Predictors of high paternal Expressed Emotion towards children with autism

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Abstract

Introduction: There have been several studies in the intellectual disability/autism literature that have found a relationship between high parental Expressed Emotion and child maladaptive behaviour. Most of these studies have been carried out using mothers. The present study aimed to examine some of the reported associations. Using a logistic regression analysis, factors examined in the present study with Critical Comments were: Paternal psychological morbidity, paternal causal attributions, and child externalising and internalising behaviour. In addition, the differences between critical and non critical fathers in respect of child maladaptive behaviour were examined.

Methodology: A cross sectional survey design was carried out, interviewing sixty-eight fathers of children with autistic spectrum disorder, who also completed questionnaires. Interviews were transcribed and coded for Critical Comments and attributions. Questionnaires addressed child maladaptive behaviour and paternal psychological morbidity.

Results: Critical fathers differed from non critical fathers in having children with more externalising behaviour, although no difference was found for internalising problems. Externalising behaviour was the only statistically significant predictor of Critical Comments, using logistic regression. An additional finding related to a significant correlation between paternal psychological morbidity and child externalising behaviour. Correlations were also found between Critical Comments, and three independent variables: Child internalising and externalising behaviour, and the control attribution.

Discussion: The present study supported previous study findings regarding the relationship between Critical Comments and child externalising behaviour, and partial support for an attribution theory of EE. Clinical and theoretical implications of study findings were discussed, as well as suggestions for future research. Findings suggest that paternal mental

health needs to be considered, as an adjunct to parenting programmes, as well as the importance of including fathers, when designing interventions to reduce high EE in families.

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TABLE OF CONTENTS

Word count: 27,666

LIST OF TABLES

LIST OF APPENDICES

CHAPTER ONE

INTRODUCTION

1.1 Introduction to the study

There are only two known studies that have examined Expressed Emotion (EE) in children with autism. In these studies, the relationship between EE and child and parental factors was examined in the mother only. In both maternal studies, high EE has been associated with maladaptive behaviours in the child. This has also been generally found in the broader literature on intellectual disability. There is currently no agreed consensus regarding the direction of the effect between EE and maladaptive behaviours in the child. However, within the broader EE literature the prevailing view is that EE is considered to represent an interaction between the parent and child (Hastings & Lloyd, 2007), with parental EE considered to be particularly stressful for individuals with autistic spectrum disorder (Greenberg, Seltzer, Hong, & Orsmond, 2006).

1.1.1 Introduction to the aims of the study.

The present study therefore aims to establish whether the same association found between mothers with high EE and internalising and externalising problems in children with autistic spectrum disorder also exist in fathers. Further understanding in this area could be used to help inform potential interventions, where high EE is found in families with behavioural and/or emotional problems in the child. Interventions could then be tailored, which are inclusive of fathers.

1.1.2 Overview of the thesis.

The thesis consists of four chapters. Chapter One provides a background to autistic spectrum disorder, and summarizes the relevant literature on EE. Variables associated with EE are then discussed, along with the clinical relevance of this research. Finally, hypotheses are specified.

Chapter Two describes the methodology and research design. This chapter includes details of the sample, inclusion and exclusion criteria, relevant ethical issues, and measures used. Finally, the procedure is outlined, along with a plan of analysis.

Chapter Three presents the results from the study. This includes demographic details of participants, as well as inferential statistics to test the study hypotheses.

Chapter Four discusses the results in relation to past findings. Theoretical and clinical implications are addressed, along with methodological limitations. Finally, suggestions are made regarding future research and clinical practice.

1.2 Introduction to autistic spectrum disorder

In this section a background to autism and Asperger's syndrome is provided, along with diagnostic criteria. Information is included regarding the prevalence rates of both, along with the overlap between autism and intellectual disability. This section then describes the autistic spectrum continuum, which both autism and Asperger's syndrome form part of. This is then discussed in relation to the triad of impairment, which outlines the difficulties that

individuals with autistic spectrum disorder experience. Finally, reference is made to the aetiology of autistic spectrum disorder. This is then discussed in terms of how psychoanalytic theories, through implicating mothers in the cause of autism, may have hindered research in this area.

1.2.1 Autism.

Autism was first identified by Leo Kanner (1943), a psychiatrist at Harvard, which he termed 'infantile autism', in a paper entitled 'Autistic Disturbances of Affective Contact'. Kanner described a distinct syndrome, based on his observations of a cohort of eleven children, who were deficient in language, social interaction, and had a great obsessive desire that everything about them remain exactly the same. Kanner had borrowed the term autism from Bleuler (1911), who originally coined the term to describe the self absorbed, detached behaviour of patients with schizophrenic illness. However, Kanner did not consider autism to represent an early form, or a prodrome of schizophrenia, and unlike schizophrenia, Kanner found that the observed characteristics of these children had been present from birth.

1.2.2 Asperger's syndrome.

Around the time that Kanner had published his description of autistic children, Hans Asperger, an Austrian paediatrician, described what is now termed 'Asperger syndrome' or 'Asperger's disorder' depending on the diagnostic system used (Asperger, 1944; translated in English 1991). Asperger described a cluster of behaviours observed in four boys, which were: lack of empathy and ability to form friendships, one sided conversation, intense preoccupation with a subject of interest, and clumsy movement. At that time, Asperger

considered this condition as representing a personality disorder, which he referred to as ‘autistic psychopathy’. Despite this condition being described by Asperger, it was not until 1981 that the term Asperger’s syndrome was introduced in a paper published by Lorna Wing (1981), entitled ‘Asperger’s syndrome: A clinical account’. In the paper, Wing described individuals with characteristics in common with those referred to by Asperger. These individuals were not classically autistic, in the sense that they had developed fluent speech and a desire to socialise with others. However, they nevertheless had significant difficulties with social skills and conversation. Wing popularized the earlier research carried out by Hans Asperger, and went on to publish a number of books and papers on Asperger’s syndrome.

1.2.3 Diagnostic criteria for autism and Asperger’s syndrome.

Autism and Asperger’s syndrome are described in the two internationally used systems of diagnosis and classification: The tenth revision of the International Classification of Diseases and Related Health Problems (ICD-10), and the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). In DSM-IV, the term Asperger’s disorder is used instead of Asperger’s syndrome.

1.2.3.1 Diagnostic criteria for autism.

According to ICD-10 and DSM-IV, autism is diagnosed according to criteria of impairment in social interaction, communication, and through restricted, stereotyped, repetitive interests, activities, and behaviours. Qualitative abnormalities in these areas of functioning are characteristic of a broad category of pervasive development disorders, which

autism shares with other disorders, such as Rett's disorder, childhood disintegrative disorder, and Asperger's syndrome/disorder. For a diagnosis of autism, impairment in all three areas functioning needs to have been present before the age of 3.

1.2.3.2 Diagnostic criteria for Asperger's syndrome.

Asperger's syndrome/disorder shares the same abnormal functioning with autism, with the exception of abnormal communication, which may or may not be present. However, Asperger's syndrome/disorder differs from autism in that there is no general delay in language or cognitive development. Furthermore, in DSM-IV, there is no clinically important delay in age appropriate self-help skills, adaptive behaviour (except social interaction), and normal curiosity about the environment.

1.2.4 Prevalence rates of autism and Asperger's syndrome.

1.2.4.1 Prevalence rates of autism.

Autism occurs relatively infrequently in the general population. In an early epidemiology study carried out in the former county of Middlesex, Lotter (1966) provided overall prevalence rates of 4.5 children per 10,000 (0.045%). Wing and Gould (1979) produced similar findings in their epidemiology study in the former London Borough of Camberwell, with prevalence rates approaching 5 children per 10,000 (0.05%).

In respect of the ratio of boys to girls for autism, studies indicate that about four times more boys have autism than girls (Davidson & Neale, 1986).

1.2.4.2 Prevalence rates of Asperger's syndrome.

For Asperger's syndrome, the prevalence has been found to be much higher, and in a study carried out in Sweden, the prevalence rate was 1 in 300 people (0.33%; Ehlers & Gilberg, 1993). Prior to this study, the prevalence rate of Asperger's syndrome was generally considered to be similar to autism, indicating that the majority of individuals with Asperger's syndrome will not have received a diagnosis (Attwood, 2001).

This same ratio is found in Asperger's syndrome to that of autism, which is about four times as many boys to girls (Ehlers & Gilberg, 1993).

1.2.5 Overlap between autism and intellectual disability.

Whilst Asperger's syndrome will by definition of their diagnosis have no cognitive delay, the majority of individuals who are diagnosed with autism will also have an intellectual disability. Empirical investigations indicate that approximately 80 percent of autistic children score below 70 on standardized intelligence tests (Davison & Neale, 1986). Consequently the majority of children with autism will also meet the criteria for a diagnosis of mental retardation in ICD-10 and DSM-IV. In respect of the research literature, studies carried out on children with intellectual disability will usually represent a heterogeneous group, and this will include children with autism. Research findings in these studies are typically generalized to this heterogeneous group. Hypotheses presented in this thesis, have therefore been more generally informed through reference to the literature on intellectual disabilities, particularly given the lack of published studies focused exclusively on autism.

1.2.6 Autistic spectrum continuum.

Given the similarities between autism and Asperger's syndrome, Asperger's syndrome has been described as a subgroup of autism (Attwood, 2001). There is also an accumulation of literature that considers autism to represent a spectrum disorder, with Asperger's syndrome representing the mild or high functioning end of an autistic spectrum continuum (e.g. Attwood, 2001; Eisenmajer et al., 1996; Manjiviona & Prior, 1995; Wing, 1998). Consequently, the term 'autistic spectrum continuum' has become increasingly used as a collective term that includes Asperger's syndrome and autism. The term autistic spectrum disorder has been used in the present study to include both autism and Asperger's syndrome.

1.2.7 Triad of impairment.

Wing and Gould (1979) first introduced the term "triad of impairment" to describe the difficulties that people with autistic spectrum disorder experience in their social relationships, social communication, and social imagination. Autistic spectrum disorder arises out of an interaction of these three impairments, although the way each individual is affected by the triad, can also be represented along a continuum. So for example, one individual may be affected more by social relationships, than social communication and social imagination.

1.2.7.1 Social relationships.

Impairment of social relationships is the most fundamental of the triad of impairment. Wing and Gould (1979) identified three distinct types of social impairment: aloof, passive,

and active but odd. In the aloof group, which represented the most common type of social impairment, individuals behaved as if other people did not exist, and were non responsive when spoken to. In the passive group, the child would not engage in social approaches, although might become involved as a passive part of a game, and might accept approaches made by another child. Finally, in the active but odd group, the child would make active approaches to others, but in an inappropriate way. For example, poor eye contact or staring too long, with the child having poor understanding of the implicit social rules. Attwood (2001), describes how children motivated to socialize with children their own age, are often rebuffed by other children, due to their social play skills being immature and rigid.

1.2.7.2 Social communication.

This part of the triad includes both verbal and non verbal communication. In relation to the former, about 50 percent of children with autism never acquire any functional use of speech (Lewis, 2003). Even where language has developed, there can be a number of problems with speech. These include pragmatic abnormalities, in the form of stilted and pedantic speech, abnormal prosody, turn-tacking difficulties, and inappropriate interruptions (Lewis, 2003). Other problems can include difficulties with personal pronouns (Lee, Hobson, & Chiat, 1994). Language can be literal, with idiom, metaphor, and allusion being noticeably absent (Lewis, 2003). Echolalia may occur, where the child repeats words or phrases they have heard others say, in a repetitive and meaningless way. Finally, Wing and Gould (1979) describe how the high functioning child will make factual comments, which are frequently irrelevant to the social context.

In respect of non-verbal communication, children with autism frequently show little facial expression, and do not use gestures to convey that they are interested in something (Lewis, 2003).

1.2.7.3 Social imagination.

Children with autism have a limited range of imaginative activities. Wing (1988) describes difficulties the child has in copying other people's actions with a genuine understanding of the meaning and purpose behind their actions. She also describes how impairment in social imagination interferes with the development of pretend play, through not being able to put oneself into the position of the person the child is pretending to be, but rather copying their actions in a meaningless way. Wing (1988) provides a number of examples of how impairment of social imagination may be observed in children with autistic spectrum disorder, and these include: an absence of copying and pretend play, copying other people's actions with no real understanding of their meaning or purpose, engaging in repetitive, stereotyped enacting of a role, such as a television character, but without variation in the role, or empathy. Wing (1988) also describes that whilst some children on the autistic spectrum, appear to have some ability to recognize other people's feelings, the ability exists on an intellectual level, without an empathic sharing of emotions.

1.2.8 Aetiology of autistic spectrum disorder.

1.2.8.1 Environmental.

In the early literature, autism was originally attributed to poor parenting, with Kanner (1949), an American child psychiatrist, proposing that autism may be related to a "genuine lack of maternal warmth". This gave rise to what then became known as the "refrigerator mother" theory. A theory which was popularised by Bettelheim (1967), a University of Chicago and child development specialist. This then became the prevailing view during the 1950s and 1960s.

1.2.8.2 Biological.

The refrigerator mother theory was not without its critics, and it was Rimland (1964), who presented an alternative theory of autism as having a neurological foundation. In his book entitled 'Infantile Autism: The Syndrome and Its Implication for a Neural Theory of Behaviour', Rimland (1964) drew analogy between brain injured children and children with autism in support of this. Additional support for a biological basis of autism was later provided by Folstein and Rutter (1977), through evidence of a genetic pathway for autism. Since then, research findings from neurological, neurochemical, and genetic studies, suggest that autistic spectrum disorder is primarily biological determined (Mackowiak, 2000), with environmental influences as well. It is now widely accepted that autism is not caused by parenting style.

Due to the history of maternal blame, with early psychoanalytic theories implicating mothers in the causation of autism, Greenberg et al. (2006), consider that this may well have hampered research into the impact of autism on the family, or the influence of the family environment on child development. Greenberg, et al. draw attention to the lack of published studies in this area.

1.3 *Need for further research*

Possibly due to the history of maternal blame, studies regarding the family environment, what impacts on this and how this in turn affects the child with autistic spectrum disorder are currently lacking. The need for further research in this area has already been highlighted by Greenberg et al. (2006), who draw attention to the central role of the family have in influencing lifelong development of the person with autism. To measure the family environment, they propose using the construct, Expressed Emotion, which has been used extensively in other client groups to identify characteristics in the family environment that influence client outcomes.

1.4 Expressed Emotion

The construct "Expressed Emotion" was originally developed by Brown and colleagues (Brown, Birley, & Wing, 1972; Brown, Carstairs, & Topping, 1958; Brown, Monck, Carstairs, & Wing, 1962), to describe the emotional climate within a family. Specifically, "high EE" refers to critical, hostile, or over involved attitudes expressed by a family member towards a relative with a disorder or disabilities. Brown and colleagues found that outcomes for schizophrenic patients varied depending on the family environment

to which they returned. They found that a patient with schizophrenia was more likely to have a subsequent relapse of symptoms if the patient was living with a relative high in EE. In particular, it was the Criticism dimension of high EE that was the most important variable related to relapse. They also found that Emotional OverInvolvement was independently related to relapse in some of the patients. The Criticism dimension refers to the negativity expressed appraisals about the individual with the disability, whereas, Emotional OverInvolvement is where the parent is expressing extreme over protectiveness or self-sacrificing behaviour.

Since these earlier studies, research has looked at the impact of EE on other client groups, including: depression (Hooley, Orley, & Teasdale, 1986); eating disorders (Schmidt, Humfress, & Treasure, 1997); obsessive compulsive disorder (Steketee, Van Noppen, Lam, & Shapiro, 1998), and child behaviour problems (Baker, Heller, & Henker, 2000). In general, high levels of EE are related to poor outcome in individuals across a range of psychological conditions.

1.5 Measures of EE

A number of measures of EE have been developed, the most commonly used are the Camberwell Family Interview (CFI; Vaughn & Leff, 1976) and the Five Minute Speech Sample (FMSS; Magana et al., 1986).

1.5.1 Camberwell Family Interview.

The Camberwell Family Interview is a semi-structured interview that allows the interviewer to gather information about the interviewee's attitudes and behaviour towards their relative. Five scales are rated from the interview: frequency of Critical Comments, frequency of Positive Remarks, Hostility, Warmth, and Emotional OverInvolvement. To meet the criteria of high EE requires the presence of five or more Critical Comments, any rating of Hostility, or a score of 3 on a 0-5 scale of Emotional OverInvolvement. Due to the taxing length of the interview (4-5 hours administration), an abbreviated version (1-2 hours administration) was developed by Vaughn and Leff (1976).

1.5.2 The Five Minute Speech Sample.

The Five Minute Speech Sample is a brief interviewer-administered measure of EE, and is shown to measure EE comparably to the Camberwell Family Interview, with good reliability, good concurrent validity, and inter-rater reliability across measures (Moore & Kuipers, 1999). The parent is asked to speak about her son or daughter for 5 minutes in an open-ended way. Responses are subsequently scored on a content analysis. High EE is assigned, based on either Criticism, Emotional OverInvolvement, or both.

1.5.3 Critique of EE measures.

Although the Camberwell Family Interview and Five Minute Speech Sample are commonly used measures in studies of EE, Hastings and Lloyd (2007) critique these measures in their review of published studies of EE in families of children and adults with

intellectual disabilities. Criticisms relate to a lack of information about the validity of these measures in respect of intellectual disability studies, and specific to the Camberwell Family Interview, a lack of data regarding the reliability of this measure. In respect to the Five Minute Speech Sample, this has also been found to be less sensitive that the Camberwell Family Interview, with some cases classified as high EE on the Camberwell Family Interview, and missed and therefore classified as low EE on the Five Minute Speech Sample (Magana et al., 1986).

1.6 Research on interventions to reduce EE

To reduce negative outcomes associated with high EE, there have been some studies that have focused on modifying EE. For example, Leff and Vaughn (1985) reported a 54% success rate in reducing EE from high to low in relatives of patients with schizophrenia, following a psychoeducational programme. Similarly, Tarrier et al. (1988) also found a reduction from high to low in relatives of patients with schizophrenia, following a behavioural group intervention. Whilst these programmes have offered some promising results, they have nevertheless been designed without a clear understanding of what variables are associated with high EE. This would suggest that interventions designed solely to educate parent understanding of the patient's illness/disability may not be sufficient to help some families, if high EE continues to be maintained by factors that have not been addressed.

1.7 Relationship between high parental EE and child problems

In reviewing the literature, the direction of effect between high EE and behaviour problems in children with intellectual disability/autistic spectrum is unclear. Some studies

have produced findings suggesting that high EE is child driven, whilst others show child problem behaviour as a negative consequence of high EE. This has led to current debate in the literature regarding whether high EE is a state or trait? There are findings to support both sides of the findings. To reconcile this position, Hastings and Lloyd (2009) suggest that high EE is most likely to represent an interaction between the carer and relative. This section will focus on those studies where an association has been found, or where high EE is considered to lead to maladaptive behaviours in the child.

1.7.1 The relationship in children with intellectual disability.

In respect of the literature on intellectual disability, several studies have found a relationship between high parental EE and maladaptive behaviours in the child (Beck, Daley, Hastings, & Stevenson, 2004; Dossetor, Nicol, Stretch, & Rajhowa, 1994; Hastings, Daley, Burns, & Beck, 2006; Lam, Giles, & Lavender, 2003). In the Dossetor et al. study, both the Criticism dimension and OverInvolvement related to behaviour disturbance. In both the Beck et al. and Hastings et al. studies, a relationship was found between high EE and externalising problems in the child. However, in the Hastings et al. study this was specific to Criticism. Whereas, Hasting et al. found a relationship between EE and both conduct problems and hyperactivity, in the Beck et al. study, this was specific to conduct disorder. Differences between these two studies could be accounted for by the way in which externalising problems were measured. For example, Hastings et al. used a combined score for conduct disorder and hyperactivity, whereas Beck et al. examined these two variables separately. Neither the Beck et al. nor Dossetor et al. study found a relationship between EE and internalising behaviour. Finally, in the Lam et al. study, carers high on the Criticism dimension of EE perceived a greater number of behaviours as problematic compared to low EE mothers. Whereas, carers

high in Emotional OverInvolvement perceived their children as more disturbed, fearful, or having difficulties in sleeping, eating, and toileting, compared to low EE carers.

Whilst these studies provide support for a relationship between Expressed Emotion and behaviour problems in the child, evidence is lacking regarding a causal effect. For example, Beck et al. (2004) and Dossetor et al. (1994) made use of a cross sectional design. Because of this, it is not possible to infer a causal relationship as behaviour was measured at a single point in time. Whilst Hastings et al. (2006) carried out a longitudinal study to address the causal status, a significant relationship between high maternal Criticism and child externalising problems was found for cross sectional analysis only. However, the strongest evidence suggesting a causal effect has been found in the autism literature.

1.7.2 The relationship in children with autistic spectrum disorder.

Two studies have been published specifically on autistic spectrum disorder (Greenberg et al., 2006; Orsmond, Seltzer, Greenberg, & Krauss, 2006). Carrying out a longitudinal study, Greenberg et al. found high maternal EE overall, was related to increasing levels of internalising behaviour, externalising behaviour, and asocial behaviour over time, whilst controlling for prior levels of behaviour problems. The Criticism dimension of EE was similarly related to internalising behaviour and asocial behaviour, but not externalising behaviour. There was no relationship between Emotional OverInvolvement and internalising or externalising behaviour. A limitation in this study related to the use of a correlational design, which is a test of association and does not establish a causal relationship. However, Greenberg et al. interpreted the results as support for their hypothesis of high maternal EE as having a negative effect on the well-being of individuals with autism.

Similar to Greenberg et al. (2006), Orsmond et al. (2006) also found higher levels of maternal Criticism to be associated with severe maladaptive behaviour, which included types of behaviour that were withdrawn or inattentive, hurtful to self, hurtful to others, socially offensive, uncooperative, disruptive, unusual or repetitive, and destructive to property. This study suffered from similar methodological limitations to the Beck et al. (2004) and Dossetor et al. (1994) studies, in that it also employed a cross-sectional design, therefore not allowing a causal relationship to be determined.

1.8 Parental factors related to high EE

There is currently speculation regarding what determines EE, and it is evident from the literature that there is no consensus regarding this. As already indicated there are several studies that have found a relationship between high EE in parents and maladaptive behaviours in children with intellectual disability and/or autism (Beck et al., 2004; Dossetor et al., 1994; Greenberg et al., 2006; Hastings et al., 2006; Orsmond et al., 2006). One study in particular (Greenberg et al.) reported high EE as leading to increased levels of maladaptive behaviours. Contrary to this, Beck et al. has produced findings suggesting the opposite, with high parental EE representing a response. Two parental factors in particular have generated interest within the EE literature, and this relates to psychological morbidity and parental attributions.

1.8.1 Psychological morbidity in parents.

Reviewing the broader mental health literature, there have been a few studies that have found psychological morbidity in parents to be associated with high parental EE. For example, Hibbs et al. (1991) found that parental psychiatric diagnosis was significantly related to high EE in parents, of children diagnosed with either disruptive behaviour disorder or obsessive compulsive disorder. Furthermore, in respect of fathers, psychiatric diagnosis was the strongest statistical predictor of high EE in a regression analysis. An additional finding is that onset of psychiatric diagnosis for the majority of parents predated the index child's birth, although this did not seem to be related to parent's EE status. However, in a study examining the relationship between a lifetime history of psychiatric diagnosis in mothers and EE (Hirshfield, Biederman, Brody, & Faraone, 1997) an association was found. Hirshfield et al. found that mothers of children with psychiatric disorders or behavioural inhibition had a lifetime history of anxiety disorders which was significantly associated with the Criticism dimension of EE. They also found that lifetime history of affective disorder in mothers was associated with Emotional OverInvolvement.

In another study, Schwartz, Dorer, Beardslee, Lavori, and Keller (1990) examined EE in mothers of a cohort of children with a variety of psychiatric diagnoses, and found the Criticism dimension of EE in mothers to be correlated with parental psychopathology. However, this particular study examined the relationship between maternal EE and psychopathology in either parent, and not just the mother. It is therefore not reported whether psychopathology in the mother alone would have been correlated with EE.

Two studies have found a relationship between maternal psychopathology and the Criticism dimension of high EE. For example, McCarty and Weisz (2002) examined EE in mothers of a cohort of children with a variety of psychiatric presentations, and found a statistically significant relationship between maternal psychopathology and the Criticism dimension of high EE. Similarly, Bolton et al. (2003) found maternal depression to statistically predict maternal Criticism, using multiple regression, in a study of children presenting with behaviour problems.

However, not all studies have found an association between high EE and psychological morbidity in parents. For example, McCleary and Sanford (2002) found no relationship between maternal depression and high EE. This study differed from the other studies by focusing on adolescents aged 13 to 18, rather than children and adolescents.

In relation to the literature on intellectual disability, findings are also mixed. For example, using the General Health Questionnaire (Goldberg, 1972), Dossetor et al. (1994) found psychological ill health to be associated with Emotional OverInvolvement. Extrapolating from this finding, Lam et al. (2003) tested a hypothesis based a model of high EE as representing poor coping in high EE parents. However, Lam et al. found no relationship between high EE and psychological ill health. However, unlike Dossetor et al. study, Lam et al. did not examine the Critical dimension and OverInvolvement separately. One other study, Hastings et al. (2006), found no relationship between high EE and depression or anxiety, using the Health Anxiety and Depression Scale (Zigmond & Snaith, 1983).

It is evident from this review that findings are inconclusive. The strongest evidence has been found in the mental health literature, and supported by the Dossetor et al. (1994) study, using the General Health Questionnaire. Furthermore, one study in particular (Hibbs et al., 1991), has found mental health to statistically predict high EE in fathers, using a logistic regression. Extrapolating from these studies in particular and to examine this relationship in father of children with autistic spectrum disorder, it is hypothesised that psychological morbidity in fathers will statistically predict high paternal EE.

1.8.2 Parental attributions.

Another parental characteristic that has generated interest in the EE literature relates to attributions parents make of child behaviour problems. This can be understood in the context of attribution theory. The theory will be outlined briefly, particularly in the context of three dimensions which are used for categorizing and rating attributions, i.e. internal-external, personal-universal, and controllable-uncontrollable. These dimensions in particular have been found to have strong theoretical and empirical support (Weiner, 1985), and associated with high maternal EE (Bolton et al. 2003).

1.8.2.1 Attribution theory.

Attributions can be defined as “the way in which we explain and evaluate behaviour – both the behaviour of others and our own behaviour” (Miller, 1995). Heider (1958) was the first to put forward a theory of attributions. He considered that people attribute internal or external causes to events, in order to make the perceiver’s world predictable, and provide a sense of control. In defining the internal-external dimension used in their coding system,

Munton, Silveston, Stratton, and Hanks (1999) describe how the meaning of this dimension has changed over time, as the theory has developed. Further contributions to attribution theory have included Jones and Davies (1965) and then Kelley (1973), who have both provided their definition of internal-external. According to Munton et al., these definitions share a common theme, which is "we equate internal attributions with personal causal factors, personality traits or dispositions. If we can attribute an event to some impersonal or situational factor, a feature of the environment, then we rate it as external". Based on this description, an example of an internal attribution would be "due to his shyness, he doesn't mix with the other children", and an external attribution would be "he was late for school, as his bus didn't turn up".

To confuse matters, the term 'internal-external' has also been used in Social Learning Theory (Rotter, 1954). Munton et al. (1999) describe how this has led to uncertainty over the correct meaning of the internal-external dimension in Attribution Theory. To address this confusion and simplify coding, Munton et al. use two distinct dimensions in their coding system. The internal-external dimension is used to code the locus of cause, i.e. cause located within the person, or outside the person. A further dimension, personal-universal is concerned with whether something particular to the individual is implied in the attribution.

Munton et al. (1999) credit Weiner (1974, 1986) for introducing the dimension of controllable-uncontrollable to attribution theory, through his achievement motivational model. Weiner (1974, 1986) identified factors which he considered played a part in achievement that could be classified according to attribution dimensions. He subsequently incorporated 'controllable-uncontrollable' into attribution theory in developing his model. Weiner (1985) also extended attribution theory to emotion, through explaining how the type

of attributions an individual makes regarding another person's behaviour influences both their emotional and behavioural response. For example, Wilson-Scott and Dembo (1993) found that mothers demonstrated more negative affect in response to child misbehaviour regarded as intentional (i.e. controllable) than for misbehaviour attributed to environmental (i.e. external) causes.

1.8.2.2 Coding attributions.

The three dimensions: internal-external, personal-universal, and controllable-uncontrollable form part of the Leeds Attributional Coding System (LACS; Munton et al.), as well as the Guidelines for Coding Spontaneous Causal Attributions (Bolton et al. 2003). The later was adapted from the Leeds Attributional Coding System, to make it suitable for children, and has been used in this study. Dimensions are used to rate either the cause, and/or event of an attributional statement. Bolton et al. describe an attributional statement as "material which is offered by the speaker that attempts to explain, or provide reason(s) for a particular event, outcome or behaviour." The three dimensions are summarised below, before discussing research findings:

Internal-external 'cause located within or outside the child/mother'

Personal-universal 'cause or event is particular or not particular to the child'

Controllability-uncontrollability 'event under control or not under control of child/mother'

1.8.2.3 Review of attribution and EE studies.

In a review of 13 published studies that had examined the relationship between EE and carers attributions for patients' behaviours, Barrowclough and Hooley (2003), found that all studies showed that Criticism in relatives reflected their underlying beliefs that patients could do more to control their symptoms and problems. They further found that there was also a positive correlation between numbers of criticisms relatives make and the size of the controllability bias that they hold.

One of these studies in particular was a child study (Bolton et al., 2003), and applied attribution theory to an EE study of children presenting with behavioural problems. Bolton et al. hypothesised a relationship between high EE in mothers and causal attributions that were internal, personal, and controllable by the child, which she refers to as 'child blaming attributions'. Bolton et al. based this hypothesis on earlier research, where the child's problem behaviour was attributed to personality traits, intentions and motives, rather than external or situational factors (Baden & Howe, 1992; Bickett, Milich, & Bowen, 1996; Dix & Lochman, 1990; Strassberg, 1995).

Although Bolton et al. (2003) found that internal attributions only statistically predicted the Criticism dimension of EE in mothers, using a multiple regression. She nevertheless found statistically significant correlations between all three attributions: internal, personal, controllable, and Criticism.

To date, there has been no research examining the relationship between high EE, and causal attributions in fathers of children with autistic spectrum disorder. Greenberg et al.

(2006) proposed that low levels of Expressed Emotion in their study may have been due to maternal attributions of the child not having control over his or her behavioural symptoms. For example, Greenberg et al. report having asked mothers for explanations why they thought their child had autism. Reasons reported included: birth complications, genetics, environmental toxins, which Greenberg et al. claim are suggestive of this. This explanation is also consistent with Leff and Vaughn (1985), who propose that an important characteristic of low EE, is a rational understanding of the patient's problems and symptoms as a feature of legitimate illness.

This is the first study to examine the relationship between high EE and attributions held by fathers of children with autistic spectrum disorder. Similar to Bolton et al. (2003) aims, the present study is seeking to explore the relationship between high EE and attributions, although focused specifically on the father. Furthermore, this research is seeking to explore whether paternal child blaming attributions are related to high paternal EE.

Following on from Greenberg et al. (2006) proposition, and Bolton et al. (2003) original hypothesis, it is hypothesised that paternal attributions that are internal, personal, and controllable of children with autistic spectrum disorder, will statistically predict high EE.

1.8.3 Child factors.

Reviewing the literature on intellectual disability, there is some evidence to support child factors impacting on high maternal EE. For example, Beck et al. (2004) examined the relationship between high maternal EE towards a child with intellectual disability, as well as the relationship between high maternal EE and a sibling without intellectual disability. They

found that mothers were more negative of the child with intellectual disability, which Beck et al. attributed to EE being child driven. They further found a relationship between high maternal EE and child behavioural problems. Beck et al. propose that the differences in high maternal EE towards the child with intellectual disability and their sibling may be due to child problem behaviour. The Beck et al. study supports an earlier finding, using a different client group, where mothers were more likely to be critical towards their ADHD child than their well offspring (Kosisky, 1989).

Another study in the intellectual disability literature has found the Criticism dimension of EE and OverInvolvement to be differentially related to child characteristics. Dossetor et al. (1994) found Emotional OverInvolvement to be associated with more severe intellectual disability and behavioural disturbance in public, whist the critical dimension of EE was associated with more general behavioural difficulties and psychiatric disorder. Dossetor et al. propose that behavioural difficulties may lead to high EE in the form of Criticism, with severe intellectual disability leading to Emotional OverInvolvement. In relation to the later, Dossetor et al. consider that this may be measuring attachment behaviour in mothers. Similar to Dossetor et al., Kumar, Singh, Sahu, and Paul (2004) also found higher levels of overemotional involvement in mothers of children with intellectual disabilities, compared to mothers of children without intellectual disabilities. Kumar et al. interpreted their findings of high Emotional OverInvolvement as being child driven.

In respect of the literature on autism and Expressed Emotion, findings are however, mixed. For example, using regression analysis, Orsmond et al. (2006) found that maladaptive behaviour statistically predicted Criticism in mothers. However, they found no relationship between severity of intellectual disability and Emotional OverInvolvement.

Conversely, using a longitudinal design, Greenberg et al. (2006) examined the bi-directional relationship between EE and maladaptive behaviours. They found only a weak effect of behaviour problems and autistic symptoms influencing EE in mothers over an 18 month period. Furthermore, they found Emotional OverInvolvement to be lower where the child showed either internalising problems, which included behaviour that is withdrawn and inattentive, or where the child had a co-morbid diagnosis of intellectual disability. In respect of the former, Greenberg et al. attribute these findings as possibly relating to what they describe as mutual or reciprocal disengagement between the parent and the child. For the later, they attributed this to a greater use of services provision, which they claim may indirectly lead to lower levels of Emotional OverInvolvement.

It is evident from the literature that findings regarding the likely impact of child behaviour problems and EE are mixed and inconsistent. More recent findings examining the bi-directional relationship between EE and maladaptive behaviour found a unidimensional relationship between EE and behavioural problems, whilst only a weak effect of behaviour problems on EE. Greenberg et al. (2006) discuss these findings as suggesting that EE may represent a personality trait. However, this does not explain Beck et al. (2004) findings, where high EE was heightened toward the child with intellectual disability, which was different from the child without intellectual disability. Greenberg et al. in critiquing their own study, point out that the 18 month time period used in their analysis, may not have been a sufficiently long enough period to detect the influence of child behaviour on mothers. Furthermore, Hastings and Lloyd (2007) in their review of the Greenberg et al. study, highlight caution in respect of the findings, due to one other longitudinal study (Hastings et al. 2006) failing to find evidence of the predictive validity of EE.

One tentative explanation to account for differences between the Beck et al. (2004) and Greenberg et al. (2006) findings may relate to difference in age of children in the respective studies. For example, in the Beck et al. study children were aged between 4-14. Whereas, in the Greenberg et al. study this included adult children, with the sample ranging from 11-48. One possible explanation for the difference in study findings is that child problem behaviour impacts on EE in the earlier years. As the child gets older and becomes an adult, high EE then reciprocally impacts on the dependent, later in life, through either eliciting or aggravating maladaptive behaviour. This is purely speculative and as far as the researcher is aware this hypothesis has not been tested.

To further examine the relationship between the Criticism dimension of high EE and maladaptive behaviour, with a focus on children (between the ages of 3-17), it is hypothesised that child internalising and externalising behaviour will statistically predict high EE in fathers.

1.8.4 Summary of variables associated with high paternal EE.

In summary, both parent and child factors have been found to be related to high parental EE. From the studies reviewed, these include: child maladaptive behaviours, psychological morbidity in parents and parental attribution. The present study aims to examine the relationship of these variables with EE in fathers of children with autistic spectrum disorder.

1.9 Clinical relevance of study

The need to develop and evaluate interventions to reduce EE in families of people with intellectual disability has recently been made (Hastings & Lloyd, 2007). Similarly, in the field of autism, Greenberg et al. (2006) has also recommended developing and evaluating interventions for families of individuals with autism, "particularly during the early childhood years when family interaction patterns may be more fluid." Both Hastings and Lloyd (2007) and Greenberg et al. draw attention to the mental health literature where studies have already been undertaken which have reduced levels of EE as a result of family interventions (e.g. Leff & Vaughn, 1985; Tarrier et al. 1988). In respect of all three variables hypothesised to statistically predict EE, there have been some recommendations proposed in the literature regarding potential interventions, which are discussed below:

1.10 Interventions

1.10.1 Cognitive behavioural therapy addressing parental psychopathology.

Should a relationship be found between parental psychopathology and high paternal EE in fathers of children with autistic spectrum disorder, it could be hypothesised that cognitive behavioural therapy may not only have a direct beneficial effect for the parent but also an indirect beneficial effect for the child. For example, Bolton et al., (2003) propose that targeting parental depression with cognitive behavioural therapy could free parents' resources for learning and implementing new skills to influence child behaviour. For this reason, Bolton et al. discuss how using therapy to address parental depression could also be a useful adjunct to parenting skills interventions.

Bolton et al. (2003) also make the point that attentional biases present in depression, focused on negative child behaviour, make it difficult for the parent to disengage from negative information. They quote one experimental study in support of this (Bradley, Mogg, & Lee, 1997). Bolton et al. propose that psychoeducation regarding the role of depression in influencing sustained attention to the child's negative behaviour could in itself be helpful.

1.10.2 Cognitive behavioural therapy targeting parental attributions.

In respect of parental attributions, Barrowclough and Hooley (2003) in their review of published studies on attributions and EE recommend intervention programmes to help relatives develop more benign attributions towards the patient, and to acquire what they describe as a 'flexible attributional perspective'. They describe this stance as one which neither attributes all aspects of the patient's behaviour to factors beyond their control, nor assume that the patient could easily control their symptoms. To enable families to achieve this, they recommend adapting cognitive behavioural techniques as used in the treatment of emotional disorders. This would involve verbal reattribution methods, such as exploring evidence for and against supporting beliefs the parent holds, as well as the introduction of counter information using Socratic dialogue, and behavioural experiments designed to challenge old beliefs. They suggest that this approach could then be evaluated against more traditional psychoeducational and behavioural approaches to manage the child's behavioural problems for efficacy.

Although recommendations made by Barrowclough and Hooley (2003) have not yet been developed and evaluated, there has been one study that has measured outcome in both

attribution and EE following an intervention designed to reduce high EE in families. Brewin (1994) found that the intervention not only reduced Critical Comments made by relatives of patients, but also brought about a corresponding reduction in personal attributions, where the problem was no longer attributed to idiosyncratic features of the patient. This study demonstrates the potential for developing interventions that lower both attributions that assign causality to the individual, as well as reduce high EE.

1.10.3 Interventions focused on child problem behaviour.

Conversely, should a relationship be found between child factors and high paternal EE, it could be hypothesised that interventions focussed on the child problem behaviour, should bring about a corresponding reduction in high EE in the parent. This could in turn have a reciprocal effect of improving child outcome.

1.10.4 Summary of interventions.

Previous research focussed on reducing high parental EE has produced positive outcomes. However, these studies have been designed without taking into account both parental and child factors that could be also be playing a part in maintaining high parental EE. Furthermore, these factors may also represent a risk factor in developing high EE. Dossetor et al. have also highlighted this issue, in proposing that high EE is representative of the difficulties carers have in coping with a child with intellectual disabilities. The next two sections focus on the clinical relevance of researching children with autistic spectrum disorder, and fathers.

1.11 Clinical relevance of researching children with autistic spectrum disorder

From the literature reviewed, it was evident that there is currently a lack of research into the relationship between high parental EE in families with autistic spectrum disorder. As already discussed, it has been proposed that EE represents an interaction between the parent and child (Hastings & Lloyd, 2007). In respect of negative outcome of high maternal EE, one study in particular has shown that high EE leads to internalising and externalising behaviour in the child (Greenberg et al. 2006). In addition, Greenberg et al., have also highlighted the difficulties that children with autistic spectrum disorder have in regulating their stress response, and how high EE is likely to be particularly stressful for that child.

1.12 The importance of researching high EE in fathers

It is evident from studies on parental EE with children with intellectual disability and/or autistic spectrum disorder, that research has tended to focus on the primary carer, which is typically the mother. Consequently, the parental influence of fathers on child outcomes in these studies has largely been ignored. A critique that has also been raised by Hastings and Lloyd (2007) in their review of published studies of EE in families of individuals with intellectual disabilities. Of the studies reviewed for intellectual disability, only one study reported fathers as being included in their sample (Lam et al., 2003). Furthermore, fathers have not been included in sample examining parental EE in families of children with autistic spectrum disorder. Given the associations between high EE in mothers and autistic spectrum disorder (Greenberg et al. 2006; Orsmond et al. 2006), it is yet to be established if the same relationship exists with fathers. Should an association be found, this

highlights the importance of including the father in developing interventions for families with high EE.

1.13 Hypotheses

Extrapolating from the literature on high maternal EE in the field of intellectual disability/autism, it is hypothesised that fathers with high EE will have children with more internalising and externalising problems than fathers with low EE. To measure internalising and externalising problems in children, the Strengths and Difficulties Questionnaire (Goodman, 1997) will be used.

Extrapolating from studies in both the field of autism and intellectual disability, in addition to the broader EE literature, it is further hypothesised that high EE will be statistically predicted by internalising and externalising problems in the child, psychological morbidity in the father, and the father's causal attributions of the child (internal, personal, and controllable). To measure psychological morbidity, the General Health Questionnaire 12 (Goldberg, 1992) will be used, and for attribution, paternal attributions will be extracted and coded using Guidelines for Coding Spontaneous Causal Attributions (Bolton et al., 2003).

CHAPTER TWO

METHOD

2.1 Design

The present study made use of a cross-sectional design, collecting data from a non random sample of fathers of children with autistic spectrum disorder, at a single point in time. The method used to collect data was survey research, consisting of self-completed questionnaires, as well as telephone interviews. This was considered the most appropriate method, as it enabled a large amount of data to be gathered from a wide geographical area, which also made it cost effective. Several questionnaires were included in the study. One was a screening measure to assess the likelihood of the child having autistic spectrum disorder. Two other questionnaires addressed emotional and behavioural problems in the child, and the father's psychological well-being. In addition, the father was interviewed to obtain 5 minutes of speech regarding the relationship he has with his child. This was later used for categorising paternal attributions, and Expressed Emotion, using two coding procedures.

In respect of the aims of the study, one aim was to examine whether high paternal EE was associated with internalising and externalising behaviour in children with autistic spectrum disorder. This required a between subjects design, comparing two groups of fathers, those high in EE with fathers low in EE. A further aim was to examine what statistically predicts high EE in fathers of children with autistic spectrum disorder, which required a within subjects design.

In respect of methodological limitations, cross-sectional designs do not show the direction of causal relationships, so it was not possible to infer a causal relationship. Furthermore, through using a non random sample, there is the potential for sample bias. This bias can affect the degree to which the results may be generalised beyond the sample itself. Although these represented limitations in the current study, there were practical constraints in terms of the length of time it would have taken to carry out a longitudinal study. In respect of probability sampling, this did not represent a viable option. For example, the researcher did not have access to membership lists of respective charities, to use these as sampling frames to obtain random samples.

2.2 Participants

2.2.1 Recruitment.

The study was supported by the Norfolk Autistic Society and Asperger East Anglia, who assisted with recruitment. Both organisations were hoping that study findings could be used to support grant applications for service developments, through identifying the needs of parents. The research questions were developed by the researcher based on a review of the literature on intellectual disability and autism. Therefore, fathers of children with autistic spectrum disorder study initially came from two sources, which were the membership lists of the Norfolk Autistic Society and Asperger East Anglia. The Norfolk Autistic Society has 275 members and Asperger East Anglia has 360 members. Prior to distributing information to families regarding the study, the researcher, a fellow trainee, Laura Edwards, who was researching EE in mothers, and the clinical supervisor, Dr Peter Langdon, attended meetings with the Norfolk Autistic Society and Asperger East Anglia. The purpose of these meetings

was to present research proposals and to discuss a recruitment strategy. In addition, a parents group was also attended, to gain the opinion of parents on how best to approach recruitment.

Due to a low response of fathers, voluntary organisations across the UK who provide support for families of children with autistic spectrum disorder were then approached via email. Search terms used to identify such agencies from the internet, included autism, autistic spectrum disorder, and family support. In total, 67 voluntary organisations were contacted in addition to the Norfolk Autistic Society and Asperger East Anglia.

In respect of the Norfolk Autistic Society and Asperger East Anglia, an information sheet (appendix A) regarding the study, as well as a consent form (appendix B) were sent to members of these organisations. Both organisations produce their own newsletter. Information sheets and consent forms were included in one mail out of their newsletters, along with details regarding the study (appendix C). In respect of other voluntary organisations contacted, those willing to participate placed an advert on their website and/or included the advert in their newsletter (appendix D). This provided information regarding the study and contact details. Fathers who contacted UEA to participate in the study via these other voluntary organisations, were followed-up by the researcher to send questionnaires along with an information sheet and consent form.

2.2.2 Sample.

To determine sample size, a power calculation was calculated. This was primarily based on using a logistic regression. A sample size of 98 participants was calculated using GPOWER, a general power analysis program (Faul & Edrfelder, 1992), based on 80% power

to detect a medium effect size (f^2=0.5), with alpha at 0.05. As the research was initially being carried out collaboratively with another trainee on the doctorate course, who was examining EE in mothers, data were collected jointly from the Norfolk Autistic Society and Asperger East Anglia. Fathers from voluntary organisations other than the Norfolk Autistic Society and Asperger East Anglia were followed-up solely by the researcher.

In respect of initial recruitment, 275 information sheets and consent forms were posted out to parents by the Norfolk Autistic Society, with 360 sent by Asperger East Anglia. Of this number, 128 consent forms were returned, giving a response rate of 20.2%. However, only 22 (17.2%) were fathers, of which 16 fathers participated in the study. Of the 91 consent forms and questionnaire packs forwarded to interested fathers, via the other voluntary agencies contacted, 71 returned questionnaires. The response rate from this latter group was therefore 78%.

In total, 85 fathers who participated in the study also met the inclusion criteria (see appendix I, for flowchart). Two fathers had been excluded following return of their questionnaires. This was due to their child having not received a diagnosed of autistic spectrum disorder and because they did not meet the cut-off on the Social Communication Questionnaire. Out of the 85 who met inclusion criteria, 71 fathers undertook both the interview and completed the questionnaires. However, three of the recorded interviews were inaudible, and therefore not transcribed. The data set of fathers completing both interview and questionnaires was therefore reduced to 68. Thirteen fathers returned their questionnaires, although did not complete the interview. Including the three fathers where it had not been possible to transcribe the interviews, there were questionnaire data only from 16

fathers in total. Finally, one father undertook the interview, but did not return the questionnaire pack.

Although the final sample of 68 was below the required sample size of 98, as determined by a power calculation, opportunities for recruitment had been exhausted. This included extending the research beyond East Anglia, and approaching voluntary organisations across the UK that provide support for families of children with autistic spectrum disorder. In addition to the original mail out of consent forms and information sheets to members of the Norfolk Autistic Society and Asperger East Anglia, fathers were recruited via an advert included in newsletters and/or on websites of participating agencies. Finally, support groups for fathers were attended in Greater London, Kent, and Luton.

2.2.2.1 Representativeness of sample.

In respect of the representativeness of the sample, there were a number of biases relating to the demographics of both fathers and children, as well as a potential bias through having recruited from voluntary services supporting families with ASD. In relation to demographics, it was noted that a disproportionate number of fathers participating in the study had received a university education (n=29, 43.9%). Similarly, a large number of fathers claimed to be the primary carer (n=30, 44.1%), and the majority of participants were fathers of boys with ASD (n=61, 89.7%). Volunteer bias is not uncommon in psychological research, whereby, volunteers are found to differ from people who choose not to volunteer in research. Rosenthal and Rosnow (1975) found that amongst other characteristics, volunteers tended to be more highly educated than non volunteers. In respect of the large number of fathers describing themselves as primary carer, this seems unlikely, given that most fathers were in

full time employment and married. This issue is returned to in the discussion. Finally, the issue of recruiting fathers via voluntary services, is particular relevant given that there is some evidence in the literature, associating inadequate social support and high parental EE (Lam et al. 2003). In the current sample, EE was low, which may have related to both the level, as well as satisfaction with social support, fathers received from voluntary services. Biases identified in this study, limit the degree to which findings can be generalised to all fathers of children with ASD.

2.2.3 Criteria.

2.2.3.1 Inclusion criteria.

To be included in the study, the following inclusion criteria were adopted:

1. The child must have met the cut-off score on the Social Communication Questionnaire (Berument, Rutter, Lord, Pickles, & Bailey, 1999). This was chosen since it was assumed that not all fathers would have received a formal diagnosis of autistic spectrum disorder for their child.

2. The child must have been within the age range of 3-16. This age range was stipulated because it was consistent with the norms of the Strengths and Difficulties Questionnaire (Goodman, 1997), and the Social Communication Questionnaire (Allen, Silove, Williams, & Hutchins, 2007; Berument, Rutter, Lord, Pickles, & Bailey, 1999).

3. Where the child was not living with the father, it was a requirement of the study that the child had regular face-to-face contact with the father, i.e. of at least several times a month. This was chosen given that the effect of EE is considered to be dependent on regular face-to-face contact (Leff & Vaughn, 1985).

4. Finally, an additional criterion related to where English was not the first language. It was a requirement that the father be fluent in English and be able to read and write in English. This was included given that the research design made use of self-completed questionnaires.

2.2.3.2 Exclusion criteria.

Where the father was suffering from a serious mental illness, such as psychosis.

2.2.4 Ethical issues.

Ethical approval for the study was obtained from the University of East Anglia (UEA) Faculty of Health Ethics Committee (appendix E). Ethical approval was also obtained prior to recruiting fathers from voluntary organisations nationally (appendix F).

2.2.4.1 Informed consent and confidentiality.

An information sheet providing details of the study, along with a consent form, were sent to members of the Norfolk Autistic Society and Asperger's East Anglia. These forms were also forwarded to fathers of the other voluntary organisations, who had contacted the

researcher to take part in the study. Participants were assured of confidentiality and anonymity, with the exception of where the participant informed the researcher that either they or someone they knew was at risk of serious harm. The information sheet also drew attention to how data were to be used (i.e. made anonymous and described in aggregate form) and stored. In respect of storage, reference was made to data being kept in a locked cabinet. For inclusion in the study, written consent was obtained. The consent form made explicit under point 2, that participants were free to withdraw from the study at any time. Finally, as it was not the aim of the study to identify the child in any way, and the child did not need to be contacted, informed consent from the child was not obtained.

2.2.4.2 Consideration of potential emotional impact on parents.

Whilst the study was not thought to pose any risk to participants, the General Health Questionnaire 12 included questions pertaining to the father's psychological well being, whilst the Strengths and Difficulties Questionnaire and Social Communication Questionnaire included questions about their child's behaviour. Because of this, it was assumed that answering these questions could be upsetting for some individuals. To address this likelihood, a paragraph was included in the information sheet, inviting participants to discuss such issues with Dr Peter Langdon, clinical lecturer/clinical psychologist, who had agreed to be contacted.

2.2.4.3 Data Protection Act.

To meet the requirements of the Data Protection Act, participant measures were made anonymous, by allocating a code. Codes and the corresponding names were recorded on a coding frame and also stored in a locked cabinet.

2.3 Measures

The following measures were used to examine the study hypotheses: The Preschool Five Minute Speech Sample, the Guidelines for Coding Spontaneous Causal Attributions, the General Health Questionnaire 12, and the Strengths and Difficulties Questionnaire. In addition, the Social Communication Questionnaire was included, to assess whether the child was likely to meet the inclusion criteria. Each of the measures used in the study will be described in turn, including psychometric properties.

2.3.1 The Preschool Five Minute Speech Sample.

The Preschool Five Minute Speech Sample (PFMSS; Daley, Sonuga-Barke, & Thompson, 2003) is a brief interviewer-administered measure of EE (see appendix G), where the parent is asked to talk about their son or daughter for 5 minutes in an open-ended way. The interview is tape or digitally recorded and the content along with the parent's tone of voice are coded and categorized according to four categorical scales: Initial Statement, Warmth, Relationship, Emotional OverInvolvement, and two frequency counts, Critical Comments and Positive Comments.

Daley (n.d.) defines these as below:

1. Initial Statement – this is the first thought expressed by the parent regarding their child. The Initial Statement is coded as positive, neutral, or negative. Positive statements are those where “praise”, “appreciation” or “approval” is expressed regarding the behaviour or personality of the child, or the relationship between parent and child is described in a favourable way. Neutral statements refer to descriptive or factual information, with little or no tone, or where there is not enough information to categorise the relationship as either positive or negative. Finally, negative statements refer to where the child’s personality or behaviour is described in a negative way, or the relationship is referred to unfavourably.

2. Warmth – this refers to the intensity of emotion or sentiment the parent expresses regarding their child. Consideration is taken of the tone of voice, spontaneity, as well as concern and empathy. When rating for tone of voice, a high level of Warmth is where the parent expresses enthusiasm when talking about the child. Spontaneity is where the parent makes spontaneous expressions of “affection”, “love”, or “appreciation” of the child. Other components of high Warmth are concern shown for the child, and empathy. A moderate rating is given where there is some evidence of positive changes in tone of voice where the parent talks about the child. In respect of spontaneity, there needs to be some evidence of expressions of “affection”, “love”, or “appreciation” of the child, although lacking sufficient intensity for a high rating. Finally, a moderate rating can be made where there is some evidence of concern and empathy. Where there is an absence of tone, spontaneity, empathy or concern, a low rating for Warmth is given.

3. Relationship – this relates to the quality of relationship and shared activities between parent and child. A positive relationship relates to the parent valuing and enjoying time spent with their child, or gets on well with their child. A negative relationship is where the parent makes a direct statement of an unfavourable relationship with their child. Finally, where there is insufficient information for a positive or negative relationship, this is rated as neutral.

4. Emotional OverInvolvement – this assesses self sacrificing/overprotective behaviour the parent has regarding their child, or the parent's lack of objectivity. For high ratings, there needs to be evidence that the parent has sacrificed themselves for their child, in an extreme or unusual manner, and not enjoyed making the sacrifice. Alternatively, where there is evidence that the parent always defends their child and always thinks their child is right, this is also rated high. For borderline ratings, there needs to some evidence that the parent has sacrificed themselves, which is not in an extreme or unusual manner for their child, or some evidence that the parent usually defends their child, and usually thinks their child is right. Where there is no evidence of self sacrificing/overprotective behaviour, or lack of objectivity, the rating is low.

5. Critical Comments – this represents a frequency count of negative comments regarding the child's behaviour and/or personality. Although these can be scored on the basis of tone alone, without critical content, these are generally descriptive words of a negative trait of the child and typically said in a negative tone. Alternatively, these may be descriptions of the child's behaviour, where it is

evident that the parent does not approve or like the behaviour, or the behaviour is described using a negative tone.

6. Positive Comments – this represent a frequency count of Positive Comments of "praise", "approval" or "appreciation" for the child. These are coded according to either tone, or positive phrases.

High EE is assigned, based on the existence of one negative global scale, as well as more Critical Comments than Positive Comments. In the absence of Emotional OverInvolvement, high EE on the Preschool Five Minute Speech Sample reflects the critical dimension on the Five Minute Speech Sample (Magana et al., 1986).

The Preschool Five Minute Speech Sample was deemed more appropriate than the Five Minute Speech Sample, given that the sample age of the current study included children from the age of 4. The coding of the former takes into account developmental issues, particularly when applied to children of a preschool age, for which it was developed. Daley et al. (2003) claim this includes issues such as parents tending not to openly criticize the preschool child, as well as high levels of Emotional OverInvolvement being more usual in children of preschool age.

The instructions given to parents to administer the Preschool Five Minute Speech Sample are identical to that given for the Five Minute Speech Sample (appendix G). The only difference relates to how the recorded interview is coded. Comparing the two versions, the Preschool Five Minute Speech Sample includes two new categories that were not in the Five Minute Speech Sample, and these are Warmth and Positive Comments. In respect of

Initial Statement, Emotional OverInvolvement, Relationship, and Critical Comments, Daley (n.d.) reports the Preschool Five Minute Speech Sample as differing from the Five Minute Speech Sample in the following ways:

Initial Statement – this is essentially the same in both versions, although in the Preschool Five Minute Speech Sample, negative behaviours attributed to causes external to the child are disregarded.

Relationship –clarification about recent difficulty is not an aspect of the Preschool Five Minute Speech Sample, and statements referring to a period prior to the past six months are ignored.

Critical Comments – this differs from the Five Minute Speech Sample, in that the Preschool Five Minute Speech Sample includes Critical Comments without content based Criticism (i.e. where the parent combines negative statements with critical phrases, e.g. it angers me). Over-embellishment has also been removed from the Preschool Five Minute Speech Sample.

Emotional OverInvolvement – this category of the Preschool Five Minute Speech Sample does not code emotional displays, statements of attitude, excessive detail in the past, positive remarks or excessive praise, which had formed part of the Five Minute Speech Sample. In order to make the Emotional OverInvolvement subscale more developmentally appropriate for young children, Daley et al., (2003) describes this subscale in particular as having been extensively changed.

The other measure of EE which is frequently cited in the intellectual disability literature is the Camberwell Family Interview (Vaughn & Leff, 1976), and this has been referenced in several papers (Clerici et al., 1998; Dossetor et al. 1994; Greedharry, 1987; Lam et al. 2003). The Camberwell Family Interview suffers from similar limitations as the Five Minute Speech Sample in respect of development appropriateness, and in addition, is extremely lengthy to administer (4-5 hours).

Whilst the Preschool Five Minute Speech has not been cited in the literature for studies researching EE in parents of children with intellectual disability/autism, there are several papers which have used the Five Minute Speech Sample, e.g. Beck et al. (2004), Datta, Russell, and Gopalakrishna (2002), Greenberg et al. (2006), Hastings et al. (2006), and Orsmond et al. (2006).

2.3.1.1 Psychometric properties of the Preschool Five Minute Speech Sample.

Using a sample of mothers of preschool AD/HD children, Daley et al. (2003) reported the following psychometric properties:

For reliability, this included code-recode (n=14; over a 3 month period), inter-rater (n=18), and test-retest (n=18; over a 6 month period). For Initial Statement, Warmth, and Relationship, Cohen's kappa were: 0.82, 0.66, and 0.80 for code-recode reliability, and 0.73, 0.82, and 0.73 for inter-rater reliability. For Emotional OverInvolvement this was 0.21 for code-recode and 0.19 for inter-rater reliability. Using Spearman rho correlations for Critical Comments and Positive Comments, these were: 0.77 ($p<.01$) for code-recode and 0.89 ($p<.01$) for inter-rater reliability in respect of Critical Comments. For Positive Comments,

these were 0.68 ($p<.05$) for code-recode and 0.87 ($p<.01$) for inter-rater reliability. Test-retest was lowest for reliability, with Cohen's kappa for Emotional OverInvolvement at 0.17, whilst Initial Statement, Warmth, and Relationship were 0.46, 0.44, and 0.42. For Critical Comments and Positive Comments, Spearman's rho correlations were: 0.49 ($p<.05$) and 0.42 ($p<.05$) respectively.

In respect of validity, Daley et al. (2003) also measured construct and discriminant validity. Both were found to be acceptable. Construct validity was measured comparing the Preschool Five Minute Speech Sample with the Family Impact Questionnaire (Donnenberg & Baker, 1993), which measures the negative impact the child has had on their parent and family. In addition, the Preschool Five Minute Speech Sample was also correlated with maternal behaviours observed from mother-child interactions, using a coding manual developed by Daley et al. The Five Minute Speech Sample correlated significantly with the Family Impact Questionnaire on the four categorical scales and Critical Comments, ranging from 0.25 ($p<.05$) to 0.44 ($p<.01$). Emotional OverInvolvement was non significant. Comparing the Preschool Five Minute Speech Sample with observed behaviour between mother and child, it was reported that mothers who were observed to be more affectionate towards their child, were also more positive in their Initial Statement (0.29; $p<.01$) and Relationship (0.41; $p<01$), had higher Warmth (0.41; $p<.01$), and made fewer Critical Comments (-0.41; $p<.05$). Mother's observed use of praise was associated with higher Warmth (0.28; $p<.01$), observed expansion with more positive Relationship (0.21; $p<.05$), and observed direction with lower levels of Warmth (-0.23; $p<.05$) and higher Critical Comments (0.31; $p<.01$). Finally, higher levels of observed joint play were associated with more positive Initial Statement (0.28; $p<.01$) and fewer Critical Comments (-0.27; $p<.01$).

Emotional OverInvolvement did not correlate significantly with any of the observed behaviours.

In respect of discriminant validity, the Preschool Five Minute Sample showed 100% sensitivity (the proportion of positives or cases correctly identified) and 43% specificity (the proportion of negatives, or non cases that are correctly identified by the test) in discriminating children with attention-deficit/hyperactivity disorder from non clinical cases. Finally, using Mann-Whitney *U* tests, there were significant differences ($p<.01$) between mothers of children with attention-deficit/hyperactivity disorder and mothers of non clinical children on EE. Mothers of children with attention-deficit/hyperactivity disorder were more critical of their child with attention-deficit/hyperactivity disorder ($Z= -5.48$), whilst showing less Warmth ($Z= -5.08$), positive Relationship ($Z= -4.25$), and Initial Statement ($Z= -4.24$), with fewer Positive Comments ($Z= -2.82$).

Although the reliability of the Preschool Five Minute Speech Sample administered over the telephone has not been established, Beck, Daley, Hastings, and Stevenson (2004), found 100% (n=6) agreement between face-to-face and telephone administration of the Five Minute Speech Sample (Magana et al., 1986), from which the Preschool Five Minute Speech Sample has been derived.

2.3.2 Guidelines for Coding Spontaneous Causal Attributions.

To assess paternal attributions, Guidelines for Coding Spontaneous Causal Attributions (Bolton et al., 2003) were used to extract attributions regarding the child problem behaviour, from the Preschool Five Minute Speech Sample digital recordings. The

Guidelines for Coding Spontaneous Causal Attributions provides a method for extracting and coding causal statements that arise spontaneously during naturally occurring speech. Following extraction, attributional statements can be assessed on each of the following dimension of causality:

1. Internal-external (cause is located within the child or located outside the child's control). Example:

   "He won't do what he is told, because he is a difficult child" (cause internal to child).

   "She had a tantrum, because she was given too difficult a task to do" (cause external to child).

2. Controllable-uncontrollable (belief that the child could have controlled the event, or the event is outside the child's control). Example:

   "He didn't get dressed, because he was watching television" (event controllable by the child).

   "He has difficulty in reading, due to his dyslexia" (event not within the child's control).

3. Personal-universal (event unique to the child or happens to most children in a comparable reference group).

   "He has difficulty in getting up in the morning, because that's what he is like" (event unique to child).

   "He won't deviate from his routines, which is what you would expect of a child with autistic spectrum disorder" (event common to comparable reference group).

4. Stable-unstable (cause likely to remain present, or not).

   "He has always had his routines, due to his autism" (cause representing a stable characteristic).

   "He got quite miserable, when he had a cold" (cause unstable).

The scale for the dimensions is dichotomous, with either a 1 or 3 representing either pole of the dimension e.g. 1 = the cause is considered to be internal to the child, whereas for 3 = the cause would be considered to be external to the child. If the attribution represents a combination or interaction of both poles of the dimension, a score of 2 is given for internal-external, controllable-uncontrollable, and stable-unstable. Where attributions cannot be rated on a given dimension, it is coded 9 on that dimension. Stabile-unstable, personal-universal, are coded for the child only. Controllable-uncontrollable and internal-external are rated separately for the mother and child.

The Guidelines for Coding Spontaneous Causal Attributions were used in an EE study of child behaviour problems (Bolton et al., 2003), where they were developed. The guidelines were adapted from a modified manual of the Leeds Attributional Coding System (Stratton, Munton, Hanks, Heard, & Davidson, 1988), which had been developed by White and Barrowclough (1998). The Leeds Attributional Coding System has a wide application that includes clinical, work, and consumer settings (Munton et al. 1999). White and Barrowclough (1998) developed the manual to specifically code parental attributions on preschoolers' problem behaviour. Bolton et al. adapted the White and Barrowclough (1998) manual to include additional examples of scores for each dimension to make it suitable for their study sample (schoolchildren aged 4-11). They also elaborated and clarified definitions of the dimensions.

Research undertaken by Bolton et al. (2003) represents the only other published child study, which has examined both parental attributions and Expressed Emotion.

2.3.2.1 Psychometric properties of the Guidelines for Coding Spontaneous Causal Attributions.

Bolton et al. (2003) reported acceptable to high levels of inter-rater reliability for the attribution dimensions, with Cohen's kappa ranging from 0.55 to 0.89.

2.3.3 The Strengths and Difficulties Questionnaire.

The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) is a widely used brief screening questionnaire that assesses behaviour, emotions, and relationships of children.

There are multiple versions of the Strengths and Difficulties Questionnaire, including a parent form for children aged 4-16, and a parent form for children aged 3 (and 4). Both parent forms consist of 25 items, with responses made on a 3-point Likert scale (not true to certainly true). The items are divided between 5 scales: 1) emotional symptoms, 2) conduct problems, 3) hyperactivity/inattention, 4) peer relationship problems, and 5) prosocial behaviour. Scales 1-4 can be aggregated to provide a total difficulties score, with a high score indicating the likelihood of a mental health disorder (range 0-40). Scores for each of the subscales range between 0-10.

Examples of items included in both parent forms (3/4; 4-16) include:

Emotional symptoms. “Often complains of headaches, stomach-aches or sickness.”

Conduct problems. “Often has temper tantrums or hot tempers.”

Hyperactivity/inattention. “Constantly fidgeting or squirming.”

Peer relationship problems. “Generally liked by other children.”

Prosocial behaviour. “Helpful if someone is hurt, upset or feeling ill.”

The parent version of the Strengths and Difficulties Questionnaire takes approximately 5 minutes to complete.

2.3.3.1 Psychometric properties of the Strengths and Difficulties Questionnaire.

Using a nationwide British sample of 10,438, 5-15 year children, Goodman (2001), reported the following psychometric properties for the parent version:

Items loading primarily on the theoretically predicted five-factor structure (n=9,998), which explained 45.9% of the total variance. There was no overlap between items loading on the internalising and externalising scales.

In respect of internal consistency (N=9,998), Cronbach's alphas were: 0.77 (Factor 1, hyperactivity-inattention), 0.67 (Factor 2, emotional symptoms), 0.65 (Factor 3, prosocial behaviour), 0.63 (Factor 4, conduct problems), 0.57 (Factor 5, peer relationship problems), and 0.82 for the total difficulties score.

Test-retest reliability (N=2,091) ranged from 0.57 to 0.72 for subscales, and 0.72 for the total difficulties score, over a 4-6 month interval. All were found to be significant at $p<.001$.

In respect of concurrent validity, high scores on emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems, and low scores on the prosocial problems subscale, were associated with psychiatric diagnosis. For emotional symptoms, these included any depressive, phobic, or anxiety diagnosis, including obsessive-compulsive disorder. For conduct problems, the relevant diagnoses were oppositional defiant disorder, conduct disorder, or other disruptive behavioural disorders. Calculating an odds ratio, gave 15.2 for the total difficulties scale and a range of 3.4-32.3 for the subscales.

Specificity was found to be high, ranging from 91% to 92% for subscales, and 94% for the total Strengths and Difficulties scale. Sensitivity was lower, with scales ranging from 25% to 74%, and 47% for the total scale.

Finally, in an earlier study, using the parent version on children aged 4 to 7 drawn from psychiatric and dental clinics, Goodman and Scott (1999) found support for the convergent validity of the measure. In their study, the Strengths and Difficulties Questionnaire correlated highly with the Child Behaviour Checklist (Achenbach, 1991) on equivalent scales. This included emotional symptoms and conduct problems on the Social Difficulties Questionnaire, with internalising and externalising behaviour on the Child Behaviour Checklist. Both correlations were significant at $p<.001$, and were 0.74 and 0.84 respectively (n=132).

The parent version of the Strengths and Difficulties Questionnaire has been used in EE studies, with children with intellectual disability (Beck et al., 2004; Hastings et al., 2006). The measure is also in the public domain and available to be used free of charge.

2.3.4 General Health Questionnaire 12.

The General Health Questionnaire 12 (GHQ-12; Goldberg, 1992), is a short form version of the General Health Questionnaire (Goldberg, 1972), and is widely used in research studies. The measure was designed to detect cases as opposed to non-cases of psychiatric disorder in both clinical and non-clinical populations. The General Health Questionnaire 12 is self-administered and consists of 12 items scored on a 4-point Likert scale, which requires respondents to indicate which response statement best describes how they consider

themselves to feel at present. An overall total score is provided, with a high score indicating greater psychological distress. Goldberg and Williams (1991) provided details of three different scoring methods to consider, and these are the General Health Questionnaire, the simple Likert, and the Corrected General Health Questionnaire method. Two other scoring methods were disregarded by Goldberg and Williams (1991), through offering no clear advantage over the other three and these were the discriminant function analysis, which applies differential weights to each item depending on their discriminatory power, and the modified Likert scale (0-0-1-2). The General Health Questionnaire scoring method (0-0-1-1) addresses the number of symptoms only and therefore useful for identifying cases. The Corrected General Health Questionnaire also scores symptoms only, but is more sensitive to detecting long-standing disorders. Using this corrected method, negative worded items (e.g. "been feeling unhappy and depressed?") endorsed as 'no more than usual' are treated as indicating health problems and scored as 0-1-1-1, whereas, positive items rated as 'no more than usual' are taken as representing healthy responses and scored 0-0-1-1. The simple Likert scoring method (0-1-2-3) takes into account the intensity of the intensity of symptoms, and through using a Likert scale to obtain continuous data, is consistent with the scoring method used for the Strengths and Difficulties Questionnaire. This method provides a total score ranging from 0 to 36. Both the simple Likert scoring method and the Corrected General Health Questionnaire were used in the present study.

Examples of items:

"Have you recently been able to concentrate on whatever you're doing?"

"Have you recently been feeling unhappy and depressed?"

The General Health Questionnaire 12 takes approximately 2 minutes to complete.

2.3.4.1 Psychometric properties of the General Health Questionnaire – 12.

In respect of psychometric properties, Goldberg and Williams (1991) reported the following psychometric properties for the General Health Questionnaire – 12, and cited respective studies:

Split half reliability at 0.83 and test-retest reliability at 0.73 (taken 6 months apart), based on the original validation study (Goldberg, 1972), which used both clinical and non clinical respondents.

A factor structure of the General Health Questionnaire – 12 of two to three factors. For example, Worsley and Gribbin (1977) found a three factor structure (n=603), accounting for 62% of the variance. Whereas, Burvill and Knuiman (1983) identified a two factor structure (n=2044), which explained 44% of variance. Despite the factor structure of the General Health Questionnaire 12 being inconclusive, Cronbach's alpha coefficients for internal consistency of the measure were found to be consistently above 0.80. For example, Banks et al. (1980) provided Cronbach's alpha coefficients for three non-clinical samples, which were: 0.82 (n=633), 0.82 (n=512), and 0.90 (n=92) respectively.

Criterion validity of the General Health Questionnaire was supported by three separate studies, examining the relationship between the General Health Questionnaire and

standardised psychiatric assessments (Banks, 1983; Mari & Williams, 1985; Radavanovic & Eric, 1983). Correlations were 0.53, 0.70, and 0.71 respectively.

Finally, for sensitivity and specificity, Williams, Goldberg, and Mari (1987), provided a variance weighted mean from a meta-analysis of 43 studies of different versions of the General Health Questionnaire. For the General Health Questionnaire – 12, this was 89 (asymmetric 95% confidence limits, 85% and 92%) for sensitivity, and 80 (95% confidence limits, 77% and 83%) for specificity.

Given the questionnaire's brevity to administer, and comparable psychometric properties to the longer forms of the General Health Questionnaire, the General Health Questionnaire 12 was considered the most appropriate version for inclusion in the present study. The measure is available at a concession for research undertaken by students.

2.3.5 The Social Communication Questionnaire – Lifetime form.

The Social Communication Questionnaire (SCQ; Berument et al., 1999) is represented in two versions, the Lifetime form and Current form. It is the Lifetime form that is used as a brief parental screening tool for identifying children with autistic spectrum disorder, and this was used within the present study. The Lifetime form consists of 40 items, where the parent responds to "yes-no" answers. The questionnaire assesses symptomatology associated with autistic spectrum disorder. In addition, subscores can be obtained that measure three areas of functioning: reciprocal social interaction, language and communication, and repetitive and stereotyped patterns of behaviours. Thirty-nine of the 40 items are used to produce a total score, which range between 0 to 39, with a cut off score of

15 or greater indicating a likelihood of autistic spectrum disorder in individuals aged 4 and over, and a cut off score of 11 for preschool aged children (3-5). Examples of items from the three areas of functioning:

Reciprocal social interaction. “Does her/his facial expression usually seem appropriate to the particular situation, as far as you can tell?”

Language and communication. “Do you have a to and fro conversation with her/him that involves taking turns or building on what you have said?”

Repetitive and stereotyped patterns of behaviours. “Does she/he ever have any mannerisms or odd ways of moving her/his hands or fingers, such as flapping or moving her/his fingers in front of her/his eyes?”

The Social Communication Questionnaire takes less than 10 minutes to complete.

2.3.5.1 Psychometric properties of the Social Communication Questionnaire.

The sample used for the standardisation of the Social Communication Questionnaire (Berument et al., 1999) consisted of 200 individuals who had taken part in previous research on autistic spectrum disorder (e.g. Bolton et al., 1994; Gilchrist et al., 2001; Lord, 1995). This included 160 individuals with autistic spectrum disorder (autism, atypical autism, Asperger syndrome, fragile X anomaly but not autism, and Rett’s syndrome) and 40 individuals with non autistic diagnosis (conduct disorder, specific developmental language

disorder, intellectual disability, and psychiatric diagnoses such as anxiety disorder). Rutter, Bailey, and Lord (2003), reported the following psychometric properties:

Internal consistency for four factors, which were: 0.91 (Factor 1, reciprocal social interaction), 0.71 (Factor 2, communication), 0.79 (Factor 3, language), and 0.67 (Factor 4, repetitive and stereotyped patterns of behaviour).

A four factor solution accounting for 42.4% of the total variance. Two factors mapped onto two areas of functioning, i.e. reciprocal social interaction (24.3% of variance), and repetitive and stereotyped patterns of behaviours (4.5% of variance). The other two factors were divided between communication (8.7% of variance) and language (5% of variance). Correlations between individual items to total scale score ranged from 0.26 to 0.73 (23 of the 30 exceeded 0.5).

In respect of item validity, 33 of the 39 scored items showed statistically significant differentiation of autistic spectrum disorder from other diagnoses. Of those that did not, four items related to the language and communication domain. Each had relatively high frequency with children with non autistic diagnosis, although had correlations ranging from 0.45 to 0.64 with the total score. Correlations for the other two items (item description: Self-injury and unusual attachment to objects) with total score were 0.37 and 0.27 respectively.

Convergent validity was demonstrated, with the Social Communication Questionnaire correlating significantly with the Autism Diagnostic Interview-Revised (Rutter, Le Couteur, & Lord, 2003). The correlation between the total scores was 0.71, and for reciprocal social

interaction, language and communication, and repetitive and stereotyped patterns of behaviours, these were 0.59, 0.55, and 0.59 respectively. All were significant at p<.0005.

Discriminant validity was assessed through a series of ROC analyses and t-tests. The Social Communication Questionnaire differentiated autistic spectrum disorder (n=160) from non autistic spectrum disorder conditions (which included intellectual disability; n=40) (*t*=8.73; area under the curve=0.86). As well as differentiating between autism (n=83) and intellectual disability (n=15) (*t*=7.54; area under the curve=0.92), and between autism (n=83) and non autistic spectrum disability diagnoses, excluding intellectual disability (n=25) (*t*=11.01; area under the curve=0.94). The Social Communication Scale also differentiated autism (n=83) from other autistic spectrum disorders (n=77) (*t*=5.89; area under the curve=0.74), although Rutter, Bailey, et al. (2003) reported that there was considerable overlap, with the differentiation being much less clear-cut. All were significant at p<.0005. Finally, using a cut-off point of 15 or over to differentiate autistic spectrum disorder (including autism) from other diagnoses, gave sensitivity of 0.85 and specificity of 0.75. In subsequent research using pre-school children (3-5; n=64), a cut-off score of 11 provided sensitivity of 100 and specificity of 0.62 (Allen et al., 2007).

The Social Communication Questionnaire was considered suitable for the present study, given its agreement with the Autism Diagnostic Interview-Revised, both in terms of total scale and three areas of functioning, and the fact it could be parent completed, making it appropriate for a postal survey.

2.3.6 *Demographic questionnaire.*

A brief demographic questionnaire (appendix H) designed by the researcher in collaboration with the trainee researching high EE in mothers of children with autistic spectrum disorder, to obtain basic background information on the father. In addition, questions were included regarding satisfaction with services currently received for the child with autistic spectrum disorder, as well as gaps in service provision.

The demographic questionnaire takes approximately 3 minutes to complete.

2.4 Procedure

Following ethical approval, an information sheet, consent form, and stamped UEA-addressed envelope were mailed out in a newsletter distributed by the Norfolk Autistic Society during November 2007, and also by Asperger East Anglia in their newsletter during December 2007. Following this, a reminder to return consent forms was placed on their websites. In addition, the researcher also attended support groups for parents of children with autistic spectrum disorder, run through the Norfolk Autistic Society, and Asperger East Anglia. This was to discuss the study and answer any questions members may have. Information sheets were also distributed to interested parents at these meetings, who did not happen to be members of either the Norfolk Autistic Society, or Asperger East Anglia, and therefore not included in their mailing lists.

Following receipt of the signed consent form, fathers were contacted by telephone. During this initial contact, the father was invited to ask any questions concerning the study.

The researcher also clarified the inclusion criteria with the father. Where participants met the inclusion criteria, approximately half the fathers were offered a choice of either a telephone or face-to-face interview, in order to administer the Preschool Five Minute Speech Sample, with a time and date arranged. The remaining fathers were sent questionnaire packs with a stamped return envelope. This procedure was followed to address any potential bias in responses, due to the father either being interviewed, or having completed questionnaire packs in the first instance.

Recruitment of participants from the Norfolk Autistic Society and Asperger East Anglia was carried out jointly with another trainee, who was researching EE in mothers. This meant that the researcher of the present study undertook the Preschool Five Minute Speech Sample for half of the sample of fathers, as well as carrying out the Preschool Five Minute Speech Sample for half of the sample of mothers. The other trainee undertook the remaining interviews. An initial contact was also made with the mother by telephone. As with fathers, where mothers met the inclusion criteria of the maternal study, approximately half were offered a choice of either a telephone or face-to-face interview, in order to administer the Preschool Five Minute Speech Sample. The remaining mothers were sent questionnaire packs and a stamped return envelope.

For both mothers and fathers, after questionnaire packs were returned, the parent was contacted to arrange an interview. Where the interview had been carried out in the first instance, a questionnaire pack was sent out following the interview.

The same questionnaires were sent to both mothers and fathers recruited from the Norfolk Autistic Society and Asperger East Anglia, although the researcher only used the

measures described in the measures section to address the study research hypotheses. Measures administered for the maternal study were: the Family Support Scale (Dunst, Jenkins, & Trivette (1984) and the short form of the Parental Stress Index (Abidin, 1995).

Fathers recruited from the other 67 voluntary organizations were followed-up solely by the researcher of the present study. Following contact from the father, the researcher emailed the participant an information sheet, and then arranged to discuss the study and answer any questions. Providing the respondent met the inclusion criteria, he was forwarded a consent form, along with questionnaires and a stamped UEA-addressed envelope. After the questionnaires were complete and returned, the respondent was then contacted to arrange an interview.

Questionnaire packs sent to all participating fathers were put together in a random order, prior to sending out, to take into account any bias in how participants might respond to the questionnaires, depending on how they are ordered in the pack. All measures were allocated a number to identify participants, to allow all measures returned by post to be matched with telephone interviews. This procedure also allowed measures to be identified to allow for withdrawal of consent during the study.

To check reliability of the Expressed Emotion ratings and internal attribution coding, 10 (15%) taped speech samples were independently coded. These were coded by the research supervisor for EE, and a clinical lecturer for attributions. For the Preschool Five Minute Speech Sample, there was complete agreement for overall EE (k=1). Inter-rater reliabilities were calculated for the following components: Initial Statement (k=1), Warmth (k=0.89), Relationship (k=.90), and EOI (k=1). For critical and Positive Comments, intraclass

correlation coefficients were: *r*=.85 and .84 respectively. For causal attributions these were: Internal (r=.1), control (r=.97), and personal (r=.89).

Although there were some differences between this study and Daley et al. (2003) regarding inter-rater reliability for the EE components, namely, Initial Statement, Relationship, and Emotional OverInvolvement, they had nevertheless achieved acceptable to good levels of reliability in both studies, of at least 0.73 for kappa, with the exception of Emotional OverInvolvement. Inter-rater reliability for this component was poor in Daley et al; kappa = 0.19. This was also highly discrepant from the current study, where kappa was 1. Although Emotionally OverInvolvement was rarely coded in the Daley et al. study (9% of mothers), only one father was identified as having high Emotional OverInvolvement in the present study. As none were found in the 10 speech samples independently rated, there was complete agreement on this particular component. Differences between the two studies in respect of Emotional OverInvolvement could relate to differences in parenting styles. Extrapolating from the mental health literature, previous research has found Emotional OverInvolvement to be lower in fathers than in mothers (e.g. Berkowitz, 1987; Mino et al., 1995; Santos, & Leal, 2005).

Following completion of the study, a summary of the research findings will be forwarded to participants, as well as the Norfolk Autistic Society, Asperger East Anglia, and other voluntary agencies contacted by the researcher. The summary of the research findings will include the researchers contact details.

2.5 Statistical analysis

The Statistical Package for the Social Sciences for Windows (SPSS Version 15) was used for all statistical analyses in the present study.

As there were only a small numbers of father with high EE (n=6), Critical Comments was used instead of high EE in the inferential statistics. Carrying out analysis on Critical Comments is consistent with previous research, where the relationship between components of high EE and child psychopathology has been examined (McCarty & Weisz, 2002). McCarty and Weisz (2002) found Critical Comments to be significantly related to the mothers' report of child externalising behaviour.

To test the first hypothesis (H1) that fathers with high EE will have children with more internalising and externalising problems than fathers with low EE, two Mann Whitney tests were carried out. Critical Comments was used to represent the dependent variable, due to a small number of fathers with high EE (n=6). Fathers who made Critical Comments of their child formed one group, whilst fathers who made no Critical Comments formed the other group. Differences between these two groups were examined, with Emotional symptoms and conduct problems in children on the Strengths and Difficulties Questionnaire (Goodman, 1997) used to assess internalising and externalising behaviour. These represented the dependent variables.

In respect of the second hypothesis (H2), using a logistic regression, Critical Comments in fathers were statistically predicted by internalising and externalising problems in the child, psychological morbidity in the father, and the father's causal attributions of the

child (internal, personal, and controllable). Independent variables were coded from the emotional symptoms subscale, and conduct problems subscale of the Strengths and Difficulties Questionnaire, and the General Health Questionnaire 12 (Goldberg, 1992). In addition, paternal attributions were derived from taped interviews of the fathers, initially recorded for the Preschool Five Minute Speech Sample. Bolton et al. (2003) Guidelines for Coding Spontaneous Attributions were used to code paternal attributions for the internal-external, controllable-uncontrollable, and personal-universal dimensions.

CHAPTER THREE

RESULTS

3.1 Overview of results section

The results are presented in the following sections. Demographic data of the sample is provided in section 3.2. Section 3.3 describes data for each of the measures used to examine the study hypotheses. Data prepared for inferential analysis is presented in section 3.4. In section 3.5, comparisons are provided between fathers who do not meet the cut-off on the Social Communication Questionnaire but indicate that their child has a diagnosis of autistic spectrum disorder, with fathers who do meet the cut-off. Section 3.6 addresses the first hypothesis, using Critical Comments as the dependent variable owing to a small number of fathers with high EE (n=6). Data regarding initial correlations between variables for hypothesis two are provided in section 3.7. Findings from the logistic regression are presented in section 3.8 which address the second hypothesis. Finally, a summary of the results is provided in section 3.9.

3.2 Demographics

3.2.1 Paternal demographics.

Demographic information is presented in table 1 for the 68 fathers for whom there is complete data, i.e. completed questionnaires and transcribed recordings. The table shows that the mean age of fathers participating in the study was 44.5 (SD=6.39), with ages ranging from 31 to 60. Of this sample, the majority were white (89.7%), married or cohabiting (88.2%), and employed (92.6%). Two fathers in particular remained at home to

care for their child. A particular bias in this study related to almost half of the sample (43.9%), indicating that they had attended university.

Table 1

Paternal demographics

	Number of respondents (%)
Age	Mean (SD) (range)
	44.5 6.39 31-60
Ethnicity	
White	61 (89.7%)
Black Africa	1 (1.5%)
Indian	2 (2.9%)
Asian (other)	2 (2.9%)
Other	2 (2.9%)
Total	68
Marital status	
Single	2 (2.9%)
Married/cohabiting	60 (88.2%)
Separated/divorced	6 (8.8%)
Total	68
Employment	
Full-time	53 (77.9%)
Part-time	2 (2.9%)
Self-employed	8 (11.8%)
Unemployed	3 (4.4%)
Carer	2 (2.9%)
Total	68
Educational attainment	
Left school at school leaving age	12 (18.2%)
Completed school/college 6th form	15 (22.7%)
Education or training after 18	8 (12.1%)
University	29 (43.9%)
Other	2 (3.0%)
Valid	66
Missing	2
Total	68

3.2.2 Relationship with child.

As shown in table 2, most fathers were living with their child (92.6%), and were the biological parent (91.2%). Approximately half of fathers (44.1%) reported that they were the primary carer. However, it was noted from the responses that a number of participants who indicated this, also considered this role as shared with the child's mother.

Table 2

Relationship with child

	Number of respondents (%)
Living with son/daughter	
Yes	63 (92.6%)
No	5 (7.4%)
Total	68
Biological/adoptive/foster parent	
Biological	62 (91.2%)
Adoptive	3 (4.4%)
Step parent	3 (4.4%)
Total	68
Primary carer	
Yes	30 (44.1%)
No	38 (55.9%)
Total	68

3.2.3 Child demographics.

Demographic information for the child is presented in table 3.

Table 3: *Child demographics*

	Number of respondents (%)
Age	Mean (SD) (range)
	9.4 3.62 4-16
Gender (n=68)	
Male	61 (89.7%)
Female	7 (10.3%)
Total	68
Child ethnicity (n=68)	
White	61 (89.7%)
Black African	1 (1.5%)
Indian	2 (2.9%)
Other	4 (5.9%)
Total	68
ASD diagnosis (n=62)	
Paediatrician	46 (74.2%)
Clinical psychologist	8 (12.9%)
Educational psychologist	4 (6.5%)
Psychiatrist	4 (6.5%)
Valid	62
Missing	6
Total	68
Siblings	
Yes	52 (77.6%)
No	15 (22.4%)
Valid	67
Missing	1
Total	68
Siblings with ASD	
Yes	9 (13.4%)
No	58 (86.6%)
Valid	67
Missing	1
Total	68

As shown in table 3, the mean age of children was 9.4 (SD=3.62), with ages ranging from 4-16. Most of the children were male (89.7%), and child ethnicity reflected that of the father, with the majority of children being of white origin (89.7%). A significant number of children had been diagnosed with ASD (91.2%), which had generally been made by a paediatrician (74.2%). Just over one in ten children had a sibling who was also on the autistic spectrum (13.4%).

3.3 Descriptive data

Descriptive statistics for each of the measures will be discussed in turn.

3.3.1 Social Communication Questionnaire – Lifetime form

Descriptive data from the Social Communication Questionnaire indicated that the mean score was 20.7 (SD = 6.25), with a range of 6-35. This suggests that the majority of fathers scored their child as meeting the threshold for ASD (i.e. 15 or above). The mean in this study is lower than the mean of 22.3 obtained for ASD (including autism) in the original standardisation study (Berument et al., 1999). It is noted in that study, when the mean for autism (n=83) was separated from the mean of other ASDs (n=77), the two means were 25.2 and 19.1 respectively. Given that the mean obtained in this study is closer to 19.1, could suggest that a higher proportion of fathers in the present study had children with ASDs other than autism.

3.3.2 Externalising and internalising behaviour in the child.

Two subscales from the Strengths and Difficulties Questionnaire (SDQ) were used to represent externalising and internalising problems in the child. The conduct problems scale (SDQ-E) represented child externalising problems, whilst the emotional symptoms scale (SDQ-I) was used for internalising problems. Data is presented in table 4. For the conduct problems scale, the mean was 3.0 (SD 2.20), whilst for the emotional symptoms scale, this was 3.8 (SD 2.61). As can be seen from table 4, averages for the two subscales compared to the British norms, showed that means in the study were higher, with both the mean and median classified in the borderline band. This indicated that on average, fathers considered some of their child's conduct problems and emotional symptoms to be problematic, but not so problematic to be classified as abnormal.

3.3.3 General Health Questionnaire 12.

The General Health Questionnaire 12 (GHQ-12) was used to measure emotional distress in the father. The measure was scored using the simple Likert (0-1-2-3) (GHQ-12L) as recommended by Goldberg and Williams (1991). In addition, the Corrected General Health Questionnaire scoring method (0-1-1-1) (GHQ-12C; Goodchild & Duncan-Jones, 1985) was also used, given the corrected method's sensitivity to detect long-standing disorders. UK norms for the General Health Questionnaire 12 were found to be lower than that found in the present study, where the mean was 13.7 (SD=4.79). This indicated that fathers in the present study were likely to be experiencing higher levels of emotional distress, than that usually found in fathers. The mean for the Corrected General Health Questionnaire method was 5.8 (SD=2.59) (see table 4).

Table 4: *Self report questionnaires – SDQ (n=68) and GHQ-12 (n=68)*

	SDQ-E	SDQ-I	GHQ-12 (L)	GHQ-12 (C)
Mean (SD)	3.0 (2.20)	3.8 (2.61)	13.7 (4.79)	5.8 (2.59)
UK norms	1.6 (1.7)	1.9 (2.0)	9.85-10.51 (4.30-4.84)	
Median	3.0	4.0	13.0	6.0
Range	0-10	0-10	2-32	0-12
Skewness	.78	.21	.73	-.07
Std. error of skewness	.29	.29	.29	.29
Kurtosis	.83	-.71	2.16	.05
Std. error of kurtosis	.57	.57	.57	.57

UK norms for SDQ (n=10298) taken from Meltzer, Gatward, Goodman, and Ford (2000)

UK norms for GHQ-12 (L) (n=1195-6148) taken from Pevalin (2000)

SDQ-E (child externalising problems), SDQ-I (child internalising problems), GHQ-12 (L) (General Health Questionnaire-12, using the Likert simple method), GHQ-12 (C) (General Health Questionnaire-12, using the corrected method).

3.3.4 Preschool Five Minute Speech Sample.

EE was measured using the Preschool Five Minute Speech Sample. Using this method, high EE is assigned based on one negative or low scale, as well as more negative comments than Positive Comments. From table 5, it can be seen that over half of the sample were neutral in their Initial Statement of their child (63.2%), expressed a

moderate level of Warmth (58.8%), and described the relationship in a positive way (54.4%). Finally, more positive than negative comments were expressed regarding the child, with a mean of 2.1 (SD 1.32), ranging from 0-6. Where Critical Comments were expressed, the mean average was 1.8 (SD 1.51), with the number of Critical Comments expressed ranging from 0-5. Only six (8.8%) fathers were classified as being high in EE, whilst the majority of fathers were low in EE (91.2%). Critical Comments were therefore used instead of high EE, as the dependent variable. In respect of Emotional OverInvolvement, only one father was classified as high on this scale. Examples of speech samples coded for each category:

Quality of Initial Statement:	Positive – "He's a very loving child"
	Neutral – "John is our second child"
Warmth:	High – "He is a lovely boy, he will do anything for anybody, he has a heart of gold"
	Moderate – "He is not particularly sensitive to what other people feel, but on the whole he means well"
	Low – "She's not as far forward as a lot of girls of her age. She stays sort of very, I would say a bit childish for her age"
Relationship:	Positive – "He and I really, really get on very, very well. We are really close"

	Neutral – “I wouldn’t say we’ve got on particularly badly or particularly well”
	Negative – “I would say that my relationship with my son is a difficult relationship”
Emotional OverInvolvement:	High – “So suppose she is still making noise or something then I can’t attend mass. I used to get very sad about that. We are a Catholic family and now on Sundays I can’t participate in mass because of my daughter”
	Borderline – “He doesn’t fail to use his intelligence to keep you, or change the plan that you have for the day or the time”
Critical Comments:	“He can be quite destructive, and will throw cushions off the sofa, which can be a bit embarrassing if you do have company”
Positive Comments:	“He’s a very, very intelligent boy”

Table 5

Preschool Five Minute Speech Sample (n=68)

		Frequency
Quality of Initial Statement	Positive	25 (36.8%)
	Neutral	43 (63.2%)
	Negative	0
Warmth	High	26 (38.2%)
	Moderate	40 (58.8%)
	Low	2 (2.9%)
Relationship	Positive	37 (54.4%)
	Neutral	26 (38.2%)
	Negative	5 (7.4%)
Emotional OverInvolvement	High	1 (1.5%)
	Borderline	1 (1.5%)
	Low	66 (97.1%)
Critical Comments		$\bar{x}$ 1.8 (SD 1.51; range 0-5)
Positive Comments		$\bar{x}$ 2.1 (SD 1.32; range 0-6)
Overall rating	High	6 (8.8%)
Low		62 (91.2%)

Table 6

Preschool Five Minute Speech Sample

	Critical Comments
Mean (SD)	1.8 (1.51)
Median	1.0
Range	0-5.0
Skewness	.66
Std. error of skewness	.29
Kurtosis	-.633
Std. error of kurtosis	.57

3.3.5 Guidelines for Coding Spontaneous Causal Attributions.

Attributions were measured using the Guidelines for Coding Causal Attributions. Three attribution dimensions were included as independent variables in the second hypothesis, and these were: internal, controllable, and personal. To score the three attributions, Bolton et al. (2003) guidelines were followed. For each attribution, a mean score was calculated for each father, for each of the attributions. Specifically, the number of causes coded 1, were divided by the number of causes coded 1 or 3. Scores ranged from zero to one with higher scores representing endorsement of internal, controllable,

and personal. Of the speech samples coded, eight did not contain attributions, and were therefore treated as missing data. As shown in table 7, fathers were most likely to endorse the internal dimension. Of least endorsement was control, with fathers more likely to view their child's behaviour as uncontrollable. Finally, under half of fathers saw their child's behaviour as being personal and peculiar to that child.

Table 7

Guidelines for Coding Spontaneous Causal Attributions

	Internal (n=60)	Controllable (n=60)	Personal (n=60)
Mean (SD)	.77 (.38)	.18 (.33)	.43 (44)
Median	1.00	.00	.33
Range	0-1	0-1	0-1
Skewness	-1.31	1.66	.31
Std. error of skewness	.31	.31	.31
Kurtosis	.05	1.49	-1.69
Std. error of kurtosis	.61	.61	.61

3.4 Data preparation and analysis

To prepare the data for inferential analysis, tests of normality were carried out, including examination of data for outliers. Where variables were transformed to improve normality or to reduce the effects of outliers, details are also included. Histograms regarding the distribution of data are included in the appendices.

3.4.1 Externalising and internalising behaviour in the child.

Histograms revealed non normality in data for both the conduct subscale (appendix J), and the emotional symptoms subscale (appendix K), with a distinct positive skew in the conduct problems scale, and two outliers. To examine this, skewness and kurtosis were converted into z scores for both variables, and compared against known properties of the normal distribution, i.e. 1.96. Skewness only was found for conduct problems (2.66). However, further examination of the emotional symptoms scale found this to be significant on both the Shapiro-Wilk test ($p<.01$), and Kolmorgorov-Smirnov test ($p\leq.01$). Statistical significance on these tests therefore indicated that the subscale distribution as a whole deviates from a normal distribution. Both subscale scores were transformed using a logarithm transformation and a square root transformation, with skewness and kurtosis converted into z scores. Skewness was found on both the log (-2.24) and square root (-2.23) transformation of behavioural difficulties. The emotional symptoms scale was also found to have skewness above 1.96 on both the log (-2.74), and square root transformation (-2.67).

Data on these two subscales were also inspected for significant outliers, by converting raw scores to z-scores, and checking these against known properties of a normal distribution, as well as inspecting boxplots. None of the z-scores were found to represent significant outliers, i.e. greater than 3.29. However, in respect of the boxplots, SPSS confirmed two outliers (case number 26 and 29), although not at extreme points, in the conduct problems scale. Data corresponding to the outliers were checked for any inaccuracy in data input, or coding of the variables. No inaccuracies were found. As a logarithm transformation of this variable removed these two outliers, log transformed data for the conduct problems scale was therefore used in the logistic regression to test the second hypothesis (appendix L). This was due to the sensitivity of a logistic regression to the effects of outliers. Two non parametric Mann Whitney tests were used to test the first hypothesis, due to non normality of data.

3.4.2 General Health Questionnaire 12.

Examining data for the simple Likert scoring revealed a non-normal distribution on the histogram (appendix M), with z scores calculated at 2.49 for skewness and 3.75 for kurtosis. Further inspection of the boxplot revealed an outlier (case number 24) which also had a significant z score of 3.83. As no error was found in the original coding or data input, this was therefore altered to the next highest score on the variable plus one, as recommended by Field (2005). This reduced non normality (appendix N), with z-scores at 0.35 for skewness and -0.31 for kurtosis. Furthermore, non significance was found on

both the Kolmogorov-Smirnov test (.20) and the Shapiro-Wilk test (.73) indicated that the distribution as a whole did not deviate from a normal distribution.

For the Corrected General Health Questionnaire method, the histogram showed some deviation from normality (appendix O). Although the z scores for skewness (-0.23) and kurtosis (0.10) were acceptable, the Kolmogorov-Smirnov was statistically significant ($p<.001$). Carrying out a boxplot revealed one outlier, although this was not at an extreme point. Carrying out a transformation of data still resulted in either skewness or kurtosis. For example, skewness and kurtosis was -5.95 and 6.67 for the logarithm transformation. For the square root transformation these were -4.87 and 5.57 respectively. Non parametric analysis was carried out on this variable.

3.4.3 Preschool Five Minute Speech Sample.

In respect of normality, Critical Comments were found to be positively skewed (appendix P). Whilst the z-score value for kurtosis was -1.11, skewness exceeded 1.96, with a value of 2.25. Transforming Critical Comments, using logarithm and square root, had the effect of reducing skewness. For the logarithm transformation the z-score for skewness was -0.42, with a value of -1.86 for kurtosis. Similarly, for the square root transformation, skewness was -1.17, and -1.58 for kurtosis. However, tests of normality were highly significant $p<.001$ on both the Kolmogorov-Smirnov, and Shapiro-Wilk test. Inspection of the boxplot did not reveal outliers for this variable. Due to non normality of

data, non parametric analysis using Critical Comments as the independent variable, was carried out to test the first hypothesis.

3.4.4 Guidelines for Coding Spontaneous Causal Attributions.

Histograms for all three attributions showed non normality (appendix Q, R, & S), with a negative skew for internal. For internal, the z-score for skewness was found to be high (-4.25), whilst kurtosis was 0.08. Likewise, for control, both skewness and kurtosis exceeded 1.96, with z-scores at 5.36 and 2.44 respectively. Finally, for personal, although skewness was acceptable (1.01), kurtosis was -2.78. Following square root and logarithm transformations, distributions continued to remain non normal, with z scores for either kurtosis or skewness remaining above 1.96 for all three variables. Boxplots revealed 4 outliers for control only, however, transformations removed these. As the logistic regression is sensitive to the effects of outliers, a logarithm transformation for control was included in the logistic regression (appendix T).

3.4.5 Inclusion of fathers who do not meet ASD cut-off.

Due to the small number of fathers who met the cut-off score of 15 on the Social Communication Questionnaire (n=56) for inclusion in the study, a decision was made to also include fathers in the analysis who failed to meet the cut-off, but reported that their child had received a diagnosis of ASD (n=12). To examine whether inclusion of this sample would bias the results, Mann-Whitney tests were carried out between these two

groups on all variables addressing the research hypotheses. Prior to carrying out the analysis, normality of data for the two separate sample groups was examined using the Kolmogorov-Smirnov test and Shapiro-Wilk test. On both of these tests, statistical significance of at least .05, was found for both samples, on Critical Comments and all three causal attributions. In addition, statistical significance of at least .05 was found specifically for the sample of fathers who met the Social Communication Questionnaire cut-off score, on internalising problems, externalising behaviour in the child, and paternal psychological morbidity (using the corrected method). Non significance was found for paternal psychological morbidity, using the simple Likert method on both the Kolmogorov-Smirnov test, and Shapiro-Wilk test. As data for this particular variable was found to be normally distributed for both groups, the Levene's test for homogeneity of variance was conducted. This produced a non significant result, $F(1.66)=1.05$, *ns*, indicating that the assumption of homogeneity of variance had not been violated. Mann-Whitney tests were therefore carried out on all variables, with the exception of paternal psychological morbidity, using the simple Likert method, where an independent *t*-test was used.

3.4.6 Hypothesis one.

The first hypothesis statistically predicted that fathers with high EE will have children with more internalising and externalising problems than fathers with low EE. Because of the small sample of fathers with high EE (n=6), Critical Comments was used as the independent variable. The two groups were initially examined regarding their

distribution of scores using the Kolmogorov-Smirnov test and Shapiro-Wilk test. On the Kolmogorov-Smirnov test, statistically significant results were found for fathers not making Critical Comments on the dependent variables: internalising problems ($p<.01$) and externalising behaviour ($p\leq.05$). Whereas, for the group consisting of critical fathers, there was a significant finding for externalising behaviour ($p<.01$). On the Shapiro-Wilk test all results were statistically significant of at least .05, indicating that distributions for both groups were non normal. Due to non normality of distributions, Mann-Whitney tests were chosen.

3.5 Inclusion of fathers who do not meet ASD cut-off

Due to the small number of fathers who met the cut-off score of 15 on the Social Communication Questionnaire (n=56) for inclusion in the study, a decision was made to also include fathers in the analysis who failed to meet the cut-off, but reported that their child had received a diagnosis of ASD (n=12). To examine whether inclusion of this sample would bias the results, Mann-Whitney tests were carried out between these two groups on all variables addressing the research hypotheses. Mann-Whitney tests were found to be non-significant on all variables addressing the research hypotheses, using two tailed tests (table 8). Furthermore, the *t*-test carried out on the simple Likert method for paternal distress was also non significant, $t(66)=1.20$, $p>.05$. Due to non significance, fathers who did not meet the cut-off on the Social Communication Questionnaire, but had indicated that their child had a diagnosis of autistic spectrum disorder, were therefore included in the overall sample.

Table 8

Comparison of fathers on the ASD cut-off

Variables	ASD cut-off	N	Mean (SD)	U	Sig
Critical Comments	Cut-off	56	1.7 (1.42)	335.00	.99
	Below cut-off	12	1.9 (1.93)		
Emotional distress	Cut-off	56	3.8 (2.74)	332.50	.96
	Below cut-off	12	3.7 (2.02)		
Behavioural difficulties	Cut-off	56	3.0 (2.13)	326.00	.88
	Below cut-off	12	3.1 (2.61)		
Corrected GHQ	Cut-off	56	5.7 (2.43)	324.50	.86
	Below cut-off	12	6.3 (3.28)		
Internal	Cut-off	51	0.8 (0.36)	187.00	.32
	Below cut-off	9	0.6 (0.49)		
Control	Cut-off	51	0.2 (0.33)	188.50	.36
	Below cut-off	9	0.1 (0.33)		
Personal	Cut-off	51	0.4 (0.43)	213.50	.76
	Below cut-off	9	0.5 (0.50)		

3.6 Hypothesis one.

The first proposed hypothesis was that fathers with high EE will have children with more internalising and externalising problems than fathers with low EE. Because of the small sample of fathers with high EE (n=6), Critical Comments was used as the dependent variable. As only one father was coded as being Emotionally OverInvolved with their child, this did not allow for meaningful analysis to be carried out on Emotional OverInvolvement. Carrying out analysis on Critical Comments is consistent with previous research, where the relationship between components of high EE and child psychopathology has been examined (McCarty & Weisz, 2002). Critical Comments were therefore recoded into two groups, with fathers not making Critical Comments representing one group, and fathers making Critical Comments representing the other group. This resulted in a sample of 15 fathers in the no Critical Comments group and 53 in the Critical Comments group. Dependent variables consisted of the emotional symptoms and conduct problems subscales from the Strengths and Difficulties Questionnaire.

Results from the Mann-Whitney analyses showed that fathers making Critical Comments (Mean=3.6; SD 2.13) differed from non critical fathers (Mean=1.1; SD 1.25), in having more children with externalising problems than fathers not making Critical Comments, U=125.00, p<.001, using a two-tailed test. However, critical fathers (Mean=4.0; SD 2.63) did not differ from non critical fathers (Mean=2.9 SD 2.43), in the

number of children presenting with internalising problems *U*=301.00, *ns*, using a two-tailed test.

To calculate the effect size, the following equation was used $r = \frac{z}{\sqrt{N}}$ (Rosenthal, 1991, p.19), as recommended by Field (2005, page 532), where *z* is the *z*-score, and *N* is the number of total observations. The total number of observations was 68, and the z-score was -1.442 for internalising problems, and -4.078 for externalising behaviour. The result indicated a small to medium effect size for child internalising problems, $r = \frac{-1.442}{\sqrt{68}}$, r = -.17. For externalising behaviour, the effect size was found to be medium to large ($r = \frac{-4.078}{\sqrt{68}}$, r = -.49). Whilst the first hypothesis was not directly supported, taking a component of high EE, namely Critical Comments, nevertheless produced statistically significant findings for child externalising problems. It was therefore concluded that fathers high in Critical Comments had significantly more children with externalising problems.

3.7 Hypothesis two

It was also hypothesised that high EE would be statistically predicted by internalising (SDQ-I) and externalising (SDQ-E) problems in the child, psychological morbidity in the father (GHQ-12), and the father's causal attributions of the child: internal, personal, and controllable. Critical Comments (CC) was used as the dependent variable, owing to the small number of fathers with high EE (n=6).

Prior to carrying out a logistic regression, correlations were carried out to assess the strength of relationship between the dependent variable, and each of the independent variables. In addition, correlations were carried out between the independent variables, prior to assessing for multicollinearity.

3.7.1 Correlations between Critical Comments and independent variables.

A non parametric, Spearman's rho was used, due to non normality in data. As shown in table 9, only three of the six independent variables were found to be significantly correlated with Critical Comments, less than .05, and these were internalising problems, externalising behaviour, and the control attribution.

Table 9

Correlations between dependent and independent variables

	SDQ-I	SDQ-E	GHQ-12 (C)	GHQ-12 (L)	Internal	Personal	Control
Critical Comments	.31**	.52***	-.02	.07	.15	.14	.29*

*Significant at $p < .05$ level (2-tailed)
**Significant at $p < .01$ level (2-tailed)
***Significant at $p < .001$ level (2-tailed)

SDQ-I (child internalising problems), SDQ-E (child externalising problems), GHQ-12 (C) (General Health Questionnaire, using the corrected method), GHQ-12 (L) (General Health Questionnaire, using the Likert simple method).

3.7.2 Correlations between independent variables.

Correlations between the independent variables were also examined using Spearman's rho, prior to testing for multicollinearity. As shown in table 10, there were a number of significant correlations. One finding of interest relates to a statistically significant relationship between child externalising behaviour and both scoring methods of the General Health Questionnaire ($p<.05$). The relationship between parental psychological morbidity and child externalising behaviour has previously been found in the literature (Bolton et al. 2003). This additional finding is discussed further in the discussion, particularly in relation to clinical implications.

Table 10: *Correlations between independent variables*

	SDQ-I	SDQ-E	GHQ-12 (C)	GHQ-12 (L)	Internal	Personal
SDQ-I	---					
SDQ-E	.41***	---				
GHQ-12 (C)	.14	.25*	---			
GHQ-12 (L)	.18	.34**	.92***	---		
Internal	-.02	.10	.20	.27*	---	
Personal	.10	-.02	-.18	-.09	-.20	---
Control	.10	.09	.03	-.06	-.02	.17

*Significant at $p< .05$ level (2-tailed)
**Significant at $p< .01$ level (2-tailed)
***Significant at $p\leq .001$ level (2-tailed)

SDQ-I (child internalising problems), SDQ-E (child externalising problems), GHQ-12 (C) (General Health Questionnaire, using the corrected method), GHQ-12 (L) (General Health Questionnaire, using the Likert simple method).

3.8 Logistic regression to test hypothesis two

Logistic regression was carried out to assess whether the three independent variables, child externalising behaviour, child internalising behaviour, and control, significantly predict whether the father made Critical Comments. As logistic regression requires a minimum of 20 cases per independent variable (Leech, Barrett, & Morgan, 2007), this restricted analysis to three independent variables. Independent variables included were those with the highest r values, when correlated with Critical Comments, the dependent variable in the regression analysis. The three independent variables were child internalising problems, child externalising problems, and control. Other assumptions outlined by Leech et al. were also considered to have been met. This included a minimum total of 60 cases, for the dependent variable to be dichotomous, and for the outcomes to be independent and mutually exclusive. This test was also considered to be appropriate, given that it does not rely on assumptions concerning the population distribution of scores (Weisburd & Britt, 2007). Finally, as outliers can influence the results of a multiple regression analysis (Pallant, 2005), log transformed scores for child externalising behaviour and control were used in the analysis.

Prior to carrying out a logistic regression, data was examined for multicollinearity to ensure that independent variables were not highly intercorrelated. Collinearity diagnostics were carried out using SPSS, to examine both tolerance and VIF values. For log transformed child externalising behaviour, child internalising behaviour, and the log transformed control attribution, values ranged from .88 to .99 for tolerance, and for VIF,

the range was 1.02 to 1.14. In respect of multicollinearity, tolerance values lower than .1 are considered to be problematic (Menard, 1995), as are VIF values greater than 10 (Myers, 1990). The values obtained from the collinearity diagnostics showed that there was little multicollinearity.

Given that the research hypotheses were informed by previous research, the method used in carrying out the logistic regression was forced entry method, as recommended by Field (2005). This method enters all the independent variables into the logistic equation simultaneously. A summary of the results is described below.

The log-likelihood statistic, which assesses the overall fit of the model, showed the model as more accurately predicting the dependent variable, compared to including a constant only in the model. This was indicated by the -2 log-likelihood value of 37.14 following the first step, as being lower than 62.72, where the constant only was included (a lower value indicating a better fit of the model). To establish how much better the new model predicts the dependent variable, a model chi-square statistic formed part of the analysis. This showed that when all three independent variables are considered together, they significantly predict Critical Comments, compared to when the constant only was included ($\chi^2 = 25.58$, $df = 3$, $p<.001$). The Hosmer and Lemeshow Goodness of Fit Test also provided support for the model. A poor fit is indicated by a significant value less than .05, on this test. The chi-square value of 4.58 was found, with a non significant level of .71.

The Cox and Snell R Square, and the Nagelkerke R Square, indicate the degree of variance accounted for in the dependent variable (although Leech et al, 2007, report the Cox and Snell R Square as usually representing an underestimate). Values for these two tests were .35 and .54 respectively, signifying that approximately 35% or 54% of variance in Critical Comments could be predicted from a linear combination of the three independent variables. The model also showed that it was able to correctly classify 96% (n=45) of fathers who made Critical Comments and 39% (n=5) of fathers who did not make critical fathers. The overall accuracy of the model, which is a weighted average of these two values, was therefore 83%. This represented a marginal improvement over the 78% found, when the constant was included in the model.

The remainder of the analysis is presented in table 11. The *b*-coefficients which are the values of the logistic regression equation for predicting the dependent variable from each of the independent variables, showed that it was child externalising behaviour only, with a B value of 5.55, which was statistically significant on the Wald statistic ($p<.01$). This therefore indicated that externalising behaviour in the child represented a significant predictor of Critical Comments. Neither control, nor child internalising behaviour were significant. The exp *b* gives the odds ratio for each variable. As the odds ratio for child externalising behaviour is greater than one, this indicates that as the predictor increases, the odds of the outcome occurring increase.

Two cases (case 24, and 63) were identified from the sample, where the model had not fitted well. However, neither were significant outliers (i.e. greater than 3.29).

The cases were inspected carefully, particularly to ensure that no errors had been made in data entry, or coding the variables. Neither case conformed to predicted membership. For case 63, it was predicted that the father would be in the group of non critical fathers. Inspecting the data, it was noted that during the speech sample he made a critical comment, although he had not endorsed any of the items on the Strengths and Difficulties Questionnaire to indicate behavioural problems. In respect of the other case, it was noted that the father had endorsed items on the strengths and Difficulties Questionnaire, indicating behavioural problems, but had not made any Critical Comments during the interview. It had been predicted that he would be in the Critical Comments group.

In addition, residuals were saved and inspected. It was noted that there were five DFBETA values that exceeded the suggested value of one (Field, 2005), and two cases that exceeded this value for externalising behaviour. Variables were checked for accuracy of data entry and coding. However, all other residuals were within the suggested range, including Cook's distance and leverage statistics, suggesting that these cases were not having undue influence over the model.

To calculate the effect size for *R*, the following equation from Field (2005, p.223), was used:

$$R = \pm \sqrt{\left(\frac{\text{Wald} - (2 \times df)}{-2\text{LL(Original)}}\right)}$$

The Wald statistic for externalising behaviour was 9.59 and the original -2LL was 62.72. This was calculated as follows:

$$R = \pm \sqrt{\left(\frac{9.59 - (2 \times 1)}{62.72} \right)}$$

$$= .3478$$

The effect size indicated a medium to large effect size for child externalising behaviour (R=.35).

In conclusion there was partial support for the second hypothesis, although not directly. When taking a component of high EE, namely Critical Comments, it was found that externalising behaviour only represented a statistically significant predictor. Child internalising problems and the control attribution did not significantly predict high EE.

Table 11

Results of logistic regression analysis

			95% CI for exp *b*					
	B	*(SE)*	Lower	exp *b*	Upper	Wald	*df*	Sig
Log control	165.37	50886.00	.00	6.6E+0	.	.00	1	1.00
Internalising	-.02	.17	.70	.98	1.38	.01	1	.92
Log externalising	5.55	1.79	7.68	258.13	8674.98	9.59	1	.00
Constant	-1.59	.90		.20		3.13	1	.08

3.9 Summary of results

Two main findings were indicated in the current study. One finding related to the statistically significant difference between fathers who were critical in comments of their child's behaviour/personality, compared to fathers who were not critical. Fathers who were critical had children with more externalising behaviour. However, there was no difference between critical and non critical fathers regarding whether their child presented with internalising problems.

The other main finding related to what statistically predicts Critical Comments in fathers of the child's behaviour/personality. Using a logistic regression, it was found that externalising behaviour only represented a significant predictor. Two other variables which were included in the analysis were child internalising problems and the control attribution, neither of which were statistically significant. Variables not included in the regression due to insufficient numbers required for the analysis, were: psychological distress in the father, internal, and personal attributions.

CHAPTER FOUR

DISCUSSION

4.1 Overall

The present study set out to test two hypotheses, using a sample of fathers of children with autistic spectrum disorder. The first hypothesis was testing whether there is a difference between high and low EE fathers in respect of internalising/externalising problems reported in the child. The second hypothesis was seeking to examine specifically what statistically predicts high EE in fathers. Section 4.2 will provide a summary of the results pertaining to these two hypotheses. Strengths and weaknesses of the methodology used in the study will be addressed in section 4.3, and in particular how this may have impacted on the current findings. The results will then be discussed in relation to previous research and the broader literature, in section 4.4, with additional findings in section 4.5. Following this, the clinical implications of the findings will be considered in section 4.6, as well as recommendations for future research in section 4.7. Finally, section 4.8 will provide an overall summary and draw out conclusions from the study.

4.2 Results pertaining to hypotheses

4.2.1 Hypothesis one.

The first hypothesis proposed that fathers with high EE will have children with more internalising problems and externalising behaviour than fathers with low EE. This hypothesis was informed by previous research findings carried out in both the field of intellectual disabilities and autism. Due to the small number of fathers with high EE (n=6), Critical Comments was used instead of high EE, as the dependent variable. The analysis revealed a statistically significant difference for externalising behaviour only. The results provided partial support for the first hypothesis, with fathers making Critical Comments of their child's behaviour, also having children with more externalising problems than fathers not making Critical Comments.

4.2.2 Hypothesis two.

It was further hypothesised that high EE in fathers will be statistically predicted by internalising and externalising problems in the child, psychological morbidity in the father, and the father's causal attributions of the child (internal, personal, and controllable). Similar to the first hypothesis, this was informed with reference to the EE literature in relation to intellectual disability and autism. In addition, research carried out on EE in mental health was also reviewed. As with the first hypothesis, Critical Comments represented the dependent variable, as opposed to high EE. The analysis

showed that externalising problems only, was significantly related to Critical Comments in fathers. Neither the control attribution, nor internalising behaviour was significantly related to high EE. Three variables were not included in the analysis, due to an insufficient number of participants to meet the assumptions of the test. These were psychological morbidity in the father, internal, and personal attributions.

4.3 Methodological considerations

In this section key methodological considerations will be addressed.

4.3.1. Design.

A strength of the study related to carrying out a questionnaire design and telephone interviews, which enabled participants from a wide geographical distance, to be contacted, at a relatively low cost. This was particularly important when it became necessary to recruit beyond Norfolk, due to the poor response rate. Through being able to recruit from a wide geographic area, i.e. United Kingdom enabled a sufficient number to be recruited for the logistic regression analysis.

A limitation of the design, relates to the study using a cross sectional design. With a longitudinal design, it is possible to explore the direction of effects across time. Whereas, with a cross sectional design, data is just collected at a single point in time. Due

to time constraints, and a limited budget, it was not possible to carry out a longitudinal study.

Another weakness of the design relates to the potential bias introduced into the data, through fathers completing a measure on internalising and externalising behaviour, as well as undertaking an interview, which is then coded for attributions and EE. A similar point has also been raised by Beck et al. (2004) in relation to their study, but they go on to defend this, on the grounds that parents would be unaware of the coding procedure for the Five Minute Speech Sample. The same rationale can also be applied to the use of the Pre School Five Minute Speech Sample, and Guidelines for Coding Causal Attributions. However, it is nevertheless possible that fathers who are critical of their child's behaviour, may also over report and endorse more severe the occurrence of problem behaviour. To address the likelihood of a biased response, the design of the present study could have been improved by taking teacher ratings on the Strengths and Difficulties Questionnaire, for which a version exists. This could have then been correlated with the parent version of the Strengths and Difficulties Questionnaire. It is likely that there would have been some variation in the child's internalising and externalising behaviour across settings, i.e. at home and at school. However, where this has been compared, Bolton et al. (2003) found that reports of internalising and externalising behaviour between parents and teachers ratings were generally consistent. Bolton et al., nevertheless consider that teacher's perception of the child's behaviour could be biased by the parent's account, meaning that the data is not entirely independent. Although the design of the present study could have been improved by comparing the

fathers responses against independent ratings, by including teacher ratings on the Strengths and Difficulties Questionnaire, the additional costs of administration, would not have been feasible within the study budget.

4.3.2 Participants.

The sample in this particular study, differed from other published EE studies in intellectual disabilities and autism, in that the majority of fathers were low in EE. This does raise an issue regarding the representativeness of the sample. The present study made use of a convenience sampling procedure, which means that fathers who participated in the study are likely to have differed on important characteristics from those fathers who did not volunteer. One important difference relates to educational attainment, with 44% of participants indicating that they had been to university. However, previous research has found education attainment in parents to be unrelated to high EE in the mental health literature (Duarte, De Mamani, Rosales, & Kymalainen, 2008; Karanci & Inandilar, 2002).

A further bias in the sample relates to a high number of fathers reporting that they were the primary carer of the child. Given that most of the fathers were married and in employment, this seems unlikely. Furthermore, several fathers had indicated on the demographic questionnaire that this was a role they shared with the mother. It may well be that many other fathers who also endorsed this item, perceived the care of their child as shared with the mother.

In respect of children, the majority were male (n=61, 89.7%), with only seven females (10.3%). Given that studies have shown that there are four times more boys to girls with Autistic Spectrum Disorder (Davison & Neale, 1986; Ehlers & Gilberg, 1993), this would seem to represent an underestimate. Over representation of males in the present study may have inflated some of findings in the current study. For example, males have been found to outnumber females regarding prevalence of conduct disorder, ranging from a ratio 3:1, to 5:1 (Steiner & Wilson, 1999).

Despite issues regarding the representativeness of the sample, a strength of the study relates to the participation of individuals from ethnic minority groups. White males nevertheless formed the largest group of fathers in the study (89.7%). However, in reference to the general population, this is comparable to those males reporting themselves white in the 2001 census, where the percentage was 92.1% (Office for National Statistics, 2001).

4.3.3. Measures.

To test the hypotheses, the study included two standardised questionnaires, and two coding procedures on interviews carried out. Strengths and limitations regarding these are discussed below.

4.3.3.1 Preschool Five Minute Speech Sample.

The Preschool Five Minute Speech Sample was originally developed to take into account the developmental age of the child, particularly given that the Five Minute Speech Sample had been developed for adults. Daley et al. (2003) outline limitations of the Five Minute Speech Sample, both in terms of lacking sensitivity to identify Emotional OverInvolvement in younger children, and the developmental appropriateness, in respect of the way in which the measure is scored. Whilst the Preschool Five Minute Speech Sample was chosen for the present study, due to the inclusion of children from the age of three, there were nevertheless limitations in using this coding procedure.

One particular limitation relates to comparing the findings from the Preschool Five Minute Speech Sample with other autism or intellectual disability studies, where different measures of EE have been used. The majority of EE studies published have included either the Five Minute Speech Sample, or the Camberwell Family Interview. Furthermore, because both high EE and Critical Comments are coded differently on the Preschool Five Minute Speech Sample and the Five Minute Speech Sample, it is therefore difficult to make direct comparisons between the Preschool Five Minute Speech Sample, and studies where the Five Minute Speech Sample has been used. In the present study, only one father was coded as Emotionally OverInvolved with his child, which raises a question of whether using this particular measure offered any real advantage over the Five Minute Speech Sample. In defense of using the measure, the argument regarding development appropriateness of using Five Minute Speech Sample, is presumably even

more salient in children who also present with development delay. In respect of making comparisons between samples, discrepancies exist where some studies use the Camberwell Family Interview and others use the Five Minute Speech Sample. Even where the same measure is used, such as the Five Minute Speech Sample, studies differ with regard to the scoring criteria applied to determine high EE.

4.3.3.2. Guidelines for Coding Spontaneous Causal Attributions.

This measure was adapted from a modified version of the Leeds Attributional Coding System, to devise a coding framework suitable for children from the age of 4. The measure suffers from similar limitations to the Preschool Five Minute Speech Sample, in that it requires further testing with populations other than children with behaviour problems. Even within that sample, Bolton et al. (2003) report only the reliability of the measure. However, an advantage of using the guidelines, relates to its specific focus on child behaviour, whereas, the Leeds Attributional Coding System has a wide application, across a range of disciplines.

In the present study, a particular limitation related to the coding of internal attributions. Within the guidelines, coding of this dimension takes no account of the intention of the child, but rather the location of the cause. This means that features or symptoms of a condition that are expressed as causal are coded as internal. In the context of which the guidelines were developed (Bolton et al. 2003), the main presenting problem was behavioural problems. In the present study, problematic events were frequently

attributed to features of the child's autistic spectrum disorder and/or developmental delay. Consequently most fathers' responses were coded as internal, with their being little variability on this variable. Another limitation relates to using the attribution measure on a brief interview. In the Bolton et al. study, attributions were extracted following the Camberwell Family Interview, whereas in the present study the Five Minute Speech Sample used. The Camberwell Family Interview would have enabled significantly more Critical Comments and attributions to have been extracted. Although the Five Minute Speech Sample has been used in previous attribution research (e.g. Duarte et al. 2008), Schulman, Castellon, & Seligman (2003) consider that a minimum of four to five attribution statements are required for a valid assessment of an individual's attributional tendencies. In the Bolton et al. (2003) study, the mean number of attributions was 18.3 (s.d. 6.8, range 6-37). In the present study, the mean was 1.82 (s.d. 1.0, range 1-5). Whilst the Camberwell Family Interview may have yielded more attributions had this been used, the present study consisted of fathers. Some of the fathers found it difficult to talk for five minutes, with a number of fathers declining the interview. It may be that a questionnaire of attribution needs to be considered for future research.

4.3.3.3. Standardised questionnaires.

A strength of the present study relates to the inclusion of two standardised questionnaires to collect data. For example, measures such as the Strengths and Difficulties Questionnaire, and the General Health Questionnaire 12, have both been widely used in a number of research studies, and undergone extensive psychometric

evaluation. This ensured that both were reliable and valid. Although neither was used in the two autism studies cited in the introduction, both measures have been used in EE studies of intellectual impairment.

4.3.4. Procedure.

In respect of the procedure, non response was a particular issue in the study. To reduce non-response, the study referred to recommendations outlined in Singleton, Straits, & Straits (1993) for survey research. For example, including stamped return envelopes with consent forms/questionnaire packs sent out. Following-up fathers by either email or telephone, where questionnaires were not returned. In addition, a reminder to return questionnaires/participate in the study, was included on websites of Norfolk Autistic Society and Asperger East Anglia, who supported the study. In addition, the questionnaires pertaining to the maternal study were removed, when the study was extended to the rest of the United Kingdom. Finally, support groups for fathers were attended in Greater London, Kent, and Luton. This represented a further attempt at recruitment, as the majority of fathers attending these groups, would have previously been sent details regarding the study from agencies the researcher had contacted.

In respect of weaknesses in the procedure, families who were originally contacted by the Norfolk Autistic Society and Asperger East Anglia, were forwarded just one information sheet, consent form, and stamped return envelope. Although this helped to keep the cost of the study with budget, the response rate may have been improved had

two information sheets and consent forms been sent out in the families. The majority of consent forms returned were from mothers, with just a minority from fathers. In respect of reminding families of the study, as already mentioned, the Norfolk Autistic Society and Asperger East Anglia placed a reminder on their website. However, not all families would necessarily have had access to this. The response rate may have improved had parents been posted a reminder by the Norfolk Autistic Society and Asperger East Anglia. However, there were limited funds to allow for this.

4.3.5. Analysis.

In respect of the analysis, limitations related to the sample size being below that needed for statistical power, as well as the choice of analysis used to test the first hypothesis. In relation to the first issue, there is always the possibility of a type II error having occurred, through accepting the null hypothesis when it is false. It could also be argued that power was further reduced in the study, through choosing a non parametric test to address the first hypothesis. However, as Field (2005) asserts, this argument only really holds, when parametric assumptions have been met, and a non parametric test is chosen over a parametric test.

4.4 Comparison of results with previous findings

4.4.1. Hypothesis one.

The first hypothesis proposed that fathers high in EE would have children with more internalising and externalising problems than fathers with low EE. Given that Critical Comments was used as the dependent variable, instead of high EE, this closely approximates the critical dimension of the Five Minute Speech Sample. As only one father was rated as being high on Emotional OverInvolvement, it was not possible to carry out meaningful analysis on this component. A statistically significant finding was found for externalising behaviour, although not for internalising problems. The significant finding from the present study was consistent with that found by Greenberg et al. (2006). However, Greenberg et al. found a significant relationship between high maternal EE overall, and both internalising and externalising behaviour. Similarly, Orsmond et al. (2006) also found statistical significance for maladaptive behaviour and Criticism, but had not separated maladaptive behaviour into internalising and externalising behaviour.

Whilst the non significant finding from the present study may seem at odds with both Greenberg et al. (2006), and Orsmond et al. (2006), a discrepancy may relate to a difference in measurement of EE. The present study used Critical Comments as the dependent variable, based on the Preschool Five Minute Speech Sample, whereas, others studies reviewed in the introduction, used either the Five Minute Speech Sample, or the

Camberwell Family Interview. However, it is also possible that the discrepancy between findings may relate to a difference in how internalising and externalising behaviour are measured. Both the Greenberg et al, and Orsmond et al study used the Scales of Independent Behaviour – Revised (Bruininks, Woodcock, Weatherman, & Hill, 1996). In the present study the Strengths and Difficulties measure was used, and in particular it was the conduct problems scale that was used to measure externalising problems, with internalising behaviour measured by the emotional symptoms scale. Two other studies which also used the strengths and difficulties questionnaire, in the field of intellectual disabilities (Beck et al. 2004; Hastings et al. 2006) produced results comparable to the present study. Both studies found a statistically significant finding for conduct problems, but not for emotional problems. In the Beck et al. study, this was found with high EE overall, whereas, in the Hastings et al. study, this was specific to Criticism.

Whilst reviewing the literature for autistic spectrum disorder and intellectual impairment, discrepancies clearly exists regarding whether differences between high EE are found for internalising behaviour, externalising behaviour, or both. As discussed this may relate to difference in how these variables were measured. To the researcher's knowledge, there has been no studies examining the concurrent validity between the Strengths and Difficulties Questionnaire and the Scale of Independent Behaviour – Revised. However, all the studies reviewed in the introduction in relation to the first hypothesis (Beck et al. 2004; Dossetor et al. 1994; Hastings et al. 2006; Lam et al. 2003) had consistently found a difference between high EE and behavioural problems. Furthermore, where this occurred, this related to the either EE overall, or the Criticism

component of EE. The statistically significant finding in the present study, is therefore consistent with previous findings.

4.4.2. Hypothesis two.

Prior to undertaking a logistic regression, correlations were carried out to determine which independent variables correlated most highly with the dependent variable. Three variables which were found to be non significant were: psychological distress in father, and the internal and personal attribution. Each of these will be considered in turn.

Evidence supporting the relationship between psychological morbidity in parents and high EE in the intellectual disability literature, was found in the Dossetor et al. (1994) study. However, when Emotional OverInvolvement and Criticism were examined separately, Dossetor et al. found a statistically significant result for Emotional OverInvolvement only. The non significant result in the present study is more consistent with Lam et al. (2003), where there was no significant difference between high EE and low EE parents on parental psychological morbidity. In respect of how psychological morbidity was measured, Dossetor et al. and Lam et al, both used versions of the General Health Questionnaire, ruling out the discrepancy in findings as due to a difference in measurement. One study that looked at depression and anxiety separately, using the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983), also found no relationship between high EE and depression or anxiety (Hastings et al. 2006).

The strongest evidence for an association between high EE and parental psychopathology has been found in the mental health literature (Bolton et al. 2003; Hibbs et al. 1991; Hirshfield et al., 1997; McCarty & Weisz, 2002; Schwartz et al. 1990). Based on the non significant relationship in the present study, as well as current findings in the intellectual disability literature, there is no evidence to support a relationship between Criticism/Critical Comments and psychological ill health in the parent.

Two other variables which were found not to correlate significantly with high EE were the internal and personal attribution. Furthermore, although a significant association was found for control, with a small to medium effect size, this was not found to significantly predict Critical Comments in the logistic regression. In reviewing the mental health literature, Barrowclough and Hooley (2003) reported a consistent finding across EE studies, as relating to the number of Criticisms relatives make and the size of the controllability bias they hold. The significant correlation found in the present study would at least seem consistent with the mental health literature. This would suggest that where the father thought the child's behaviour was under the child's control, he was also more likely to make Critical Comments of the child's behaviour. However, when included in a logistic regression with conduct disorder and emotional problems, this was not found to significantly predict Critical Comments.

In a study applying attribution theory to an EE study involving children, Bolton et al. (2003) found parental attributions that were personal, controllable, and internal, correlated significantly related to high parental EE. The non significant results for the

internal and personal correlations in the present study would appear to be discrepant with these findings, particularly given that the same attribution measure was used. However, discrepancy in findings could relate to a limitation of using the Guidelines for Coding Spontaneous Causal Attributions for this sample, as discussed under 4.3 methodological considerations. Furthermore, carrying out a multiple regression, Bolton et al. found only the internal dimension to significantly relate to high EE, when entering all three attributions into the analysis.

Two other variables included in the logistic regression were internalising and externalising behaviour in the child. Externalising behaviour was found to significantly relate to Critical Comments, whereas, internalising behaviour was found to be non significant. The significant finding in the present study is consistent with the Orsmond et al. (2006) study, which also used a regression analysis. However, as already discussed, Orsmond et al. had examined maladaptive behaviour as one variable, rather than separating out the effects of externalising behaviour and internalising problems.

4.5 Additional findings

One other finding that will be discussed in section 4.6, relates to the statistically significant correlations between child externalising behaviour and paternal psychological morbidity. Correlations were carried out twice, using two methods of scoring the General Health Questionnaire. One method involved using the simple Likert, whilst the corrected method was used to take into account long standing mental health issues. Of the two, the

strongest correlation was found for the simple Likert. Although correlations were carried out prior to the logistic regression, this particular finding has clinical implications. This is further discussed in section 4.7.

4.6 Theoretical issues

The findings from the present study have theoretical implications which will be discussed below.

A finding in the study was the significant correlation between the attribution of control and high EE, and as already discussed represents a consistent finding within the mental health literature. However, the correlation was only just significant at the .05 level, and control did not predict high EE in the logistic regression. Furthermore, there were no significant correlations between Critical Comments and the internal and personal attribution. This therefore provides only partial support for an attribution theory of high EE.

Finally, the non significant correlation between paternal psychological morbidity and Critical Comments in the present study, and Lam et al. (2003), does not support an earlier suggestion in the literature, of high EE as representing poor coping (Lam, et al. 1991). Although Lam et al. (2003) provided partial support, through a significant relationship between stress and high EE, this nevertheless requires further replication

with fathers. Further research involving fathers could consider including a measure of stress, and examine the relationship between stress and high EE.

In reviewing the EE literature, theories of EE have largely been based on female populations, rather than males. Further research needs to be carried out using fathers, in an attempt to replicate previous studies of mothers.

4.7 Clinical implications

Clinical implications of the present study primarily relate to the significant relationship between child externalising behaviour and high paternal EE, using a logistic regression. In respect of proposed interventions within the literature, Greenberg et al. (2006) suggest developing psychoeducational interventions aimed at reducing high EE, based on their finding of high EE leading to increased maladaptive behaviour. Greenberg et al. also consider the effects of high maternal EE is likely to be particularly stressful for the child with autistic spectrum disorder. The results from the present study suggest that any psychoeducational intervention developed, may need to include the father, and not just the mother, if the aim is to reduce the effects of high EE on the child. However, the direction of effect between child externalising behavior and high paternal EE needs to be established through carrying out longitudinal research. Furthermore, it also needs to be established that any reduction in high parental EE leads to a corresponding reduction in child externalising behaviour, and/or distress in the child.

As discussed in the introduction, the direction of effect between high EE and child externalising behaviour has not been entirely settled. Within the autism and intellectual disability literature there remains contradictory evidence. Furthermore, even where longitudinal research has been undertaken, findings have not been consistent. Hastings et al. (2006) for example, found no longitudinal relationship between high maternal EE and child externalising behaviour. In the absence of robust findings supporting the direction of effect, this suggests that psychoeducational programmes aimed at reducing parental EE, as proposed by Greenberg et al. (2006), may not be as effective as when combined with parenting programmes in behavioural management skills for their child.

An additional finding in the present study, which also has clinical implications, relates to the relationship between psychological morbidity in the father and child externalising behaviour. This was found to be strongest where the scoring was not corrected for long-standing mental health problems. Although the General Health Questionnaire 12 is used as a mental health screening measure, Hastings et al. (2006) examined the relationship between child maladaptive behaviour and depression and anxiety separately. They found a relationship that was specific to anxiety and child internalising and externalising behaviour. This would suggest that where parenting programmes in behavioural management skills are recommended, there also needs to be consideration of the psychological well-being of the parent.

Hastings and Beck (2004) have already highlighted how existing interventions focused on child problem behaviour do not consider the broader mental health status of

the parent. However, where this has been measured, there is some evidence to suggest that where parents attend behavioural management skills programmes for their child, their own outcome improves. For example, Singer, Irvin, Irvine, Hawkins, & Cooley (1989) found that paternal trait anxiety scores was significantly reduced following a parent support programme, which included behavioural management skills for their child. Similarly, Baker, Landen, & Kashima (1991) found a reduction in parental stress and depression following a group intervention, based on a behavioural parent training model.

Hastings and Beck (2004) suggest that an underlying mechanism accounting for improvements in parental well-being, may relate to parents experiencing an increase in self-efficacy through managing their child's behaviour. They go on to cite two studies where this has been reported (Feldman & Werner, 2002; Sofronoff & Farbotko, 2002). This would also suggest that there needs to be further evaluation of parent outcome, following completion of these programmes.

Finally, in some instances it may be beneficial to offer cognitive behavioural therapy to the parent, prior to/or as an adjunct to parenting interventions, as recommended by Bolton et al. (2003).

4.8 Future developments

The present study represented the first to examine parental EE in fathers with children with autistic spectrum disorder. In respect of the studies reviewed in the

introduction, the majority had recruited mothers for their sample. Even where attempts have been made to include fathers, in some cases this was then abandoned. For example, Bolton et al. (2003) attempted to recruit fathers, through inviting both parents to participate in a clinical study. However, due to a small number of fathers recruited, analysis was carried out on maternal data only. Although Bolton et al., (2003) do not explain why further attempts of recruiting fathers were not made, they nevertheless describe difficulties in recruitment due to very few fathers being available, and a high proportion of single mothers in their study. Fathers interviewed in the present study, frequently described feeling marginalised by both statutory and non statutory services. One father in particular described how health professionals would direct questions to the child's mother, leaving him feeling excluded. In respect of support groups specifically set-up for fathers of autistic children, the researcher is only aware of six in England. Three of these were in Kent, and one in Bromley (Greater London) highlighting the disparity of service provision across England. Other support groups across the UK tend to cater more for mothers and were run during the day, making it impractical for many fathers to attend. Experiences of marginalisation from services have also been expressed by fathers who were interviewed for a national survey of fathers with children with intellectual disabilities (Towers, 2007). The aim of that study was to gain a better understanding of the experiences of fathers with children with intellectual impairment, to inform both national and local policies. Future research could consider carrying out a similar study with fathers of children with autistic spectrum disorder, to develop services that are inclusive of the role of the father. In the present study, 44% of fathers indicated

that they were the primary carer. This highlights the degree to which many fathers perceived themselves as being involved in their child's care.

As well as services not fully considering the needs of fathers, models of support and interventions are being recommended in the majority of instances from data collected from mothers. Results from the present study indicate the relationship between high paternal EE and child externalising behaviour, and the importance of including fathers in parenting interventions.

The present study also identified a significant finding between psychological morbidity in the father and child externalising behaviour. This highlights the need for parent well-being to be considered when developing parenting programmes. This is turn could lead to better outcomes and engagement in such programmes. Furthermore, given that some studies have shown a corresponding improvement in parent wellbeing when attended parent behavioural management programmes for the child (Baker et al. 1991; Singer et al. 1989), also highlights the importance of including a broader range of outcome measures in evaluation research of such programmes, as proposed by Hastings and Beck (2004). This could include the General Health Questionnaires, or a comparable measure of mental health. Further research could also explore processes within these programmes that facilitate well-being in parents.

In relation to the issue of parent well-being, research could also be directed towards examining the relationship between EE and parental stress in the father. An

association has already been found between EE and maternal stress, in a study of children with behavioural problems (Baker, Heller, & Henker, 2000), as well as children with intellectual disabilities in a longitudinal study (Hastings et al. 2006). Although Hastings et al. were unable to establish the direction of relationship between parental stress and EE, they found a bi-directional relationship between maternal distress and mental health of the parents. Hastings et al. highlight the need for more research addressing the relationship between these two variables, which they consider to carry significant implications regarding interventions offered to families. For example, they go on to say that if mental health and parental stress are risk factors for each other, as indicated in their study, then treating the mental health of the parent using cognitive behavioural therapy, in isolation of the stressors of caring for a child with autistic spectrum disorder, is likely to be less effective.

In relation to methodological considerations identified earlier in the discussion, a limitation regarding the study findings may have related to the use of the Preschool Five Minute Speech Sample. This had not been used in EE studies of autism or intellectual disability reviewed in the introduction, and fathers in the present study were found to be low in EE. This raises a question regarding whether the measure is lacking sensitivity in detecting high EE in this population, or whether there was a bias in the present study towards low EE. Daley et al. (2003) recommend that the Preschool Five Minute Speech Sample undergoes further testing, which includes concurrent validity with the Camberwell Family Interview. Further evaluation of the measure should also be extended to include intellectual disability/autistic spectrum disorder, to establish whether revising

the measure to account for developmental appropriateness, particularly in relation to Emotional OverInvolvement, is offset by any reduced sensitivity to detect high EE overall. A limitation also related to using the Guidelines for Coding Spontaneous Attributions with this sample, as well as using as using this code the Preschool School Five Minute Speech Sample. Future developments could consider using a questionnaire of attribution for fathers, in future research examining the relationship between EE and attributions

In respect of improvements to the design, it may be useful to include a measure of intellectual impairment. Although there were practical issues of including such a measure in the present study, this would have enabled comparisons within the data set have been made. For example, was intellectual disability associated with externalising behaviour, as found in the Greenberg et al. (2006) study? How many of the sample are intellectually impaired? This particular question relates to the degree to which the findings can be generalised to the wider population of children with autistic spectrum disorder.

Due to the likelihood of covariance between EE and child internalising and externalising behaviour given that both measures were undertaken on the same informants, future research could also include an independent measure of internalising and externalising behaviour. For example, through administering the teacher version of the Strengths and Difficulties Questionnaire. However, as discussed by Bolton et al. (2003) it cannot be ruled out that responses made by the teacher could be influenced by parent reports.

Finally, in respect of reducing non-response, the response rate may have been increased had questionnaires been made available to be downloaded from the internet, or emailed to participants who met the inclusion criteria, as opposed to a postal survey. Research has shown that males are more likely to respond to internet based surveys, than return postal questionnaires (Howes & Mailloux, 2001). Although this would have required permission from publishers of standardised measures used in the present study, aside from any increase in response rate, an advantage would have been savings in respect of postage and administration.

4.9 Overall Summary and conclusions

The present study aimed to test the hypothesis of whether there is a difference between high and low EE fathers, in relation to internalising/externalising problems in the child. A further aim of the study was to examine independent variables that predict high EE, using a logistic regression. Whilst causality cannot be inferred from the design in the study, or the analysis carried out, the logistic regression was chosen as this indicates which independent variables, if any, statistically predict high paternal EE, as well as their relative importance. Due to most fathers being categorised as low EE, Critical Comments was used as the dependent variable. Results revealed that fathers high in Critical Comments had children with more externalising problems, than fathers not making Critical Comments. In respect of the second aim, a statistically significant relationship was found between Critical Comments and externalising behaviour only in

the logistic regression. An additional finding was an association between paternal psychological morbidity and child externalising behaviour using a Spearman's rho.

However, some degree of caution needs to be exercised in interpreting these findings. This relates to the small number of fathers with high EE, and over inclusion of males in the sample of children. There is also the possibility of measurement bias, due to fathers completing both EE measure and Strengths and Difficulties Questionnaire.

The non significant finding for paternal psychological morbidity was consistent with other EE studies which have examined the Criticism dimension. In respect of the non significant finding for internalising problems and Critical Comments, this was consistent with two studies where the same measure of internalising problems had been used. Finally, attributions were not found to significantly relate to Critical Comments in the logistic regression analysis, and therefore different from one other child study where there were significant findings for the internal attribution. Discrepancies between non significant findings in the present study, with other EE studies, may relate to sample differences, with fathers in the present sample being generally low in EE. In respect of the non significant relationship with internalising problems, a discrepancy in findings may relate to a difference in how this variable has been measured across studies. Finally, difference in the two attribution studies may relate to an insufficient number of attributions being extracted from fathers in the present study. Furthermore, the Guidelines for Coding Spontaneous Causal Attributions may not be appropriate for a sample of children with autism/intellectual impairment.

The findings from the present study highlight several important clinical issues. The first issue relates to the relationship between child externalising behavior and Critical Comments. Further longitudinal research needs to establish whether Greenberg et al. (2006) finding, that high maternal EE leads to child maladaptive behaviour, is replicated with fathers. If so, any psychoeducational interventions designed to reduce high parental EE, then needs to establish whether a reduction in high parental EE, in turn, produces a reduction in child externalising behaviour. A further clinical issue relates to the importance of considering the father's mental health when offering parenting programmes to address child externalising behaviour.

Further research could consider examining the relationship between high EE and parental stress in fathers, to investigate whether this replicates findings in the maternal literature. In addition, further research may also consider examining the relationship between paternal mental health and paternal stress, particularly given the proposed implications that a relationship between these two may have on psychological interventions offered. Finally, in relation to the experiences fathers expressed in the present study regarding feeling marginalised by services, there also needs to be focussed research addressing the father's experience of having a child with autistic spectrum disorder. This could be used to inform national and local policies on how best to include fathers in services offered to families.

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Appendix A

Information sheet

School of Medicine, Health Policy and Practice
Doctoral Programme in Clinical Psychology

University of East Anglia
Norwich
NR4 7TJ

INFORMATION SHEET

You are invited to take part in a study carried out by Laura Edwards and Ian Mallandain, trainee clinical psychologists at the University of East Anglia. Within our role as trainee clinical psychologists, we aim to reduce psychological distress, as well as enhance psychological well-being. The focus of this research is regarding the relationship you have with your son or daughter with autistic spectrum disorder. Increased understanding of the parent-child relationship can be used to help inform the type of interventions and support which could be of benefit to families experiencing psychological distress.

Please read the following information carefully because it is important that you understand why the research is being carried out and what it will involve.

The purpose of the study

The purpose of this study is to investigate what impacts on the relationship that parents have with their son or daughter with autistic spectrum disorder. In order to do this, we will be distributing questionnaires to interested parents.

Why have I been chosen?

Parents of children with autistic spectrum disorders living in East Anglia are being asked to participate in this study.

This study is interested in parents who are either living with their son/daughter with autistic spectrum disorder or are in regular face-to-face contact with them (i.e., several times per month as a minimum). Your son/daughter should be between the ages of 3-16.

If you would like to take part in this study, you will be asked to sign a consent form which indicates that you understand the purpose of this study and what it will involve. If you agree to take part, you will be free to withdraw from the study at any time, and do not need to provide a reason for this.

What will taking part involve?

This study will take place over the duration of a year. During this time, you will be interviewed once and asked to complete a set of questionnaires. The information obtained through this study also meets part of the requirements for the doctorate in clinical psychology at the University of East Anglia.

We will arrange a mutually convenient time in which to carry out the interview and send you the questionnaires. Interviews can be arranged either face to face or over the telephone.

We will ask you to take part in a five minute interview to talk about your son/daughter. In addition, you will be asked to complete six brief questionnaires. The six questionnaires will assess demographic information, child factors including autistic spectrum disorder symptoms and behavioural problems, and parental factors including stress, psychological well being, and social support. Completing these measures will take up to one hour.

Are there any risks involved in taking part in this study?

Taking part in this study has few risks. However, if any of the relationships in your family are difficult, it may upset you to talk about them or complete some of the questionnaires. If this occurs, you may have some time to discuss these issues further with Dr. Peter Langdon, who is supervising this study. Dr. Langdon's contact details are included at the end of this information sheet.

What are the benefits of taking part?

Taking part in this study will not directly benefit you or your family. However, your participation will help increase understanding of the relationship between parents of children with autistic spectrum disorders and associated factors. In turn, increased understanding of the parent-child relationship can be used to help inform future interventions and support.

What will happen with the results of this study?

Following the study, a research report will be prepared for examination by the University of East Anglia. No personally identifiable information about you will be used throughout this process. All the information you tell us is kept confidential. We will store information about you and your child in such a way as to ensure that you and child's identity is kept secret. This means that no one will be able to tell if you took part in this study by looking at the data that we have collected. However, if you tell us something that suggests that you, or someone in your family, or someone else you know is at risk of serious harm, we may have to tell someone else.

The study findings will be submitted to a scientific journal that will review the results and may decide to publish them. No personally identifiable information about research participants will be used through-out this process. A summary of the findings will be forwarded to you, the Norfolk Autistic Society and Asperger East Anglia following completion of the study.

Will my information be kept confidential?

The information collected for the purpose of this study will be kept strictly confidential, in line with the Data Protection Act (1998). All measures used in this study will be made anonymous by allocating a code. Throughout the study, your information will be kept in a locked cabinet that can only be accessed by the researchers. Following the completion of the study, your information will be stored in the archive room at the University of East Anglia for a period of five years. Your name or the names of people in your family will not be written on the questionnaires, or stored with the data we collect.

Who has given permission for this study to go ahead?

This study has been reviewed by the University of East Anglia (UEA) Faculty of Health Ethics Committee, and they have agreed for the study to go ahead.

Who can I contact for further information about this study?

You can contact Dr Langdon, who is supervising this study:

Dr Peter E Langdon
Clinical Lecturer/Clinical Psychologist
School of Medicine, Health Policy and Practice
University of East Anglia
Norwich
NR4 7TJ

Telephone: 01603 593599
Fax: 01603 593604
Email: P.Langdon@uea.ac.uk
WWW: http://www.med.uea.ac.uk/psychology

Appendix B

Consent form

School of Medicine, Health Policy and Practice
Doctoral Programme in Clinical Psychology

CONSENT FORM

University of East Anglia
Norwich
NR4 7TJ

Telephone
01603 593310
Fax
01603 593604

Name of the Chief Investigators: Laura Edwards and Ian Mallandain

		Please Initial
1.	I confirm that I have read and understand the information sheet and have had the opportunity to ask questions.	
2.	I understand that my participation is voluntary and that I am free to withdraw from the study at any time without having to give a reason.	
3.	I understand and agree to participate in an interview and complete some questionnaires and answer questions about my son/daughter.	
4.	I consent to the interview being taped for the purpose of the study.	
5.	I understand that all information will be kept securely and confidentially by the researchers.	
6.	I understand that if I tell you something which suggests that I am at risk of serious harm, or I tell you that someone in my family, or someone else I know is at risk of serious harm, the researchers may have to tell someone else.	
7.	I agree to take part in the study.	

NAME OF PARTICIPANT: _____

ADDRESS: _____

CONTACT TELEPHONE NUMBER: _____

PARTICIPANT IDENTIFICATION NUMBER: _____

SIGNATURE: _____ DATE: _____

NAME OF RESEARCHER: _____

SIGNATURE: _____ DATE: _____

Appendix C

Details of study

RESEARCH INTO AUTISM AT THE UNIVERSITY OF EAST ANGLIA

You are invited to take part in a study carried out at the University of East Anglia. We are hoping that the findings of this study will contribute to a greater understanding of the needs of families and ultimately improve the support that you receive.

We are looking to speak to mothers or fathers who have a child with an autistic spectrum disorder. Taking part will require a five minute interview about your son or daughter, which can be carried out either over the telephone, or in your home. We will also require you to complete some questionnaires which ask you questions about how things are for you and your child.

If you are interested in taking part, we have included an information sheet regarding the study in this newsletter. To participate, please sign the enclosed consent form and return in the stamped addressed envelope.

Upon receipt of this, the researchers will contact you to arrange a convenient time to carry out the interview.

We look forward to hearing from you.

Ian Mallandain, Trainee Clinical Psychologist
Laura Edwards, Trainee Clinical Psychologist
Dr Peter Langdon, Clinical Psychologist & Lecturer in Clinical Psychology

Appendix D

Advert regarding study

RESEARCH INTO AUTISM AT THE UNIVERSITY OF EAST ANGLIA

We are looking to speak to fathers who have a child, between the age of 3-16, with an autistic spectrum disorder. Taking part will require a five minute interview about your son or daughter, which can be carried out either over the telephone, or in your home where practical. We will also ask you to complete some questionnaires which ask you questions about how things are for you and your child.

We are hoping that the findings of this study will contribute to a greater understanding of the father-child relationship, which could help inform future support and interventions.

If you are interested in taking part, please contact Ian Mallandain or Dr Peter Langdon on the following telephone number or email address.

Telephone: 01603 593599

Email: P.Langdon@uea.ac.uk

Appendix E

Ethics letter

Ian Mallandain
Trainee Clinical Psychologist
MED
UEA

24 September 2007

Dear Ian

Predictors of high paternal expressed emotion towards children with autism

Thank you for your email with amendments. This was passed to the Chair for action.

The proposal was approved and the committee wish you luck with your research.

Yours sincerely

Debbie Graver
Notetaker
Faculty of Health Ethics Committee
Tel: 01603 591023
Email: Deborah.Graver@uea.ac.uk

Appendix F

Ethics letter

9th July 2008

Dear Ian,

Predictors of high paternal expressed emotion towards children with autism –REF: 200733

The amendment of your research proposal was passed to the Chair for action who is happy with the amendments made. The committee would like to wish you good luck with your research.

Please could you ensure that any adverse events are reported to the committee and that the committee are consulted before you make any amendments to the protocol or documentation. Please could you also arrange to send the Committee a report at the end of your project.

Yours sincerely

Debbie Graver
Notetaker
Faculty of Health Ethics Committee
Tel: 01603 591023
Email: Deborah.Graver@uea.ac.uk

Appendix G

Instructions for administering the

Preschool Five Minute Speech Sample

INSTRUCTIONS FOR ADMINISTERING THE FIVE MINUTE SPEECH SAMPLE

Verbatim Instructions

In order to ensure consistency in the data, when administering the Five-Minute Speech Sample the following instructions are to be read aloud **exactly as follows**:

EXAMINER: *I'd like to hear your thoughts and feelings about (person's name), in your own words and without my interrupting with any questions or comments. When I ask you to begin I'd like you to speak for 5 minutes, telling me what kind of a person (person's name) is and how the two of you get along together. After you begin to speak, I prefer not to answer any questions until after the 5 minutes are over. Do you have any questions before we begin?*

IMPORTANT: Once the respondent has begun to speak, the examiner may only make <u>one</u> comment.

"Please tell me <u>anything</u> about (relative's name) for a few more minutes."

Appendix H

Demographic questionnaire

School of Medicine, Health Policy and Practice
Doctoral Programme in Clinical Psychology

University of East Anglia
Norwich
NR4 7TJ

Telephone
01603 593310
Fax
01603 593604

Demographic Questionnaire

Surname …….

First name …….

Address …….

…….

Postcode..……

Telephone Number ……

DOB ……...

Marital Status

Single Married / cohabiting Separated / Divorced Widowed

Employment Status (tick more than one box if applicable)

Full-time Part-time Self-employed Unemployed Carer

Student Retired Homemaker Other

How much full time education have you received?

Left school at school leaving age Completed school / college 6th form education

Education or training after 18 University Other

Ethnic Origin

White		**Pakistani**	
Black Caribbean		**Bangladeshi**	
Black African		**Chinese**	
Black Other		**Asian Other**	
Indian		**Other Ethnic Group**	

Has your child been diagnosed with autistic spectrum disorder? If so, who diagnosed your child?

Paediatrician	
Clinical Psychologist	
Educational Psychologist	
Neurologist	
Psychiatrist	
Other, please name.	

Number of children ……

Are you living with your son/daughter with autistic spectrum disorder? ……

Are you the primary carer of your son/daughter with autistic spectrum disorder?.....

Are you the biological or adoptive/foster parent of your son/daughter with autistic spectrum disorder? ……...……..

Is this child male / female?.....

What is the DOB of this child?.....

What is the ethnicity of this child? ……

If you have more than one child, do any of your other children also have autistic spectrum disorder? Yes No

Number of weeks respite per year ……

What services do you receive for your child with autistic spectrum disorder?

.....

.....

Are you satisfied with the support you receive from services? Yes No
If not, why?
……

How could things be improved?.....

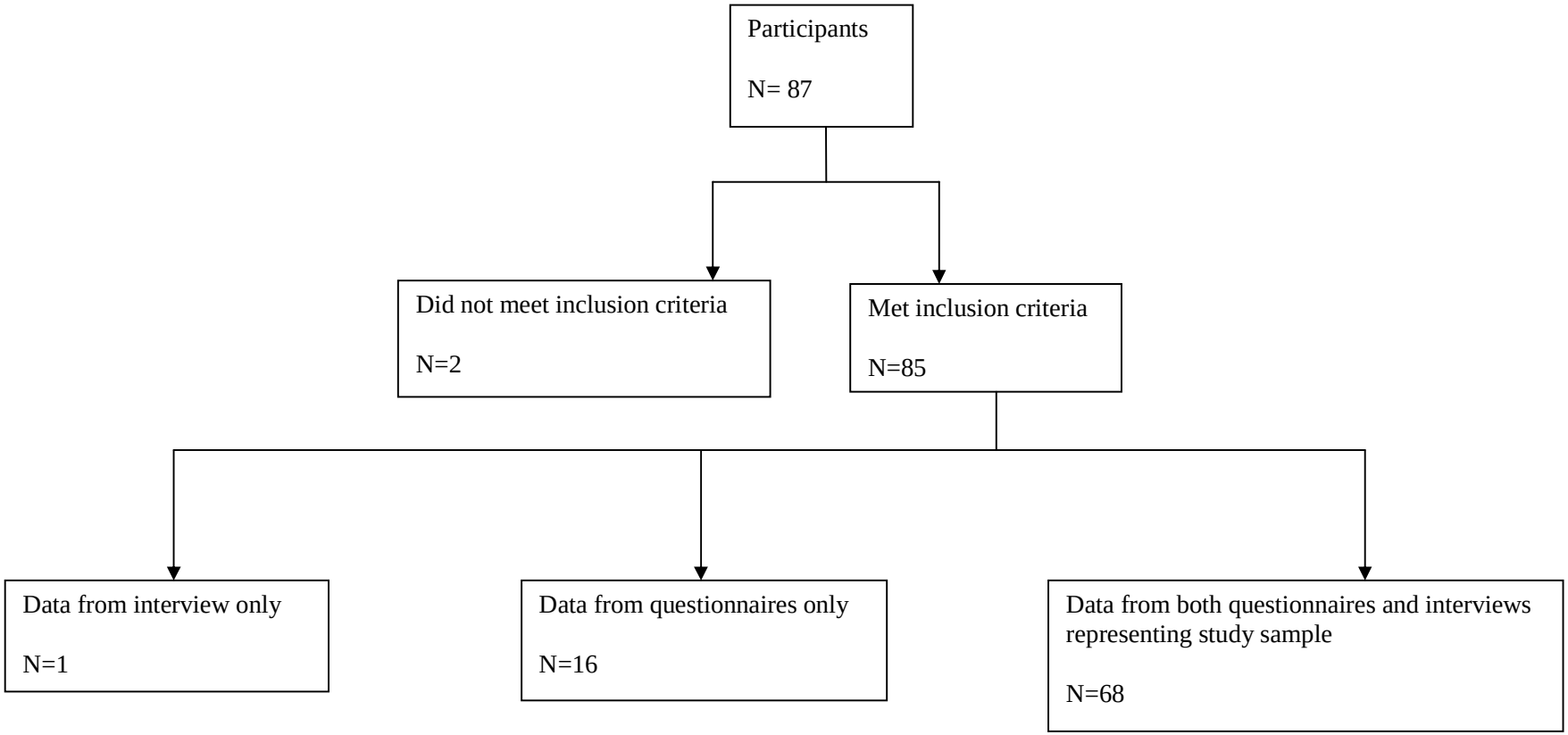
……

Ian Mallandain
Trainee Clinical Psychologist
MED
UEA

Appendix I

Figure 1: Participant inclusion

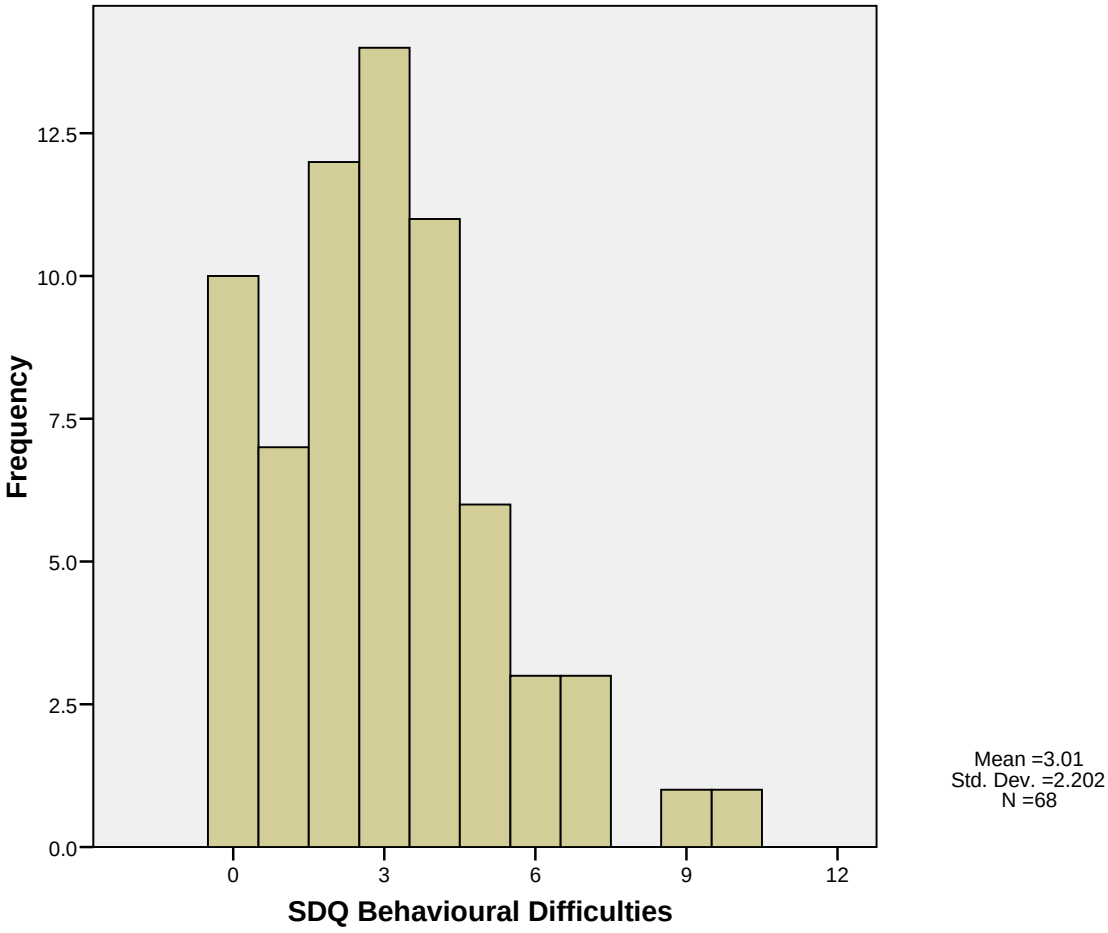
Figure 1: Participant inclusion



Appendix J

Figure 2: Histogram of conduct problems scale

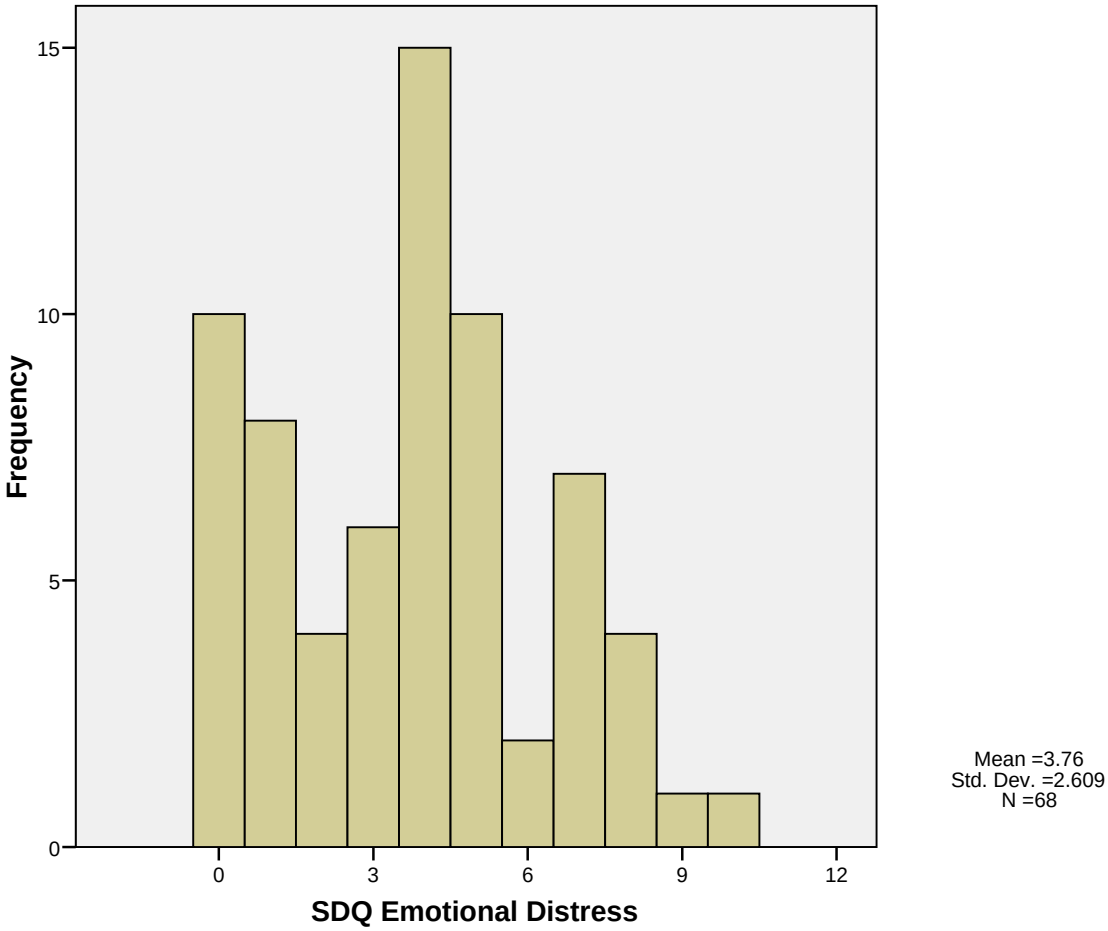
Figure 2: Histogram of conduct problems scale



Appendix K

Figure 3: Histogram of emotional symptoms scale

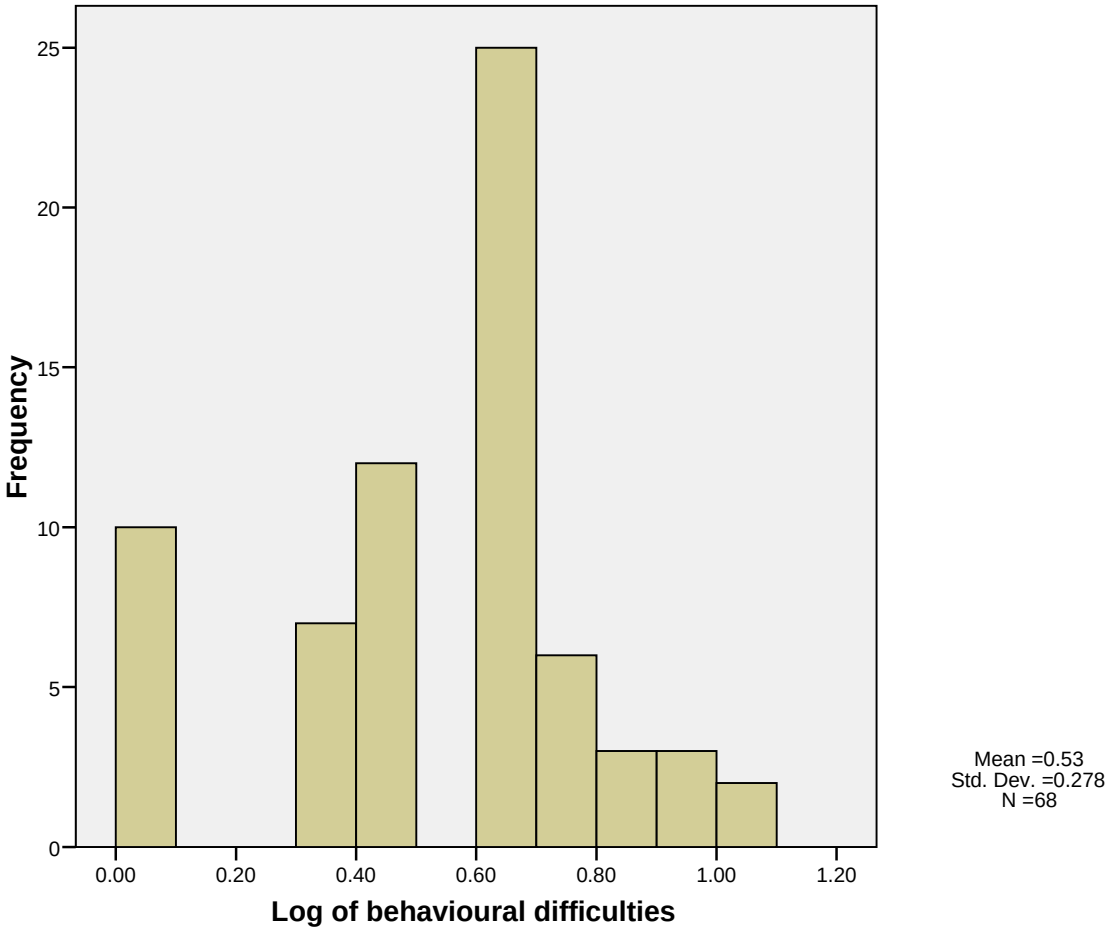
Figure 3: Histogram of emotional symptoms scale



Appendix L

Figure 4: Histogram of log transformed conduct problems scale

Figure 4: Histogram of conduct problems scale, following a logarithm transformation



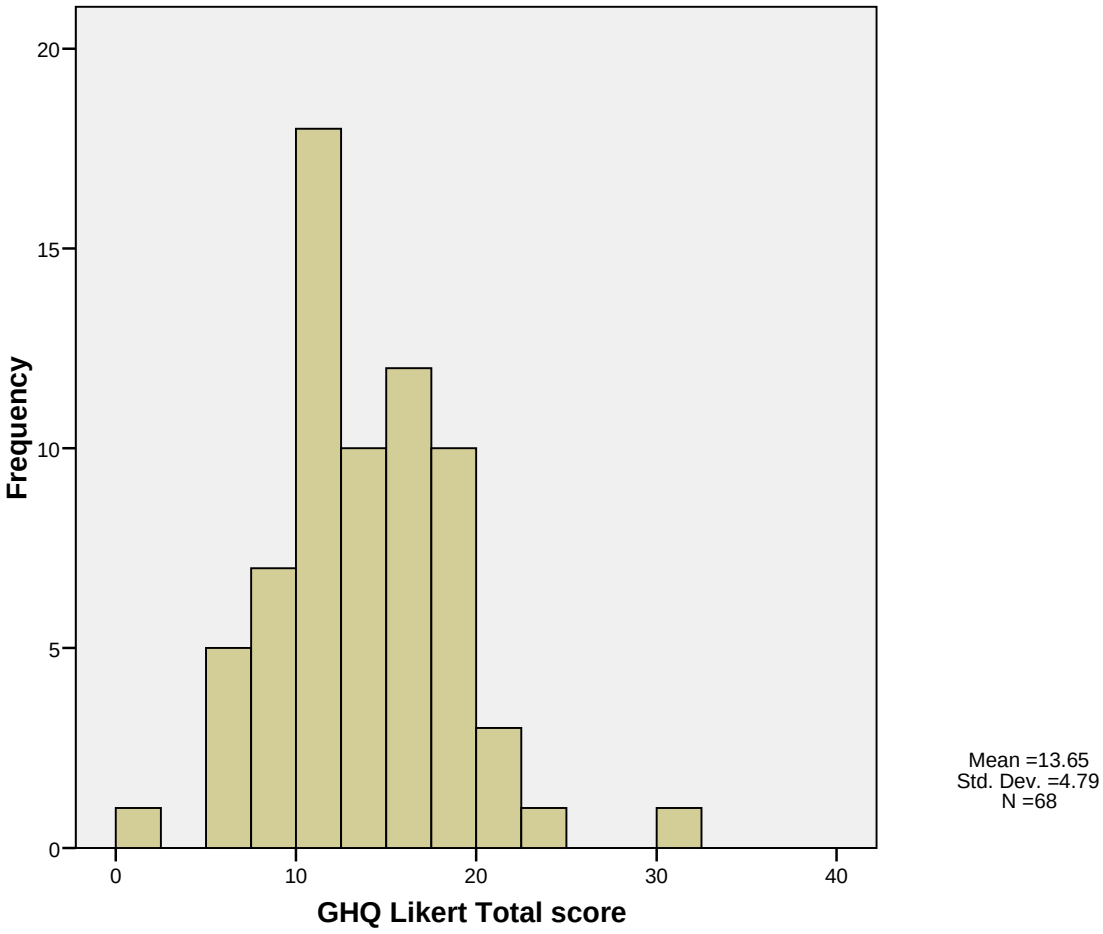
Appendix M

Figure 5: Histogram of General Health Questionnaire 12

Simple Likert method

Figure 5: Histogram of General Health Questionnaire 12

Simple Likert



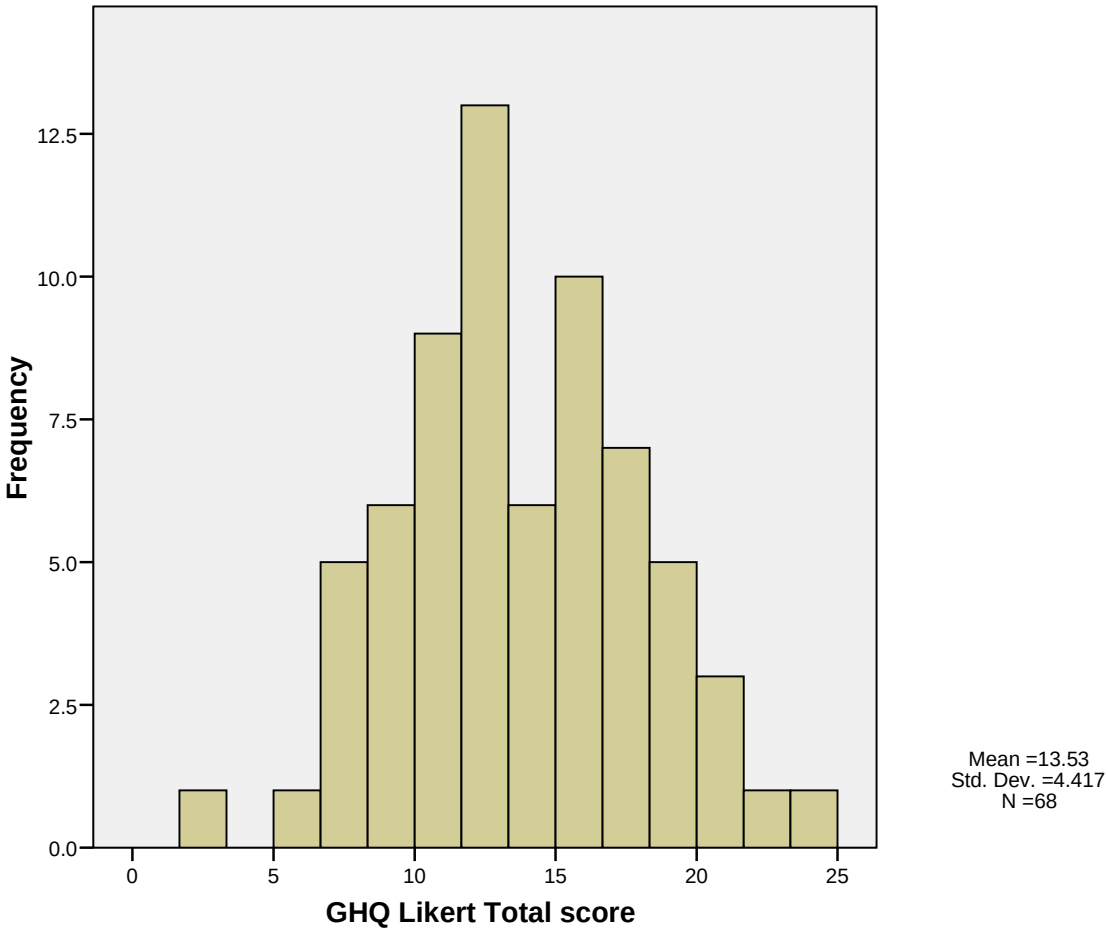
Appendix N

Figure 6: Histogram of General Health Questionnaire 12

Simple Likert method (without outlier)

Figure 6: Histogram of General Health Questionnaire 12

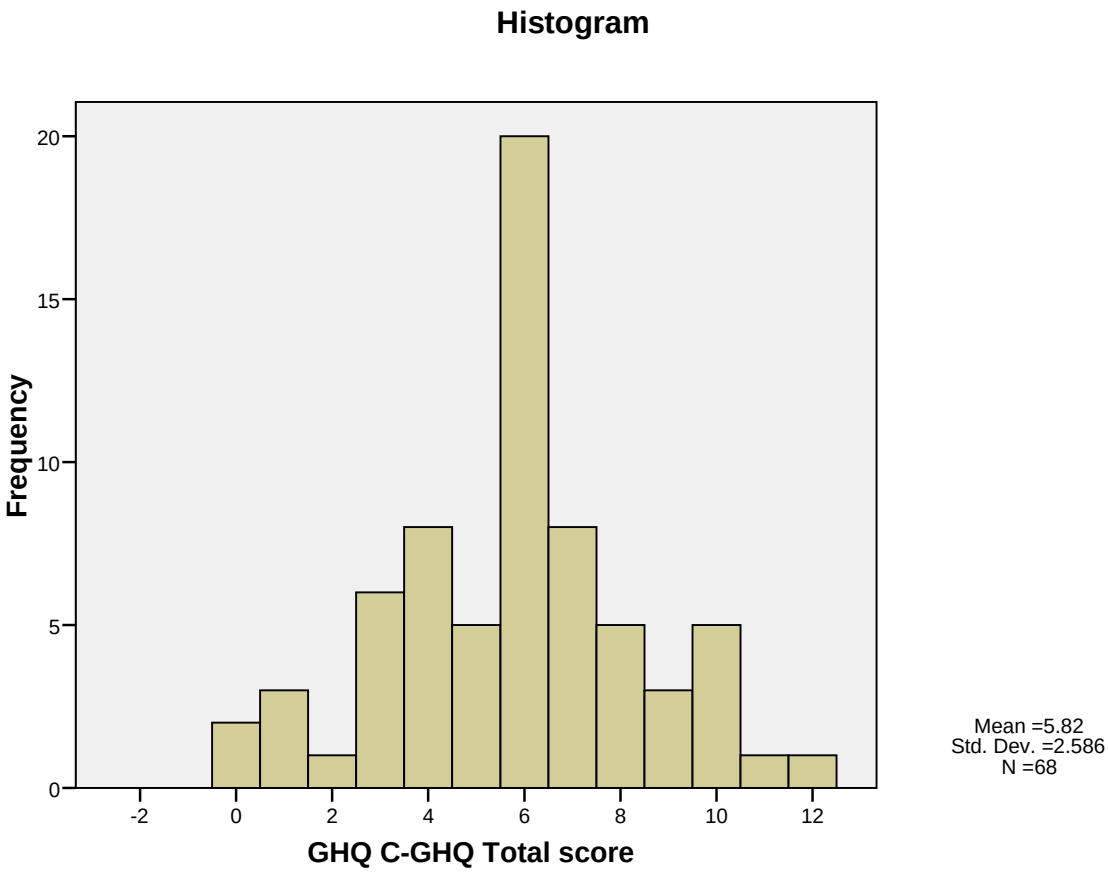
Simple Likert (without outlier)



Appendix O

Figure 7: Histogram of Corrected General Health Questionnaire 12

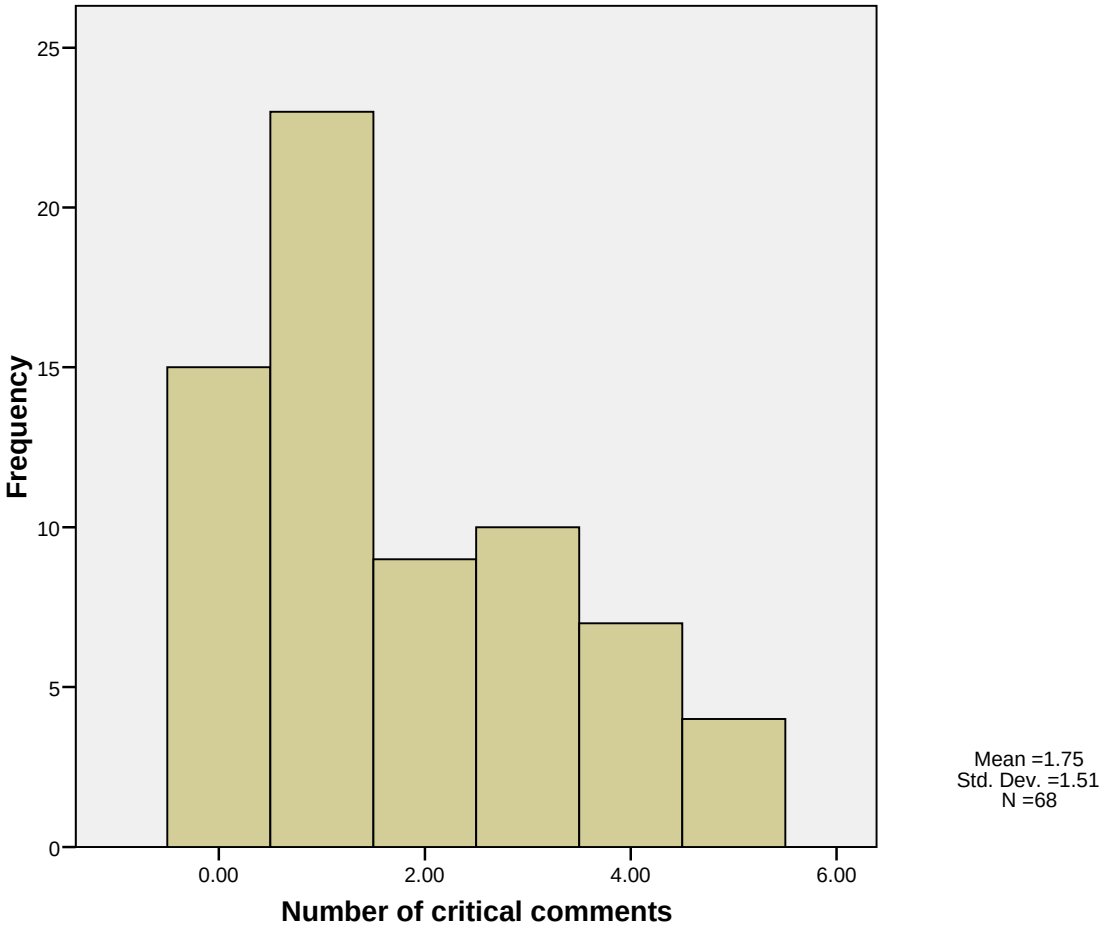
Figure 7: Histogram of General Health Questionnaire 12



Appendix P

Figure 8: Histogram of Critical Comments

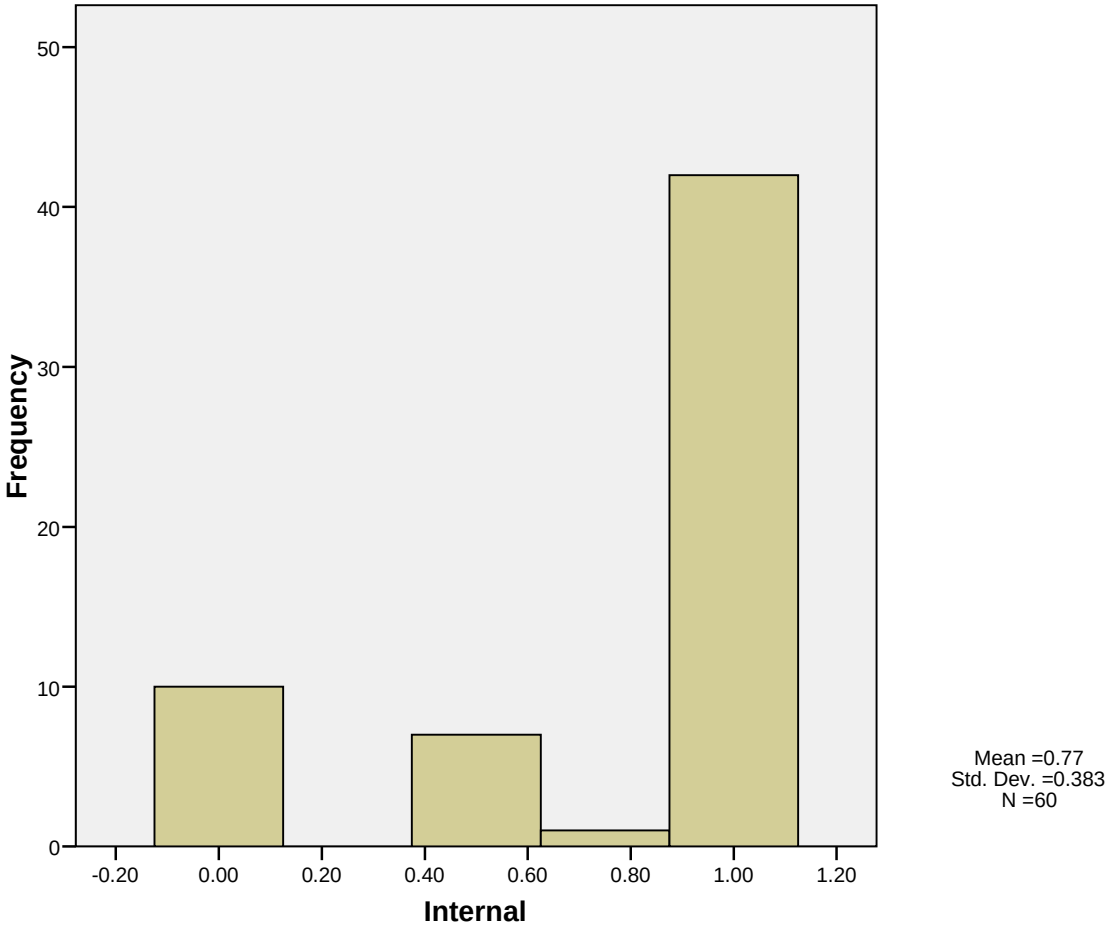
Figure 8: Histogram of Critical Comments



Appendix Q

Figure 9: Histogram of internal attributions

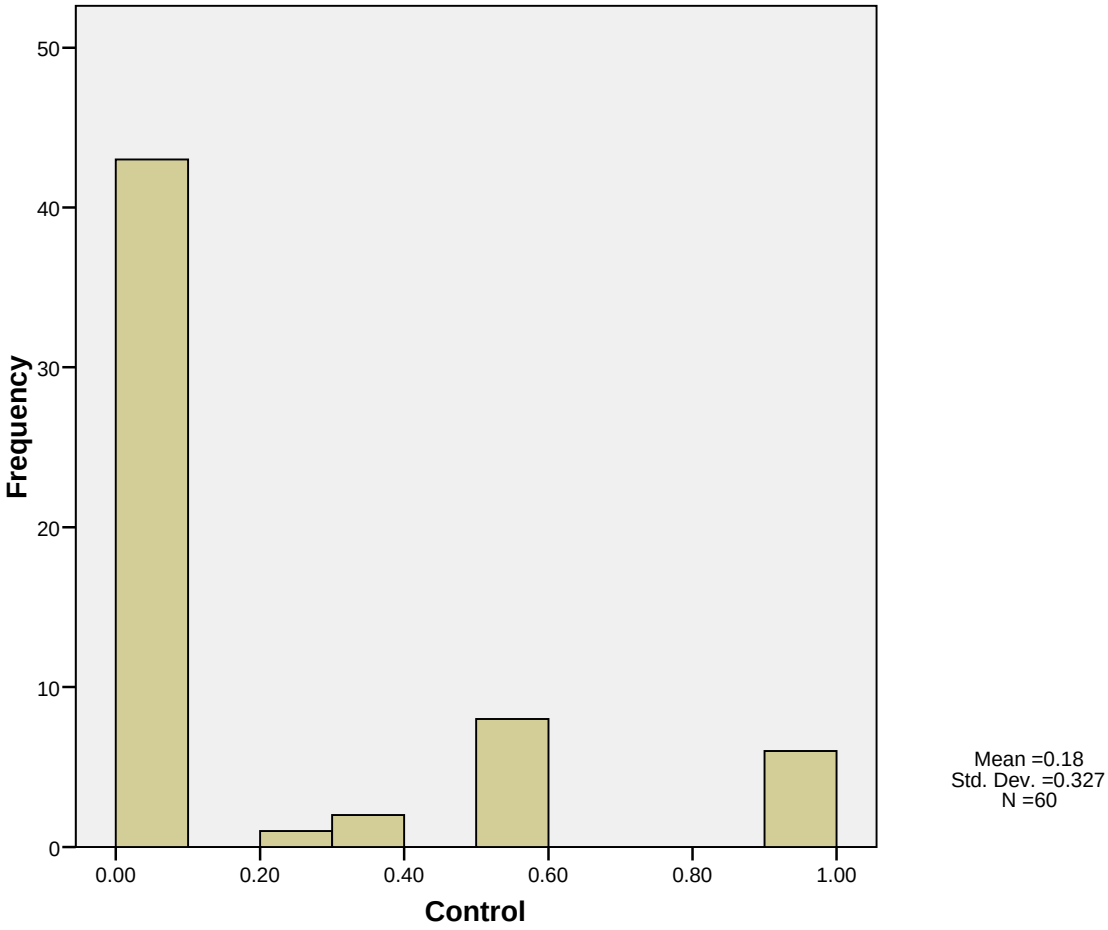
Figure 9: Histogram of internal attributions



Appendix R

Figure 10: Histogram of control attributions

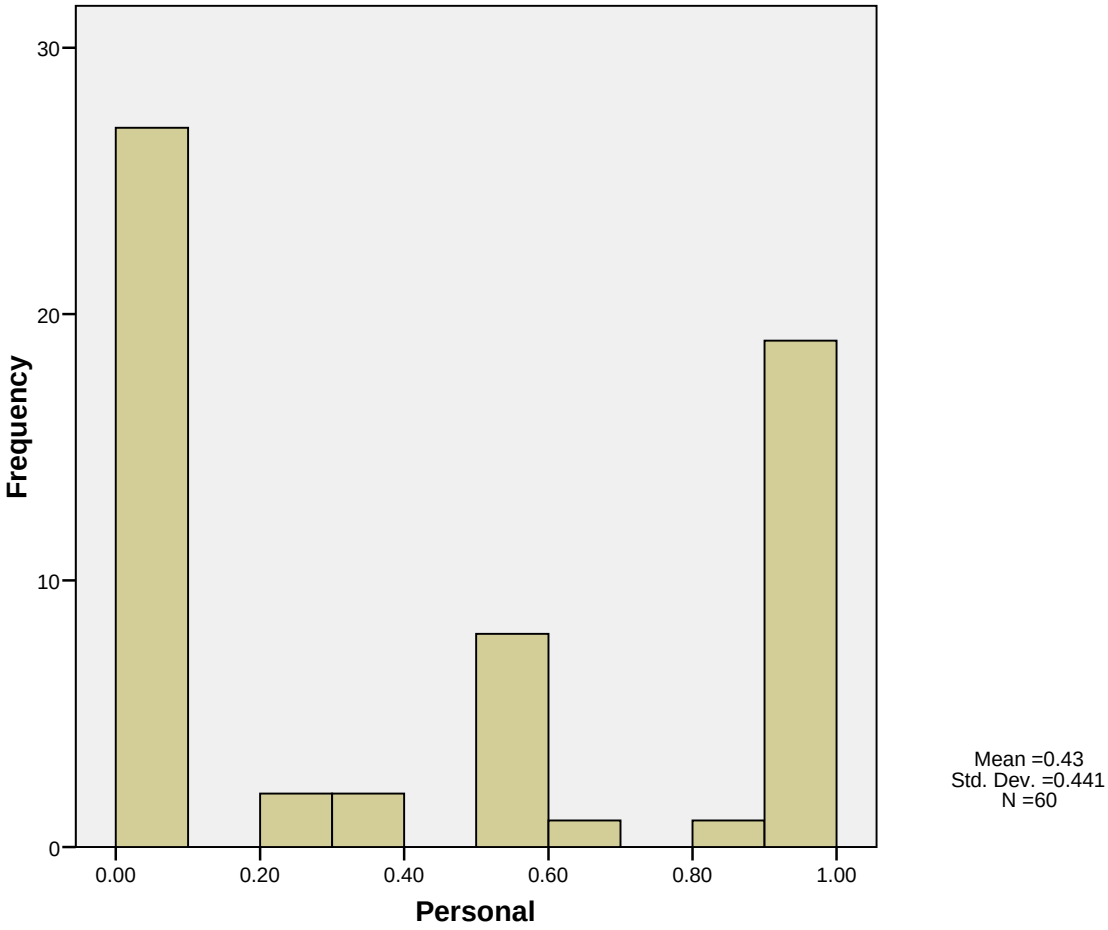
Figure 10: Histogram of control attributions



Appendix S

Figure 11: Histogram of personal attributions

Figure 11: Histogram of personal attributions



Appendix T

Figure 12: Histogram of log transformed control attributions

Figure 12: Histogram of control attributions, following a logarithm transformation