a secure attachment pattern do not differ to each other with regards to the above areas. This finding is perhaps surprising, given that attachment insecurity has been linked with difficulties in the above areas (e.g. Lewis et al. 1984; Lamb et al., 1985). Furthermore, a secure attachment pattern has been posited to positively influence such areas (Ainsworth, 1979).

In the current study the Conner's Parent Rating Scale was used to measure participants' internalizing and externalizing difficulties. The Conner's Parent Rating Scale is a parental report measure of internalizing and externalizing difficulties in the child. One explanation put forward of the failure of the current study to find a difference between insecure and secure children's scores in these areas of functioning is possible due to distorted parental attributions associated with ADHD. Researchers have raised awareness of the importance of considering parental attributions as parent's explanations of their parenting role have significant implications for how they approach their behavioural and emotional responses to the child (Bugental et al., 1998). The manner in which parents respond to their child is therefore influenced by the interpretation they give to the child's behaviour (Bugental et al, 1998). For example, research has shown that negative parental responding to their child's behaviour difficulties is associated with their opinion that the behaviours displayed are deliberate and pervasive (Bugental et al., 1998).

Studies investigating if a diagnosis of ADHD in children influences parental attributions have shown that when rating children's negative behaviours, parents associate these difficulties to lack of effort by the child to manage them and to medication difficulties (Jensen et al., 1998). Furthermore, studies examining parental attributions of children with ADHD have shown child behaviour difficulties to be attributed to causes that are within the child (Saltmarsh et al., 2005). A study by Njardvik (2001) comparing parental attributions of children with ADHD and a control

group found that parents of children with ADHD were more likely to view hyperactivity, impulsiveness and oppositional behaviours as been stable and difficult to change. As a result parents felt they were less responsible for helping to manage inattenative and impulsive behaviours expressed by their child (Njardvik, 2001). Erdman (1998) drew attention to the consequences of viewing ADHD as problems internal to the child and highlighted that children may feel isolated as they are seen as the main contributing cause of the problem.

Given the studies reported above, the failure to find a difference between children with ADHD with an insecure and secure attachment pattern may be explained by parents attributing difficulties in behaviour to stable factors within the child associated with having received a diagnosis of ADHD. Therefore, when asked to evaluate their child's frequency of problematic behaviours on the Conner's Parent Rating Scale parental attributions related to their child's diagnosis may have influenced how parent's rated the behaviours. This would have influenced the data by internalizing and externalisng problems being rated on the Conner's Rating Scale similarly in children with ADHD with either an insecure and secure attachment pattern.

Despite the finding that children with ADHD with either an insecure or secure attachment pattern did not differ on the indices of social, emotional, oppositional, anxiety and perfectionism, the study does raise awareness of the need for a broader approach to the assessment and intervention of problematic behaviours expressed in

children with ADHD. Each individual child's difficulties should be formulated in an idiosyncratic way rather than assuming that all children who meet the diagnostic criteria for ADHD have developed their difficulties by progressing along a similar developmental path. Evidence in support of this is perhaps reflected in the observation that no one theory on the development of ADHD can clearly account for the development of the disorder. A broader approach to assessment would help identify other potential areas of difficulty (e.g. the attachment relationship) and remove the focus from internal child variables associated with the diagnosis of ADHD. Furthermore the identification of an insecure attachment pattern in children with ADHD would help formulate interventions that also consider the influence of the attachment relationship.

Researchers have suggested that interventions for problematic behaviours should be considered within the context of their function (Crittenden, 1992). As discussed in section 1.3.1 insecure attachment patterns develop within the context of unavailable, unresponsive and inconsistent caregiving. In response, the child adopts strategies of communicating with the parent that often involve negative behaviours and affect, the function of which is to gain the attention of the parent/carer (Golding, 2004). What is suggested by the current finding is that for children with ADHD in the insecure group, interventions should also consist of addressing attachment related issues. This is because what are viewed as ADHD behaviours (hyperactivity, inattention, impulsiveness) may actually reflect difficulties in the attachment relationship (Ladnier

& Massanari, 2000;Clarke et al., 2002). Furthermore, Clarke et al. (2002) reported that not all children with ADHD will demonstrate an insecure attachment relationship but for children that do enduring treatment outcomes for problematic behaviour may be found when difficulties in the attachment relationship are initially addressed.

4.3.5 Hypothesis 4: Attachment patterns and their association with parent/guardian stress.

Hypothesis four proposed that in comparison to the parents/guardians of children with a secure attachment relationship, the parents/guardians of children with an insecure attachment relationship would have higher levels of stress. The results of the statistical analysis supported this hypothesis. The parents/guardians of children with an insecure attachment pattern displayed higher levels of stress. This finding supports the previous research which has found that parenting stress is associated with attachment insecurity (Jarvis & Creasey, 1991), whereas lower levels of parental stress is associated with positive parent-child interactions (Hadadian & Merbler, 1996).

Research has shown that when parental responding to children is impeded by other external factors (i.e. parental stress) children adopt strategies to gain their attention. These strategies can take the form of disorganized, hyperactive, impulsive, disruptive behaviours to communicate with unresponsive/unavailable caregivers (Erdman, 1998; Golding 2004). Furthermore, children may continue to escalate their behaviours to ensure parental responding. For example, Crittenden (1992) reported that the behaviours

children with an insecure attachment pattern display serve as a way to explore the environment in the absence of caregiver availability, and the expression of anger serves the function of signaling to the caregiver their experience of danger/fear. This can lead to parental responding characterized by over controlling and punitive parenting practices. The reciprocal nature of parent-child interactions reinforces a coercive pattern of interaction between them (Patterson, 1986). This helps to establish an insecure parent-child attachment relationship (Erdman, 1998).

It is possible that the behaviours displayed in children with ADHD in the insecure group were reflective of difficulties in the attachment relationship and served the function of gaining parental attention. Studies have shown that children can choose to exhibit ADHD type behaviours under certain circumstances and not in others (Fachin, 1996). This highlights how the behaviours of impulsivity, hyperactivity and inattention may act as a strategy for gaining parental attention within the context of the parent-child attachment relationship. Furthermore, Stiefel (1997) in his model of ADHD (refer to section 1.4.2) emphasized the importance of parenting stress as a risk factor in the later development of ADHD and an insecure attachment relationship. He argued that for certain children, stress and attachment issues may reflect a pathway to the later development of ADHD. However, this will not always be true for all children with ADHD. This highlights how ADHD may develop in different individuals along alternative developmental pathways.

4.3.6 Summary of Hypotheses

Overall the findings of the current study found that children with ADHD do not have higher rates of insecure attachment patterns compared with the normative data. The examination of two different groups of children with ADHD revealed no significant difference between their attachment patterns. Although, a trend was seen for a higher proportion of insecure and a lower proportion of secure attachment patterns in children that were looked after and accommodated. In addition, no difference was found between secure and insecure children with ADHD in social problems, oppositional problems, anxiety problems, emotional problems and problems with perfectionism. A significant difference was however shown between secure and insecure children with ADHD and parent/guardian stress. The parents/guardians of children with ADHD and an insecure attachment relationship had higher levels of stress.

4.4 Methodological Appraisal

Interpretation of the findings of the study must be considered within the context in which the study was undertaken. The subsequent section in the discussion will give consideration to the methodology applied in the study and factors that may have impacted on it.

4.4.1 Limitations of Study Design

Control Group

On reflection perhaps one limitation of the study design is the lack of a control group. The inclusion of a control group in the study would have allowed for the disorganized attachment pattern to be compared between the groups and allowed participants to be matched. This would have perhaps allowed for more rigorous control between the groups when comparing their attachment patterns. Nonetheless, there were other studies available which have extensively researched the distribution of attachment patterns that could be used for comparison.

A control group was not included in the current study due to factors including access and availability of control participants and time constraints. For example if control participants had been included in the study they would have been recruited from the local primary schools. This would have involved obtaining the necessary permission from the Education Department. As mentioned in section 4.4.4 obtaining ethical approval and management approval for the study was a long process. Due to time constraints the addition of gaining approval from the Education Department would not have been feasible within the time available to undertake the study.

Measures of Attachment

In the current study the MCAST was used to examine the attachment representations of children with ADHD. The MCAST procedure represents a relatively new method for identifying the attachment patterns of school age children by asking them to complete a story intended to evoke attachment related topics (Green et al., 2000). The hypothesis behind the development of the measure is that children will demonstrate their feelings associated with the attachment relationship through the use of the dolls to finish the story (Green et al., 2000). To date two main studies have been carried out examining the reliability and validity of the measure and its association with other measures of attachment (Green et al., 2000; Goldwyn, 2000). The outcome of these studies has been positive, supporting the measure as being reliable and valid. Since the development of the MCAST procedure, it has been used to assess attachment representations in other studies and appears to be becoming the measure of choice for attachment in childhood.

However, as discussed in the introduction (refer to section 1.3.3), the difficulty with designing measures of attachment representations beyond infancy is that children's developmental progress and how it may impact on attachment measures must be considered (Thompson & Raikes, 2003). For example, it is observed that when interviewing children that are more cognitively able using the MCAST, engagement in the stories is more difficult. In these circumstances the child consciously makes reference to him/herself in the story (e.g. use of the word I) and relates past experiences

to the experiences the dolls in the stories (e.g. "this has happened to me"). Therefore it is possible that for these children the MCAST is not giving a true representation of the child's feelings and beliefs about the attachment relationship. In addition, although the measurement of attachment representations in infancy through the use of the Strange Situation procedure has been extensively validated, no measure of attachment has been standardized as the ideal on which to benchmark other measures beyond infancy (Thompson & Raikes, 2003). The continuation of research using the MCAST is therefore necessary before it can be seen as the gold standard for measuring attachment in childhood. This research should continue to provide evidence of the validity of the measure and its association with other measures of attachment. Despite these observations the MCAST represents an important advancement in the measure of attachment in childhood.

Diagnosis of ADHD

As previously discussed, ADHD has a high co-morbidity with other disorders. Specifically, it has been associated with oppositional defiant disorder and conduct disorder (Refer to section 1.2). The current study aimed to control for the potential influence co-morbid disorders would have on the findings by including the exclusion criteria that children could not have another predominant medical or psychological condition. However, co-morbid disorders are not always reported at time of referral. Given the high co-morbidity between ADHD and other disorders it is possible that

despite the precautions taken to exclude participants with co-morbid disorders some may have been included in the study. The study did not specifically screen participants for potential co-morbid disorders to confirm they had none. On reflection this may have been a useful strategy to have employed. In the Clarke et al. (2002) study co-morbid disorders were identified in his sample of children with ADHD however, co-morbidity was not an exclusion criteria. In the current study it is therefore possible that some children with ADHD had a co-morbid disorder, it may not have impacted on the results. Nevertheless, it would therefore have been beneficial to screen for other disorders and control for there influence.

Furthermore, as discussed in section 2.4., all children who took part in the study had received a diagnosis of ADHD prior to being referred to the clinical psychology department. Although all participants had received a diagnosis of ADHD, no differentiation was made at time of referral between the three subtypes of the disorder (i.e. predominantly inattentive, predominantly hyperactive or combined type) as described in the DSM-IV. Therefore, it was not possible to distinguish which subtype participants would have been categorised as and explore for their possible affect. It is possible that the different subtypes of the disorder might have influenced the association with attachment insecurity differently. In the Clarke et al. (2002) study, following the DSM-IV criteria participants' subtypes of ADHD were identified. However, similar to the current study they also did not explore individual subtypes for their association with attachment insecurity and combined each to form the ADHD group. Had the Clarke et

al. (2002) study or the current study examined participants subtyping of the disorder and their association to attachment insecurity, it may have yielded more extensive findings related to ADHD and attachment insecurity.

Medication

In the current study not all children with ADHD were taking medication to assist them with managing the core behaviours of ADHD (i.e. impulsiveness, hyperactivity and inattention). There was no inclusion or exclusion criterion specifying that children with ADHD had to be taking or not taking medication. Therefore the current study did not take into consideration the impact of medication status on the study findings and control for its potential influence. On reflection, this may have been a useful strategy to have used. Research has shown that medication can positively influence negative parent-child interaction patterns by reducing the frequency of difficult behaviours (Danforth et al., 1991). This has been taken to indicate that difficulties in interactions are primarily due to factors internal to the child (Clarke et al., 2002). However, according to Clarke et al. (2002) the use of medication may actually be masking difficulties in the attachment relationship. Therefore, it would have been interesting if the current study had controlled for medication status and examined if children with ADHD attachment patterns differed depending on their medication status.

4.4.2 Participant Sample

To determine the necessary sample size to ascertain statistical power for the study, Cohen's (1992) method was used. Following Cohen's (1992) method it was established that to achieve sufficient power, 39 participants would be required in performing the chi-square tests and 26 participants in each group would be required in performing the independent-samples t test.

In total 45 families consented to take part in the study. However, 8 participants were subsequently excluded from the study for reasons including incomplete data, technological problems and potential co-morbid autism spectrum disorder. All of the remaining participants' data were included in the current study, a total of 37 participants. This number is slightly below that necessary to achieve statistical power when performing a chi-square test. This may have impacted on the current study's failure to find a significant difference in hypothesis 1 and hypothesis 2. For example looking at the data for these two hypotheses, a trend was seen in support of what was predicted (refer to section 3.3.1 and 3.3.2).

It was established that 26 participants in each group would be required to achieve statistical power when performing the independent samples t-test. As the total sample size was 37, it did not achieve power. However, upon reflection, it is likely that more than 52 participants would have been necessary in the current study to achieve power

for hypotheses 3 and 4. This is because it could not be predicted prior to recruitment what proportion of children with ADHD would have been in the secure and insecure groups, as the attachment patterns of the children were assessed as part of the study. In the current study, a total of 21 participants made up the insecure group and 16 participants made up the secure group. Both groups did not therefore meet the required number of participants to reach statistical power.

4.4.3 Technological Difficulties

The MCAST procedure requires that the interview is video taped to allow for the interview to be rated and coded appropriately. On a number of separate occasions technical difficulties with the video camcorder resulted in participants being excluded from the study. This was due to the camcorder malfunctioning. As a result the video tape could not be removed from the camcorder and could not be viewed. The participants excluded from the study because on technical difficulties with the recording equipment were mainly children in the looked after and accommodated group. Given that the study required additional participants to obtain statistical power, the exclusion of these participants from the study based upon technical problems was unfortunate.

4.4.4 Time Restrictions

Time restrictions were an influential factor in the current study. This was due to a number of reasons including meeting fixed deadlines (i.e. ethical approval, research and developmental approval and study completion submission dates), duration of the ethical approval and research and development approval process and subsequent restriction of the duration of the data collection period.

The time taken from the submission of the relevant forms for both ethical approval and research and development approval, to the time when approval for the study was obtained, was a long procedure. This process combined with the requirement that the study was undertaken within the context of a date for completion, impacted on the length of time available for the identification and recruitment of participants and on the data collection period. For example, a number of families expressed an interest in taking part in the study. However, as the children in these families were in foster care, social work consent was required. As a result of time restrictions, social work consent was not obtained before the data collection period had finished. Furthermore, had a longer time period been available, it may have been possible to apply for ethics approval centrally, thereby increasing the identification and recruitment of potential participants to other regions in Scotland.

4.5 Theoretical Implications

Attachment and ADHD

As discussed in section 1.4 attachment theory has been invoked to help provide a meaningful context for understanding the behaviours described in ADHD. This was in response to current theories on the development of ADHD been criticized for neglecting the psychological factors associated with it. Based on attachment theory, two main models have outlined a possible pathway for the development of the disorder (Stiefel, 1997; Ladnier & Massanari, 2000). These models described how the behaviours displayed in ADHD may develop in response to an insecure attachment relationship. A subsequent study by Clarke et al. (2002) and Pinto et al. (2006) investigated this proposed hypothesis and reported conflicting findings. Clarke et al. (2002) confirmed the hypothesis, whereas Pinto et al. (2006) did not. Adding to this evidence base, the results of this study did not find an association of a higher proportion of insecure attachment patterns in children with ADHD.

At first glance, this might be interpreted as evidence against the two models. However, although this study failed to replicate the findings of Clarke et al. (2002), it did find that attachment insecurity in children with ADHD to be associated with higher levels of parental stress. Stiefel's (1997) model on ADHD proposed that for some children, difficulties in the attachment relationship and stress may be sufficient for the development of ADHD. As already discussed when parental availability is impeded by

other factors, children may exhibit behaviours to gain their attention and these behaviours can include hyperactivity, impulsivity, inattention (Golding, 2004). It is possible that for some of the children in the current study with an insecure attachment pattern, stressors in the parent-child relationship served as risk factors in the later development of ADHD. In order to confirm this hypothesis further research is needed to examine the impact of stress on the development of ADHD. Furthermore, in order to provide support for a possible pathway in the development of ADHD based on attachment theory, what is required is longitudinal research which examines each of the variables proposed in the two models and how they impact on the development of ADHD (Clarke et al., 2002). This would provide essential information on the development of ADHD.

4.6 Clinical Implications

Although no significant difference was shown in the attachment patterns of children with ADHD and children from a normative sample, it is acknowledged that there was a high percentage of children within the ADHD sample that were classified as insecure. In addition, the parents/guardians of children with ADHD and an insecure attachment had significantly higher levels of stress compared to the parents/guardians of children with a secure attachment relationship. In this study the high percentage of children with an insecure attachment pattern and its association with parent/guardian stress, should raise awareness, that for some children with ADHD attending mental health services, it may be useful to investigate the parent-child attachment relationship.

As previously discussed a coercive pattern of interaction between parent and child can help establish an insecure attachment relationship. Therefore, for children with ADHD and an insecure attachment relationship, viewing problematic behaviours within the context of the attachment relationship may be helpful for explaining their occurrence. Researchers have suggested that by considering the context in which the child's behaviour is occurring, clinicians can address attachment issues between the parent and child and the problematic behaviours (Crittenden, 1992). In clinical practice, it might also help reduce the tendency of viewing ADHD as a problem within the individual child by taking on a more contextual approach to the behaviours observed (Erdman, 1998). Particularly relevant to clinical practice is the observation of DeKlyne (1996) who noted that difficulties in the attachment relationship may need to be addressed initially before lasting changes can be expected from treatment interventions (e.g. behavioural parent training). Given the rise in referrals for children with ADHD-related problems to the mental health services (Mellor et. al., 1996), addressing attachment related issues might be particularly helpful.

4.7 Directions for Future Research

Although researchers have proposed an association between ADHD and attachment insecurity (Stiefel, 1999), to date there have been limited research studies specifically investigating that hypothesis. The current study adds to this body of research; however it leaves unanswered many questions about ADHD and attachment insecurity. For

example, even though the current study failed to find a significant difference in the distribution of attachment classifications between children with ADHD and a normative sample, trends displayed in the data seemed to indicate that children with ADHD may display a higher proportion of insecure-resistant attachment patterns. The replication of the study with a larger sample size may confirm this trend. Furthermore, as this study did not confirm the findings of the Clarke et al. (2002) study, it would also be useful to see if the findings would be confirmed or refuted in a replication of the study with a larger sample size.

The inclusion of children from a clinical psychology department in the current study may not be a representative sample of children with ADHD. This is because in addition to their diagnosis of ADHD, children in this study also had additional difficulties. Therefore, future research should consider investigating the attachment patterns of various groups of children with ADHD. For example, children with ADHD from a community sample (Clarke et al., 2002). Additionally, it would be interesting to explore if differences exist in the attachment patterns of children between the three subtypes of ADHD. These comparisons would help establish if ADHD is associated with attachment insecurity or if the distribution of attachment classifications in children with ADHD differs from normative samples based on the subtype of the disorder.

In the current study, not all children were taking medication for their symptoms of ADHD. It would be interesting to investigate if children's attachment patterns differed as a result of being on medication. Previous research investigating the impact of medication on parent-child patterns of interaction has shown coercive patterns of interaction to reduce following treatment with medication (Danforth, 1991). A pre-test and post-test study design assessing the attachment patterns of children with ADHD before and after treatment with medication would further add to the knowledge base on attachment patterns in children with ADHD. Additionally, it may help disentangle the behaviours associated with the symptoms of ADHD from the behaviours associated with an insecure attachment relationship. For example, the continuation of behaviour difficulties following medication in conjunction with the identification of an insecure attachment pattern may indicate difficulties are mainly due to attachment related issues.

The previous research investigating the attachment patterns in children with ADHD has been limited to children aged between 5 and 10 years (Clarke et al., 2002; Pinto et al., 2006). Therefore the findings of an association between ADHD and attachment insecurity may only be relevant to children with ADHD within this age range. Similarly, the findings of this study are only applicable to children with ADHD between the ages of 6 and 9 years. Further research is required to examine the association between ADHD and attachment insecurity across a broader spectrum of ages. For example, is there a higher distribution of insecure attachment patters evident in adolescents and adults with ADHD compared with adolescents and adults without

ADHD? Research with different age ranges of individuals with ADHD would assist in confirming or refuting the hypothesis of an association between ADHD and attachment insecurity.

The potential ideas outlined above for future studies investigating the attachment patterns in children with ADHD, highlights the necessity for research to continue to examine this area. Only with the continuation of further research in this area will it help to establish if there is a relationship between ADHD and attachment insecurity.

5. Conclusion

The aim of the current study has been to investigate the attachment patterns of children with ADHD. In particular this research explored the suggestion that ADHD is associated with attachment insecurity (Stiefel, 1997; Ladnier & Massanari, 2000). Although, the proposition that ADHD is linked with attachment insecurity has been implied by various researchers, limited research has specifically examined this hypothesis (e.g. Clarke et al. 2002; Pinto et al., 2006). In addition, the study examined the attachment patterns of children with ADHD for their association with difficulties in other areas of functioning (e.g. social problems) and with parent/guardian levels of stress.

In this study the MCAST procedure (Green et al., 2000) was used to reflect the internal working model of the attachment relationship in school age children with ADHD. Specifically, it was the mother-child attachment relationship that was explored. The identification of the attachment patterns of children with ADHD using the MCAST (Green et al., 2000) allowed the suggestion that ADHD is associated with attachment insecurity to be assessed. This was done by comparing the distribution of attachment patterns in children with ADHD with the attachment patterns of a normative sample and exploring the proportion of attachment patterns in two groups of children with ADHD.

Overall the findings reported in this study did not support the hypothesis that ADHD was associated with attachment insecurity. No significant difference was shown in the

distribution of attachment patterns between a sample of children with ADHD and children from a normative sample. Additionally, children with ADHD that were looked after and accommodated and children with ADHD that were living with their biological parents did not differ significantly in the distribution of their insecure and secure attachment patterns. No significant difference in scores on social problems, anxiety problems, emotional problems, oppositional problems and problems with perfectionism was found between children with ADHD and a secure and insecure attachment pattern. However, an insecure attachment pattern was found to be associated with higher levels of parent/guardian stress.

Despite the methodological limitations outlined, the findings of this study add to the dearth of research investigating the association between ADHD and attachment insecurity. Although no significant difference was found in the attachment patterns of children with ADHD and the normative data, the study did highlight that for some children with ADHD the assessment of attachment patterns may be beneficial. This is because presenting problems in children with ADHD and an insecure attachment pattern may represent difficulties in the attachment relationship rather than exclusively due to having received a diagnosis of ADHD. The current study also highlights the need for further research to examine the attachment patterns of children with ADHD from various sample populations and to investigate the relationship between attachment insecurity and ADHD in adolescents and adults.

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7. APPENDICES

APPENDIX 7.1 : Ethical Approval Letter

NHS

REC

Telephone: Ext
Facsimile:
Ref: L2259 06 S0501 99

14 February 2007

Dear

Full title of study: **Attachment Patterns in Children with Attention Deficit Hyperactivity Disorder.**

REC reference number: **06/S0501/99**

Thank you for your letter of 11 January 2007, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information was considered and approved under Chairs Actions on 14 February 2007.

Confirmation of ethical opinion

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

Conditions of approval

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

Approved documents

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

Document	*Version*	*Date*
Application	6	17 November 2006
Investigator CV		
Protocol	6.0	17 November 2006
Covering Letter		13 November 2006

Letter from Sponsor		17 November 2006
Compensation Arrangements		17 November 2006
Questionnaire: Relationship Problems Questionnaire		
Questionnaire: Parenting Stress Index		
Questionnaire: Conners' Parent Rating Scale (Revised (L)		
Letter of invitation to participant	6.0	17 November 2006
Letter of invitation to participant	5.0	11 January 2007
Participant Information Sheet: Attachment Patterns in Children with ADHD - Information for Prospective Participants	5.0	
Participant Information Sheet: Information Sheet for Childre	6.0	17 November 2006
Participant Information Sheet: Information for Prospective Participants	6.0	17 November 2006
Participant Consent Form: Assent form for Children	6.0	17 November 2006
Participant Consent Form: Informed Consent	6.0	17 November 2006
Participant Consent Form: Assent Form for Children	5.0	11 January 2007
Response to Request for Further Information		
Description of Story Tasks	5.0	11 January 2007
Amendment to Application Questions		

Research governance approval

The study should not commence at any NHS site until the local Principal Investigator has obtained final research governance approval from the R&D Department for the relevant NHS care organisation.

06/S0501/99

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.

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

Yours sincerely

Email:

Enclosures: *Standard approval conditions, SL-AC2*

Copy to:

APPENDIX 7.2: Research and Development Approval Letter

NH

Date 28 February 2007
Your Ref 06/S0501/99
Our Ref
Enquiries to .
Ext
Email

Dear

Project Title: Attachment Patterns in Children with Attention Deficit Hyperactivity Disorder

Thank you for your application to carry out the above project.

Your project documentation has been reviewed for resource and financial implications for NHS Fife Primary Care Division and I am happy to inform you that Management Approval has been granted, subject to all necessary Ethical approvals being in place.

Details of our participation in this study will be included in quarterly returns to the National Research Register and annual returns we are expected to complete as part of our agreement with the Chief Scientist Office. The enclosed Research Registration Form has been prepared and should be checked, signed and returned together with the attached NRR Form to the R&D Office, Lynebank Hospital, Halbeath Rd, Dunfermline KY11 4UW. If you have any questions or need further information contact . Research Coordinator on: ext or at

May I take this opportunity to remind you that all research undertaken in NHS Fife is managed strictly in accordance with the Research Governance Framework for Health & Community Care (http://www.sehd.scot.nhs.uk/cso/) and that all research should be carried out according to Good Clinical Practice (GCP). In order to comply with the RGF, the R&D Office are required to hold copies of all study protocols, ethical approvals and amendments for the duration of this study.

You will also be required to provide information in regard to monitoring and study outcomes, including a lay summary on completion of the research. I would like to wish you every success with your study and look forward to receiving a summary of the findings for dissemination once the project is complete.

Yours sincerely

DR
Medical Director, Primary Care
NHS

Cc :

APPENDIX 7.3: Participant Invitation Letter

Telephone:

Email:

Dear Parent(s)/Guardian(s)

I am carrying out a research study looking at relationship patterns in children with ADHD who live with their families of origin and children who do not live with their families of origin.

I would like to ask you and your child to take part in the study.

I have attached an information sheet about the study to help you decide if you and your child would like to take part. I have also attached information about the study for your child. Please give your child whatever help they need to understand this information.

If you are happy to take part in the study, please sign the enclosed consent and assent forms. Please return them in the stamped addressed envelope provided. If you require further information or have any queries about the study please do not hesitate to contact me at the above address.

Yours Sincerely

APPENDIX 7.4: Participant Information Sheet

Attachment Patterns in Children with ADHD

Information Sheet

Introduction

You are being invited to take part in a research study looking at the relationship patterns of children with ADHD. Before you decide if you and your child would like to take part in the study it is important that you know more about the research and what it will involve. Please take time to read the information sheet and ask any questions you may have with the researcher.

What is the study looking at?

Attachment is a type of relationship that first forms between a baby and the main caregiver(s). This first relationship helps the infant's further development. The nature of this first relationship can influence a child's later relationships and behaviour. As a result we all develop a certain type of relationship pattern.

To date little research has been carried out to assess the relationship patterns of children with ADHD.

The main aim of the study is to look at the relationship patterns of children with ADHD who live with their families of origin and children with ADHD who do not live with their families of origin.

Why have I and my child been chosen?

Two groups of children with ADHD are being asked to take part in this study: those who live at home with their families of origin and those who do not. Having two groups will allow us to compare the relationship patterns in both, to find out if there are any differences between them. You and your child have been invited to take part because at the moment he/she has been given a diagnosis of ADHD.

Do my child and I have to take part in the study?

- It is up to you and your child to decide to take part or not. Taking part in the study is voluntary.
- You can withdraw from the study at anytime without giving an explanation.
- Your child will be told at the start of the study and throughout that he/she can leave at anytime without giving a reason.
- If you and your child decide not to take part this will not affect the care you and your child will receive.

What will the study involve?

If you agree for you and your child to take part in the study, you will be asked to complete two brief questionnaires about your child's characteristics and difficulties and how you cope. These questionnaires will take about 20-30 minutes to complete in total. If you agree for your child to take part in the study he/she will be asked to finish a number of stories about relationships. This should take about 15-20 minutes to complete in total.

You and your child will only be asked to complete the questionnaires and story task once.

I will arrange a meeting with you and your child to complete the questionnaires and the story task. This will be carried out wherever is most convenient for you i.e. at home, at school or at your local Health Centre.

What are the possible advantages of taking part?

The information you and your child provide will be extremely valuable in helping to increase the existing knowledge about relationship patterns in children with ADHD.

What about expenses and payment?

You and your child will not be paid for taking part in the study or for expenses that you may incur.

Will participation in the study be kept confidential?

The information you and your child provide will be kept **confidential** in line with Departmental policies. The information collected from the study will be fully anonymous. You and your child will not be identified in any of the information gathered, the results or reports. The only person with direct access to your information will be the study researcher. The information gathered will be stored in a locked filing cabinet accessed by the researcher only. Information stored on computer will be password protected, accessed by the researcher only. All of the information held by the researcher will be held on a protected database in accordance with the Data Protection Act. If you have specific questions about you and your child's responses you can request a meeting with the researcher.

What will happen to the findings of the study?

The results will form part of a doctoral thesis submitted to the University of Edinburgh by the study researcher. You will not be identified in the thesis.

If you or your child would like information about the study results you can request a summary of them. You and your child can also request a meeting to discuss the study results further.

Who else knows about the study?

The study has been evaluated by Research Ethics Committee, Primary Care NHS Trust and by the University of Doctorate in Clinical Psychology Course Organisation Committee.

What should I do if I want my child and I to take part?

If you and your child want to take part:

- If you are happy for you and your child to take part, please sign the consent form and assent form. If your child is able to understand what the study is about and wishes to take part he/she can sign the assent form with you.

- Send the signed forms back to the Study Researcher, in the envelope provided.

- I will telephone you to arrange the details of the time and place that is suitable for you and your child to meet with me to carry out the study.

If you and your child do not wish to take part:

- There is no need to do anything further.

If you have any questions about the study or want further information, please do not hesitate to contact me at the address below:

Thank you for your time

APPENDIX 7.5: Child Information Sheet

Information Sheet for Children

Dear _____

I want to find out more about children like you. I want to see how children like you get on with other people. I would like to find this out by seeing how they finish off stories. Please ask someone to read this sheet to you. Ask any questions you may have to help you understand it. This will help you find out if you would like to be part of this project.

I would like to meet with you to tell you some short stories. I would like you to finish off the stories. This will not take long.

The things you say and anything I write about you will not have your name on it. No one else will know exactly how you finish the stories or the things you did.

You do not have to be part of this project. No one will be upset or angry at you if you do not want to be in it. If you would like to take part in this project but later change you mind, that is okay. Just let your parent(s) /guardian(s) or me know. You do not have to tell us why you changed your mind and nothing else will change.

You can ask questions any time. You can ask now or you can ask later. Your parent(s)/guardian(s) know all about the project and you can talk to them about it. You can talk to me too by asking your parent(s)/guardian(s) to ring me.

Thank you

Study Researcher

APPENDIX 7.6: Consent Form

Consent Form
Attachment Patterns in Children with ADHD

Consent by parent/guardian for their child and themselves to participate in study

Please tick box

- The study has been explained to me and I have read and understood what the study will involve. ☐
- I have had the chance to ask questions by contacting , Study Researcher. ☐
- I know that the questionnaires and story task are part of the research study design to increase knowledge about relationship patterns in children with ADHD. ☐
- I am aware that the research has been granted ethical approval from the local NHS Ethics Committee. ☐
- I know that my child and I do not have to take part in the study. ☐
- I know that my child and I can withdraw from the study at any time without having to give a reason and this will not affect the standard of care received. ☐
- I consent to my child and I participating in the study. ☐

Name of Child (Print): _____

Name of Parent/Guardian (Print): _____

Signature of Parent/Guardian: _____ **Date**: _____

I confirm that I have full explained the intention and nature of this study to the above named parent(s)/guardian(s) and child. I have made available written information about the study and provided the opportunity to ask questions.

Name of Researcher (Print): _____

Signature of Researcher: _____ **Date:** _____

APPENDIX 7.7: Child Assent Form

Assent Form for Children

The assent form is to be completed by the child and their parent(s)/guardian(s). The parent(s)/guardian(s) are to complete the assent form on the child's behalf if the child is unable to do so.

Dear _____

If you want to take part in this project and know what it is about please tick all the boxes and write your name. Get you parent(s)/guardian(s) to help you with this.

	Please tick box
1. I have read or someone has read the information sheet about the project to me.	☑
2. Someone explained the study to me.	☐
3. I have been able to ask questions about the project.	☐
4. I know I do not have to be in the project.	☐
5. I know its okay to stop being in the project at any time.	☐
6. I know its okay not to tell why I do not want to be in the project.	☐
7. I want to be in the project.	☐

If you want to be in the project, please sign your name.

Thank you. I look forward to doing the stories with you.

Name of Child (Print): _____

Sign your Name: _____ **Date:** _____

Name of Researcher (Print): _____

Signature of Researcher: _____ **Date:** _____

APPENDIX 7.8: Data on the Distribution of Attachment Patterns from the Green et al. (2000) Study.

Table 2 Distribution of attachment categories (N = 53)

Category	*Frequency*	%
A1	11	20.8
A2	3	5.7
Total A	14	26.5
B1	11	20.8
B2	6	11.3
B3	9	17.0
B4	7	13.2
Total B	33	62.3
C1	3	5.7
C2	1	1.9
Total C	4	7.6
CC	2	3.8
Primary D	14	26.4
Non D	39	73.6

APPENDIX 7.9: Description of the Manchester Child Attachment Story Task

Description of the MCAST

Also Refer to section 2.6.1.

Materials

- Dolls House
- A range of male and female dolls
- Video Camcorder

Description of Vignettes

For each vignette the interviewer starts the story and asks the child to complete it by asking him/her what happens next?

Control Vignette

"Mummy doll and child doll are in bed asleep and the alarm goes off in mummy doll's room. Mummy doll gets up and goes down stairs to start breakfast. Then mummy doll calls to the child doll its time to get up."

Interviewer: Can you show and tell me what happens next?

(Green et al., 2007, pp10)

- **Attachment Vignettes.**

  1) **Nightmare vignette.**

"It is night-time and mummy doll and child doll are in bed asleep. It is the middle of the night and everyone is sound asleep. Everything is very dark. Then suddenly the child doll wakes up and says Oooh I've had a horrible dream...."

Interviewer: Can you show and tell me what happens next?

(Green et al., 2007, pp10)

2) **Hurt Knee vignette. Child doll hurts his/her knee**

"In this story its daytime and mummy doll is inside the house and the child doll is playing in the garden. The child doll is playing (insert game e.g. football) in the garden and the child doll is running, kicking the ball as he/she goes. Then suddenly oooh the child doll falls over and hurts his/her knee and looks down and sees its bleeding and it hurts and the child doll says ooowwww my knee hurts....."

Interviewer: Can you show and tell me what happens next?

(Green et al., 2007, pp10)

3) **Illness Vignette**

"In this story the child doll is watching T.V. What does the child doll like to watch on T.V.? (ask child) Mummy doll is next door in the kitchen. Suddenly the child doll gets a pain in his tummy and it gets worse and he/she says oohh I've got a pain in my tummy...and its getting worse...ooohh a horrible pain....."

Interviewer: Can you show and tell me what happens next?

(Green et al., 2007, pp11)

4) Shopping Vignette

"In this story mummy doll and the child doll go shopping. They go into the shopping centre and they look at all the shops and there are lots of people so they have to hold on tight to each other. They look in this shop here and they look at this shop here and then the child doll is looking at (ask child what shop is he/she looking at?). Then the child doll looks around and he can't see his mummy doll and there are people all around but mummy's not there. The child doll starts to get very scared and says where's my mummy...."(Green et al., 2007)

Interviewer: Can you show and tell me what happens next?

(Green et al., 2007, pp11)

APPENDIX 7.10: Parenting Stress Index Short Form (PSI/SF)

SA = Strongly Agree A = Agree NS = Not Sure D = Disagree SD = Strongly Disagree

1.	I often have the feeling that I cannot handle things very well.	SA	A	NS	D
2.	I find myself giving up more of my life to meet my children's needs than I ever expected.	SA	A	NS	D
3.	I feel trapped by my responsibilities as a parent.	SA	A	NS	D
4.	Since having this child, I have been unable to do new and different things.	SA	A	NS	D
5.	Since having a child, I feel that I am almost never able to do things that I like to do.	SA	A	NS	D
6.	I am unhappy with the last purchase of clothing I made for myself.	SA	A	NS	D
7.	There are quite a few things that bother me about my life.	SA	A	NS	D
8.	Having a child has caused more problems than I expected in my relationship with my spouse (or male/female friend).	SA	A	NS	D
9.	I feel alone and without friends.	SA	A	NS	D
10.	When I go to a party, I usually expect not to enjoy myself.	SA	A	NS	D
11.	I am not as interested in people as I used to be.	SA	A	NS	D
12.	I don't enjoy things as I used to.	SA	A	NS	D
13.	My child rarely does things for me that make me feel good.	SA	A	NS	D
14.	Sometimes I feel my child doesn't like me and doesn't want to be close to me.	SA	A	NS	D
15.	My child smiles at me much less than I expected.	SA	A	NS	D
16.	When I do things for my child, I get the feeling that my efforts are not appreciated very much.	SA	A	NS	D
17.	When playing, my child doesn't often giggle or laugh.	SA	A	NS	D
18.	My child doesn't seem to learn as quickly as most children.	SA	A	NS	D
19.	My child doesn't seem to smile as much as most children.	SA	A	NS	D
20.	My child is not able to do as much as I expected.	SA	A	NS	D
21.	It takes a long time and it is very hard for my child to get used to new things.	SA	A	NS	D

For the next statement, choose your response from the choices "1" to "5" below.

22.	I feel that I am: 1. not very good at being a parent 2. a person who has some trouble being a parent 3. an average parent 4. a better than average parent 5. a very good parent	1	2	3	4	
23.	I expected to have closer and warmer feelings for my child than I do and this bothers me.	SA	A	NS	D	
24.	Sometimes my child does things that bother me just to be mean.	SA	A	NS	D	
25.	My child seems to cry or fuss more often than most children.	SA	A	NS	D	
26.	My child generally wakes up in a bad mood.	SA	A	NS	D	
27.	I feel that my child is very moody and easily upset.	SA	A	NS	D	
28.	My child does a few things which bother me a great deal.	SA	A	NS	D	
29.	My child reacts very strongly when something happens that my child doesn't like.	SA	A	NS	D	
30.	My child gets upset easily over the smallest thing.	SA	A	NS	D	
31.	My child's sleeping or eating schedule was much harder to establish than I expected.	SA	A	NS	D	

For the next statement, choose your response from the choices "1" to "5" below.

32.	I have found that getting my child to do something or stop doing something is: 1. much harder than I expected 2. somewhat harder than I expected 3. about as hard as I expected 4. somewhat easier than I expected 5. much easier than I expected	1	2	3	4	

For the next statement, choose your response from the choices "10+" to "1-3."

33.	Think carefully and count the number of things which your child does that bother you. For example: dawdles, refuses to listen, overactive, cries, interrupts, fights, whines, etc.	10+	8-9	6-7	4-5
34.	There are some things my child does that really bother me a lot.	SA	A	NS	D
35.	My child turned out to be more of a problem than I had expected.	SA	A	NS	D
36.	My child makes more demands on me than most children.	SA	A	NS	D

APPENDIX 7.11: Conners' Parent Rating Scale-Revised Long Form (CPRS-R:L)

Conners' Parent Rating Scale–Revised (L)

by C. Keith Conners, Ph.D.

Child's ID: _____ **Gender:** M F (Circle One)

Birthdate: ___/___/___ (Month Day Year) **Age:** _____ **School Grade:** _____

Parent's ID: _____ **Today's Date:** ___/___/___ (Month Day Year)

Instructions: Below are a number of common problems that children have. Please rate each item according to your child's behavior in the last month. For each item, ask yourself "How much of a problem has this been in the last month?", and circle the best answer for each one. If none, not at all, seldom, or very infrequently, you would circle 0. If very much true, or it occurs very often or frequently, you would circle 3. You would circle 1 or 2 for ratings in between. Please respond to all the items.

		NOT TRUE AT ALL (Never, Seldom)	JUST A LITTLE TRUE (Occasionally)	PRETTY MUCH TRUE (Often, Quite a Bit)	VERY MUCH TRUE (Very Often, Very Frequent)
1.	Angry and resentful	0	1	2	3
2.	Difficulty doing or completing homework	0	1	2	3
3.	Is always "on the go" or acts as if driven by a motor	0	1	2	3
4.	Timid, easily frightened	0	1	2	3
5.	Everything must be just so	0	1	2	3
6.	Has no friends	0	1	2	3
7.	Stomach aches	0	1	2	3
8.	Fights	0	1	2	3
9.	Avoids, expresses reluctance about, or has difficulties engaging in tasks that require sustained mental effort (such as schoolwork or homework)	0	1	2	3
10.	Has difficulty sustaining attention in tasks or play activities	0	1	2	3
11.	Argues with adults	0	1	2	3
12.	Fails to complete assignments	0	1	2	3
13.	Hard to control in malls or while grocery shopping	0	1	2	3
14.	Afraid of people	0	1	2	3
15.	Keeps checking things over again and again	0	1	2	3
16.	Loses friends quickly	0	1	2	3
17.	Aches and pains	0	1	2	3
18.	Restless or overactive	0	1	2	3
19.	Has trouble concentrating in class	0	1	2	3
20.	Does not seem to listen to what is being said to him/her	0	1	2	3
21.	Loses temper	0	1	2	3
22.	Needs close supervision to get through assignments	0	1	2	3
23.	Runs about or climbs excessively in situations where it is inappropriate	0	1	2	3
24.	Afraid of new situations	0	1	2	3
25.	Fussy about cleanliness	0	1	2	3
26.	Does not know how to make friends	0	1	2	3
27.	Gets aches and pains or stomachaches before school	0	1	2	3
28.	Excitable, impulsive	0	1	2	3
29.	Does not follow through on instructions and fails to finish schoolwork, chores or duties in the workplace (not due to oppositional behavior or failure to understand instructions)	0	1	2	3
30.	Has difficulty organizing tasks and activities	0	1	2	3
31.	Irritable	0	1	2	3
32.	Restless in the "squirmy sense"	0	1	2	3
33.	Afraid of being alone	0	1	2	3
34.	Things must be done the same way every time	0	1	2	3
35.	Does not get invited over to friends' houses	0	1	2	3
36.	Headaches	0	1	2	3
37.	Fails to finish things he/she starts	0	1	2	3

Items continued on back page...

Conners' Parent Rating Scale–Revised (L)

by C. Keith Conners, Ph.D.

		NOT TRUE AT ALL (Never, Seldom)	JUST A LITTLE TRUE (Occasionally)	PRETTY MUCH TRUE (Often, Quite a Bit)	VERY MUCH TRUE (Very Often, Very Frequent)
38.	Inattentive, easily distracted	0	1	2	3
39.	Talks excessively	0	1	2	3
40.	Actively defies or refuses to comply with adults' requests	0	1	2	3
41.	Fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities	0	1	2	3
42.	Has difficulty waiting in lines or awaiting turn in games or group situations	0	1	2	3
43.	Has a lot of fears	0	1	2	3
44.	Has rituals that he/she must go through	0	1	2	3
45.	Distractibility or attention span a problem	0	1	2	3
46.	Complains about being sick even when nothing is wrong	0	1	2	3
47.	Temper outbursts	0	1	2	3
48.	Gets distracted when given instructions to do something	0	1	2	3
49.	Interrupts or intrudes on others (e.g., butts into others' conversations or games)	0	1	2	3
50.	Forgetful in daily activities	0	1	2	3
51.	Cannot grasp arithmetic	0	1	2	3
52.	Will run around between mouthfuls at meals	0	1	2	3
53.	Afraid of the dark, animals, or bugs	0	1	2	3
54.	Sets very high goals for self	0	1	2	3
55.	Fidgets with hands or feet or squirms in seat	0	1	2	3
56.	Short attention span	0	1	2	3
57.	Touchy or easily annoyed by others	0	1	2	3
58.	Has sloppy handwriting	0	1	2	3
59.	Has difficulty playing or engaging in leisure activities quietly	0	1	2	3
60.	Shy, withdrawn	0	1	2	3
61.	Blames others for his/her mistakes or misbehavior	0	1	2	3
62.	Fidgeting	0	1	2	3
63.	Messy or disorganized at home or school	0	1	2	3
64.	Gets upset if someone rearranges his/her things	0	1	2	3
65.	Clings to parents or other adults	0	1	2	3
66.	Disturbs other children	0	1	2	3
67.	Deliberately does things that annoy other people	0	1	2	3
68.	Demands must be met immediately — easily frustrated	0	1	2	3
69.	Only attends if it is something he/she is very interested in	0	1	2	3
70.	Spiteful or vindictive	0	1	2	3
71.	Loses things necessary for tasks or activities (e.g., school assignments, pencils, books, tools or toys)	0	1	2	3
72.	Feels inferior to others	0	1	2	3
73.	Seems tired or slowed down all the time	0	1	2	3
74.	Spelling is poor	0	1	2	3
75.	Cries often and easily	0	1	2	3
76.	Leaves seat in classroom or in other situations in which remaining seated is expected	0	1	2	3
77.	Mood changes quickly and drastically	0	1	2	3
78.	Easily frustrated in efforts	0	1	2	3
79.	Easily distracted by extraneous stimuli	0	1	2	3
80.	Blurts out answers to questions before the questions have been completed	0	1	2	3

APPENDIX 7.12: Letter of Appreciation for Participation in the Study

Dear .....

I would like to thank you for your time in taking part in my project. I enjoyed listening to the stories you told me. These stories helped me find out more about children like you. The stories helped me find out how children like you get on with other people.

My project will be finished in August 2007. I would be happy for you and your parent(s)/guardian(s) to talk to me about what I found out. You can talk to me by asking your parent(s)/guardian(s) to ring me.

Thank You

Study Researcher

APPENDIX 7.13: Output of preparation of data for analysis and descriptive statistics

Histograms, Skewness/ Kurtosis and Kolmogorov-Smirnov test

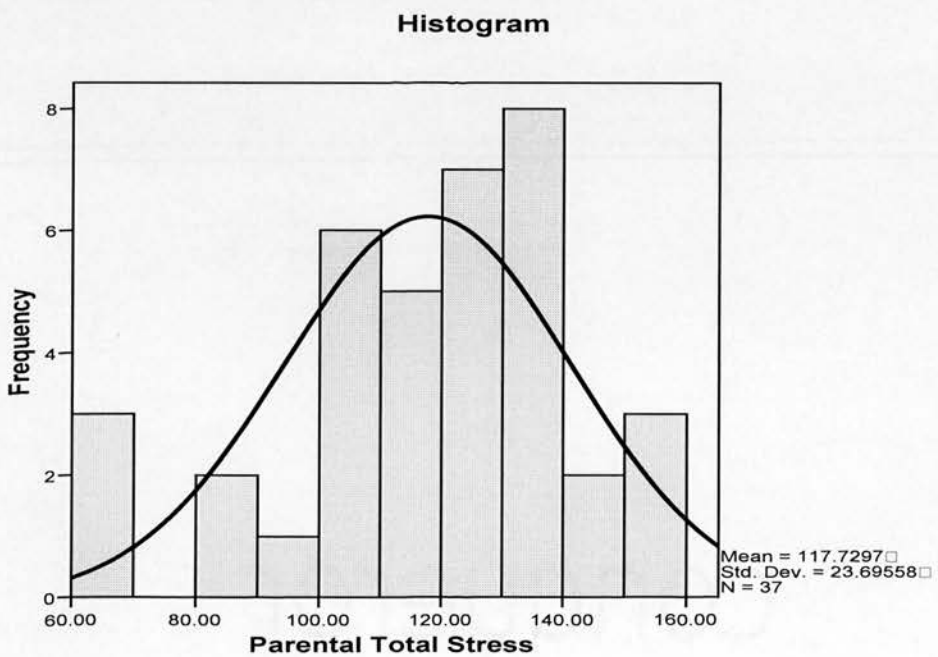
Frequencies

Statistics

Parental Total Stress

N	Valid	37
	Missing	0
Mean		117.7297
Std. Error of Mean		3.89553
Median		120.0000
Mode		109.00[a]
Std. Deviation		23.69558
Variance		561.480
Skewness		-.843
Std. Error of Skewness		.388
Kurtosis		.465
Std. Error of Kurtosis		.759
Range		92.00
Minimum		61.00
Maximum		153.00

a. Multiple modes exist. The smallest value is shown



Explore

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Parental Total Stress	37	100.0%	0	.0%	37	100.0%

Descriptives

			Statistic	Std. Error
Parental Total Stress	Mean		117.7297	3.89553
	95% Confidence Interval for Mean	Lower Bound	109.8292	
		Upper Bound	125.6302	
	5% Trimmed Mean		118.8709	
	Median		120.0000	
	Variance		561.480	
	Std. Deviation		23.69558	
	Minimum		61.00	
	Maximum		153.00	
	Range		92.00	
	Interquartile Range		29.00	
	Skewness		-.843	.388
	Kurtosis		.465	.759

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Parental Total Stress	.113	37	.200*	.931	37	.023

*. This is a lower bound of the true significance.

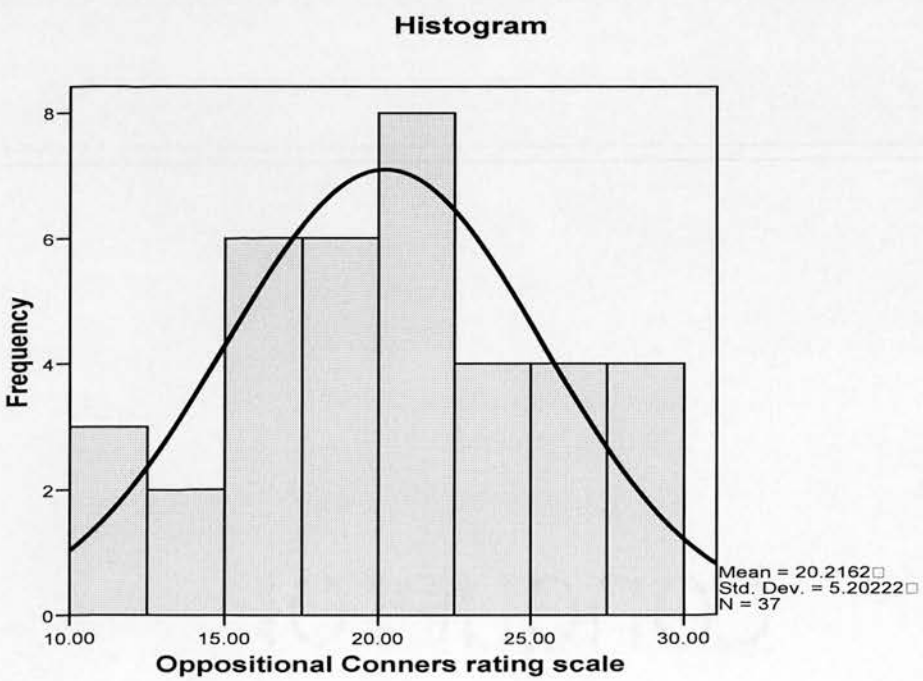
a. Lilliefors Significance Correction

Frequencies

Statistics

Oppositional Conners rating scale

N	Valid	37
	Missing	0
Mean		20.2162
Std. Error of Mean		.85524
Median		21.0000
Mode		21.00
Std. Deviation		5.20222
Variance		27.063
Skewness		-.066
Std. Error of Skewness		.388
Kurtosis		-.804
Std. Error of Kurtosis		.759
Range		18.00
Minimum		11.00
Maximum		29.00



Explore

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Oppositional Conners rating scale	37	100.0%	0	.0%	37	100.0%

Descriptives

			Statistic	Std. Error
Oppositional Conners rating scale	Mean		20.2162	.85524
	95% Confidence Interval for Mean	Lower Bound	18.4817	
		Upper Bound	21.9507	
	5% Trimmed Mean		20.2402	
	Median		21.0000	
	Variance		27.063	
	Std. Deviation		5.20222	
	Minimum		11.00	
	Maximum		29.00	
	Range		18.00	
	Interquartile Range		8.00	
	Skewness		-.066	.388
	Kurtosis		-.804	.759

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Oppositional Conners rating scale	.083	37	.200*	.966	37	.320

*. This is a lower bound of the true significance.

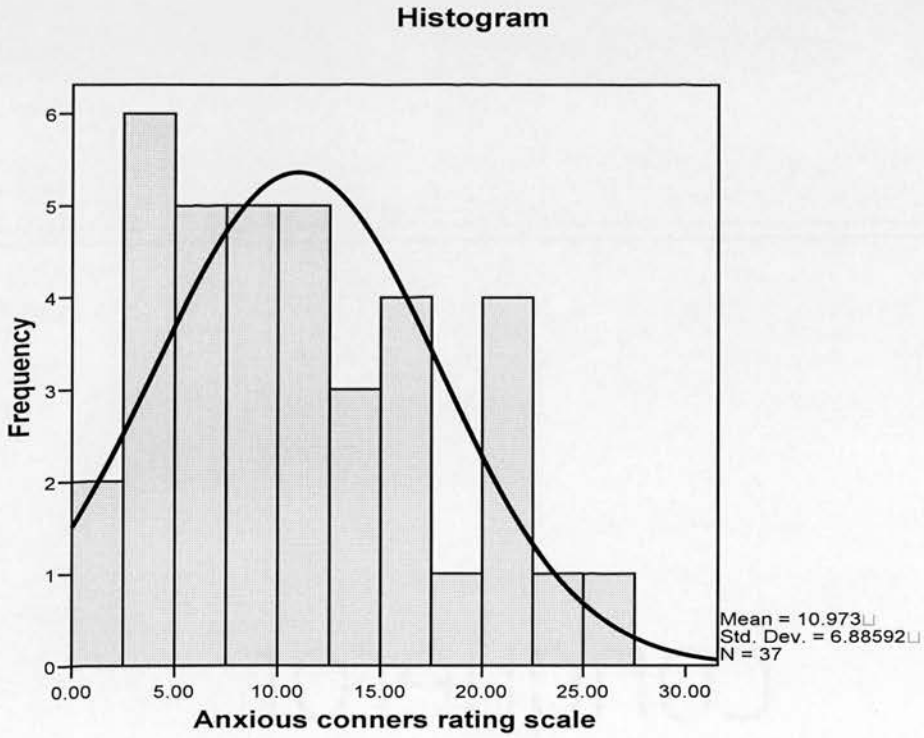
a. Lilliefors Significance Correction

Frequencies

Statistics

Anxious conners rating scale

N	Valid	37
	Missing	0
Mean		10.9730
Std. Error of Mean		1.13204
Median		10.0000
Mode		3.00
Std. Deviation		6.88592
Variance		47.416
Skewness		.592
Std. Error of Skewness		.388
Kurtosis		-.572
Std. Error of Kurtosis		.759
Range		25.00
Minimum		2.00
Maximum		27.00



Explore

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Anxious conners rating scale	37	100.0%	0	.0%	37	100.0%

Descriptives

			Statistic	Std. Error
Anxious conners rating scale	Mean		10.9730	1.13204
	95% Confidence Interval for Mean	Lower Bound	8.6771	
		Upper Bound	13.2689	
	5% Trimmed Mean		10.6577	
	Median		10.0000	
	Variance		47.416	
	Std. Deviation		6.88592	
	Minimum		2.00	
	Maximum		27.00	
	Range		25.00	
	Interquartile Range		10.50	
	Skewness		.592	.388
	Kurtosis		-.572	.759

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Anxious conners rating scale	.116	37	.200*	.938	37	.040

*. This is a lower bound of the true significance.

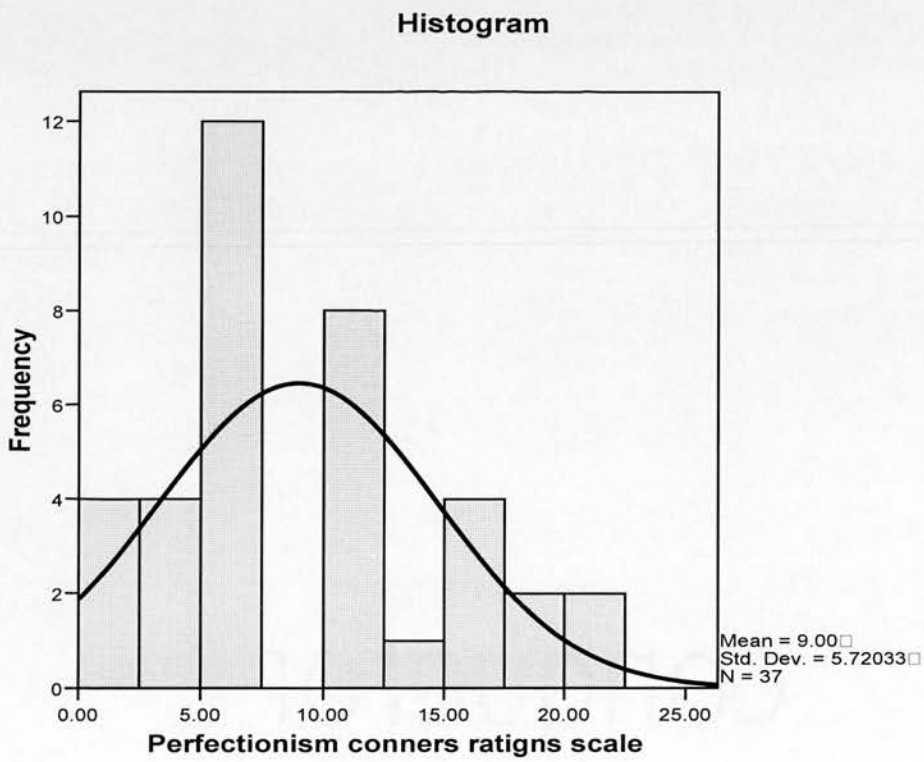
a. Lilliefors Significance Correction

Frequencies

Statistics

Perfectionism conners ratigns scale

N	Valid	37
	Missing	0
Mean		9.0000
Std. Error of Mean		.94042
Median		7.0000
Mode		7.00
Std. Deviation		5.72033
Variance		32.722
Skewness		.482
Std. Error of Skewness		.388
Kurtosis		-.641
Std. Error of Kurtosis		.759
Range		21.00
Minimum		.00
Maximum		21.00



Explore

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Perfectionism conners ratigns scale	37	100.0%	0	.0%	37	100.0%

Descriptives

			Statistic	Std. Error
Perfectionism conners ratigns scale	Mean		9.0000	.94042
	95% Confidence Interval for Mean	Lower Bound	7.0927	
		Upper Bound	10.9073	
	5% Trimmed Mean		8.8589	
	Median		7.0000	
	Variance		32.722	
	Std. Deviation		5.72033	
	Minimum		.00	
	Maximum		21.00	
	Range		21.00	
	Interquartile Range		8.00	
	Skewness		.482	.388
	Kurtosis		-.641	.759

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Perfectionism conners ratigns scale	.177	37	.005	.950	37	.098

a. Lilliefors Significance Correction

Perfectionism Transformed

Explore

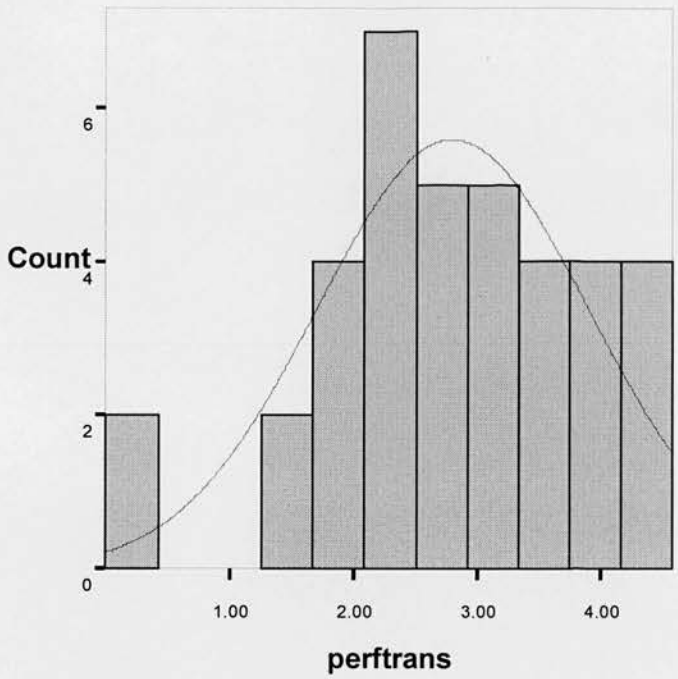
Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
perftrans	37	97.4%	1	2.6%	38	100.0%

Descriptives

			Statistic	Std. Error
perftrans	Mean		2.7962	.18114
	95% Confidence Interval for Mean	Lower Bound	2.4288	
		Upper Bound	3.1636	
	5% Trimmed Mean		2.8551	
	Median		2.6458	
	Variance		1.214	
	Std. Deviation		1.10184	
	Minimum		.00	
	Maximum		4.58	
	Range		4.58	
	Interquartile Range		1.37	
	Skewness		-.605	.388
	Kurtosis		.543	.759

perftrans



Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
perftrans	.095	37	.200*	.953	37	.123

*. This is a lower bound of the true significance.

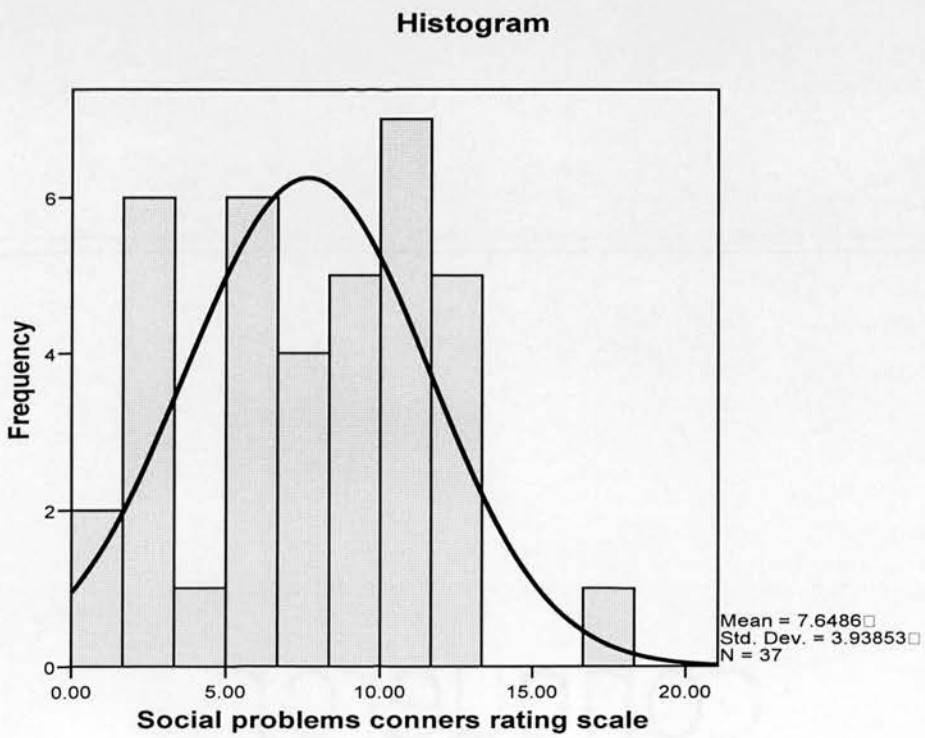
a. Lilliefors Significance Correction

Frequencies

Statistics

Social problems conners rating scale

N	Valid	37
	Missing	0
Mean		7.6486
Std. Error of Mean		.64749
Median		8.0000
Mode		9.00
Std. Deviation		3.93853
Variance		15.512
Skewness		.145
Std. Error of Skewness		.388
Kurtosis		-.210
Std. Error of Kurtosis		.759
Range		17.00
Minimum		1.00
Maximum		18.00



Explore

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Social problems conners rating scale	37	100.0%	0	.0%	37	100.0%

Descriptives

			Statistic	Std. Error
Social problems conners rating scale	Mean		7.6486	.64749
	95% Confidence Interval for Mean	Lower Bound	6.3355	
		Upper Bound	8.9618	
	5% Trimmed Mean		7.5706	
	Median		8.0000	
	Variance		15.512	
	Std. Deviation		3.93853	
	Minimum		1.00	
	Maximum		18.00	
	Range		17.00	
	Interquartile Range		6.00	
	Skewness		.145	.388
	Kurtosis		-.210	.759

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Social problems conners rating scale	.121	37	.192	.960	37	.198

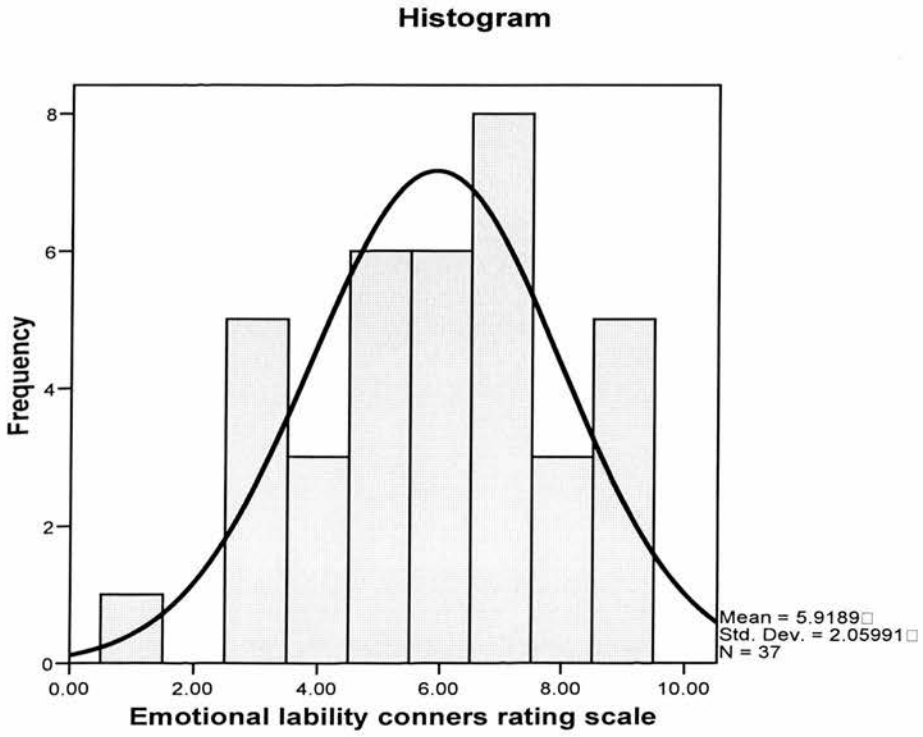
a. Lilliefors Significance Correction

Frequencies

Statistics

Emotional lability conners rating scale

N	Valid	37
	Missing	0
Mean		5.9189
Std. Error of Mean		.33865
Median		6.0000
Mode		7.00
Std. Deviation		2.05991
Variance		4.243
Skewness		-.288
Std. Error of Skewness		.388
Kurtosis		-.513
Std. Error of Kurtosis		.759
Range		8.00
Minimum		1.00
Maximum		9.00



Explore

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Emotional lability conners rating scale	37	100.0%	0	.0%	37	100.0%

Descriptives

			Statistic	Std. Error
Emotional lability conners rating scale	Mean		5.9189	.33865
	95% Confidence Interval for Mean	Lower Bound	5.2321	
		Upper Bound	6.6057	
	5% Trimmed Mean		5.9700	
	Median		6.0000	
	Variance		4.243	
	Std. Deviation		2.05991	
	Minimum		1.00	
	Maximum		9.00	
	Range		8.00	
	Interquartile Range		2.50	
	Skewness		-.288	.388
	Kurtosis		-.513	.759

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Emotional lability conners rating scale	.133	37	.099	.950	37	.093

a. Lilliefors Significance Correction

Descriptive Statistics

Frequencies

Statistics

Attachment Patterns

N	Valid	37
	Missing	0

Attachment Patterns

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	avoidant	9	24.3	24.3	24.3
	secure	16	43.2	43.2	67.6
	resistant	8	21.6	21.6	89.2
	disorganised	4	10.8	10.8	100.0
	Total	37	100.0	100.0	

Statistics

Attachment Patterns

N	Valid	37
	Missing	0

Frequencies

Statistics

Attachment Patterns

Non-Laac	N	Valid	26
		Missing	0
Laac	N	Valid	11
		Missing	0

Attachment Patterns

NON-LAAC Laac			Frequency	Percent	Valid Percent	Cumulative Percent
Non-Laac	Valid	avoidant	5	19.2	19.2	19.2
		secure	13	50.0	50.0	69.2
		resistant	5	19.2	19.2	88.5
		disorganised	3	11.5	11.5	100.0
		Total	26	100.0	100.0	
Laac	Valid	avoidant	4	36.4	36.4	36.4
		secure	3	27.3	27.3	63.6
		resistant	3	27.3	27.3	90.9
		disorganised	1	9.1	9.1	100.0
		Total	11	100.0	100.0	

APPENDIX 7.14 : Statistical Analysis of the Data

Hypothesis 1: Statistical Output

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Previoud Data, Current Data * Attachment patterns	84	100.0%	0	.0%	84	100.0%

Previoud Data, Current Data * Attachment patterns Crosstabulation

			Attachment patterns		
			avoidant	SECURE	Total
Previoud Data, Current Data	previous data	Count	18	33	51
		Expected Count	21.3	29.7	51.0
		% within Previoud Data, Current Data	35.3%	64.7%	100.0%
		% within Attachment patterns	51.4%	67.3%	60.7%
		% of Total	21.4%	39.3%	60.7%
	current data	Count	17	16	33
		Expected Count	13.8	19.3	33.0
		% within Previoud Data, Current Data	51.5%	48.5%	100.0%
		% within Attachment patterns	48.6%	32.7%	39.3%
		% of Total	20.2%	19.0%	39.3%
Total		Count	35	49	84
		Expected Count	35.0	49.0	84.0
		% within Previoud Data, Current Data	41.7%	58.3%	100.0%
		% within Attachment patterns	100.0%	100.0%	100.0%
		% of Total	41.7%	58.3%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.169[b]	1	.141		
Continuity Correction[a]	1.553	1	.213		
Likelihood Ratio	2.164	1	.141		
Fisher's Exact Test				.176	.106
Linear-by-Linear Association	2.143	1	.143		
N of Valid Cases	84				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 13. 75.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Lambda	Symmetric	.015	.084	.174	.862
		Previoud Data, Current Data Dependent	.000	.000	.[c]	.[c]
		Attachment patterns Dependent	.029	.162	.174	.862
	Goodman and Kruskal tau	Previoud Data, Current Data Dependent	.026	.035		.143[d]
		Attachment patterns Dependent	.026	.035		.143[d]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Cannot be computed because the asymptotic standard error equals zero.

d. Based on chi-square approximation

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	-.161	.141
	Cramer's V	.161	.141
	Contingency Coefficient	.159	.141
N of Valid Cases		84	

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Hypothesis 2: Statistical Output

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
LAAC, NON-LAAC * TYPES OF ATTACHMENT PATTERNS	37	100.0%	0	.0%	37	100.0%

LAAC, NON-LAAC * TYPES OF ATTACHMENT PATTERNS Crosstabulation

			TYPES OF ATTACHMENT PATTERNS		
			insecure	secure	Total
LAAC, NON-LAAC	LAAC	Count	8	3	11
		Expected Count	6.2	4.8	11.0
		% within LAAC, NON-LAAC	72.7%	27.3%	100.0%
		% within TYPES OF ATTACHMENT PATTERNS	38.1%	18.8%	29.7%
		% of Total	21.6%	8.1%	29.7%
	NON-LAAC	Count	13	13	26
		Expected Count	14.8	11.2	26.0
		% within LAAC, NON-LAAC	50.0%	50.0%	100.0%
		% within TYPES OF ATTACHMENT PATTERNS	61.9%	81.3%	70.3%
		% of Total	35.1%	35.1%	70.3%
Total		Count	21	16	37
		Expected Count	21.0	16.0	37.0
		% within LAAC, NON-LAAC	56.8%	43.2%	100.0%
		% within TYPES OF ATTACHMENT PATTERNS	100.0%	100.0%	100.0%
		% of Total	56.8%	43.2%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.627[b]	1	.202		
Continuity Correction[a]	.833	1	.362		
Likelihood Ratio	1.681	1	.195		
Fisher's Exact Test				.285	.182
Linear-by-Linear Association	1.583	1	.208		
N of Valid Cases	37				

a. Computed only for a 2x2 table

b. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4. 76.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T	Approx. Sig.
Nominal by Nominal	Lambda	Symmetric	.000	.000	.[b]	.[b]
		LAAC, NON-LAAC Dependent	.000	.000	.[b]	.[b]
		TYPES OF ATTACHMEN PATTERNS Dependent	.000	.000	.[b]	.[b]
	Goodman and Kruskal tau	LAAC, NON-LAAC Dependent	.044	.064		.208[c]
		TYPES OF ATTACHMEN PATTERNS Dependent	.044	.064		.208[c]

a. Not assuming the null hypothesis.

b. Cannot be computed because the asymptotic standard error equals zero.

c. Based on chi-square approximation

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.210	.202
	Cramer's V	.210	.202
	Contingency Coefficient	.205	.202
N of Valid Cases		37	

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Hypothesis 3: Statistical Output

T-Test

Group Statistics

	insecuresecure	N	Mean	Std. Deviation	Std. Error Mean
Oppositional Conners rating scale	1.00	21	20.7143	5.14920	1.12365
	2.00	16	19.5625	5.36617	1.34154

Independent Samples Test

		Levene's Test for quality of Variance		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Oppositional Conners rating sc	Equal variance assumed	.164	.688	.662	35	.512	1.15179	1.73994	2.38049	4.68406
	Equal variance not assumed			.658	31.720	.515	1.15179	1.74995	2.41398	4.71755

T-Test

Group Statistics

	insecuresecure	N	Mean	Std. Deviation	Std. Error Mean
Anxious conners rating scale	1.00	21	10.4762	7.42037	1.61926
	2.00	16	11.6250	6.29153	1.57288

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Anxious conne rating scale	Equal variance assumed	.499	.485	-.497	35	.622	-1.14881	2.30930	-5.83694	3.53932
	Equal variance not assumed			-.509	34.543	.614	-1.14881	2.25742	-5.73379	3.43617

T-Test

Group Statistics

	insecuresecure	N	Mean	Std. Deviation	Std. Error Mean
Social problems conners rating scale	1.00	21	7.9048	3.61808	.78953
	2.00	16	7.3125	4.42295	1.10574

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Social problems conners rating scale	Equal variances assumed	.255	.617	.448	35	.657	.59226	1.32172	-2.09098	3.27550
	Equal variances not assumed			.436	28.616	.666	.59226	1.35868	-2.18817	3.37270

T-Test

Group Statistics

	insecuresecure	N	Mean	Std. Deviation	Std. Error Mean
Emotional lability conners rating scale	1.00	21	6.0952	1.81397	.39584
	2.00	16	5.6875	2.38659	.59665

Independent Samples Test

		Levene's Test for quality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Emotional lability conners rating sc	Equal variance assumed	2.014	.165	.591	35	.558	.40774	.68983	-.99269	1.80816
	Equal variance not assumed			.569	27.164	.574	.40774	.71602	-1.06099	1.87647

T-Test

Group Statistics

	insecuresecure	N	Mean	Std. Deviation	Std. Error Mean
perftrans	1.00	21	2.7220	1.08189	.23609
	2.00	16	2.8936	1.15553	.28888

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
perftrans	Equal variances assumed	.023	.880	-.464	35	.645	-.17169	.36969	-.92220	.57881
	Equal variances not assumed			-.460	31.267	.649	-.17169	.37308	-.93233	.58895

Hypothesis 4: Statistical Output

T-Test

Group Statistics

	insecuresecure	N	Mean	Std. Deviation	Std. Error Mean
Parental Total Stress	1.00	21	126.7143	14.83625	3.23753
	2.00	16	105.9375	28.15545	7.03886

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Parental Total Stres	Equal variances assumed	7.085	.012	2.902	35	.006	20.77679	7.15980	6.24163	35.31195
	Equal variances not assumed			2.682	21.303	.014	20.77679	7.74772	4.67845	36.87512