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FACULTY OF SOCIAL AND HUMAN SCIENCES

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The Role of Parental Attributions in the Acceptability of Behavioural Interventions for Children with Autism Spectrum Disorders

by

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ABSTRACT

FACULTY OF SOCIAL AND HUMAN SCIENCES
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THE ROLE OF PARENTAL ATTRIBUTIONS IN THE ACCEPTABILITY OF BEHAVIOURAL INTERVENTIONS FOR CHILDREN WITH AUTISM SPECTRUM DISORDERS

By Yee Ki Kathy Choi

Many children, especially those with developmental disabilities, may present with problem behaviour which requires some form of intervention (e.g., Egger & Angold, 2006; Magee & Roy, 2008). Behavioural interventions are one of the most widely used and most empirically supported interventions for alleviating children's problem behaviour. Nevertheless, research has highlighted that treatment acceptability should also be considered an important criterion that may play a role in the success of behavioural interventions (e.g., Calvert & Johnston, 1990; Carter, 2007; Kazdin, 1980). Studies have identified numerous factors that may influence parental acceptability of behavioural interventions for their child's problem behaviour. In particular, parental attributions have received increasing attention as one of these possible factors (e.g., Mah & Johnston, 2008). However, very little empirical research has explicitly examined the potential relationship between parental attributions and treatment acceptability, and the findings were often limited by methodological issues. The present study extends the existing literature by exploring the relationship between parental attributions and treatment acceptability of behavioural interventions for problem behaviour in children with autism spectrum disorders (ASD). Mothers of children with ASD aged 3 to 9 years (N = 139) completed survey measures that assessed demographics, parental attributions, treatment acceptability of parent-focused and child-focused behavioural interventions, severity of their child's disruptive behaviour, and severity of their child's ASD symptoms. The results showed that parental attributions of parent-referent stability, but not the other attributional dimensions, negatively predicted treatment acceptability of a parent-focused behavioural intervention, even when severity of disruptive behaviour was statistically controlled. Conversely, no associations were found between any attributional dimension and treatment acceptability of a child-focused behavioural intervention. Preliminary analyses also revealed that mothers' ratings of the severity of their child's disruptive behaviour were significantly negatively correlated to the acceptability of both parent-focused and child-focused behavioural interventions. The results have potential implications for professionals to identify and challenge distorted attributions of parent-referent stability in order to promote parental acceptance of a parent-focused behavioural intervention for problem behaviour in children with ASD.

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Declaration of Authorship

I, Yee Ki Kathy Choi, declare that the thesis entitled “The Role of Parental Attributions in the Acceptability of Behavioural Interventions for Children with Autism Spectrum Disorders” and the work presented in the thesis are both my own, and have been generated by me as the result of my own original research. I confirm that:

- this work was done wholly or mainly while in candidature for a research degree at this University;
- where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
- where I have consulted the published work of others, this is always clearly attributed;
- where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
- I have acknowledged all main sources of help;
- where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
- none of this work has been published before submission

Signed: ……..

Date:…….

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Abbreviations

α	Cronbach's alpha
ABA	Applied behaviour analysis
ADHD	Attention deficit-hyperactivity disorder
ADI-R	Autism Diagnostic Interview-Revised
APA	American Psychiatric Association
ASD	Autism spectrum disorders
β	Standardised regression coefficient
B	Unstandardised regression coefficient
BPT	Behavioural parent training
CD	Conduct disorder
df	Degrees of freedom
DRI	Differential reinforcement of incompatible behaviour
DRO	Differential reinforcement of other behaviour
DSM-IV TR	Diagnostic and Statistical Manual of Mental Disorders (fourth edition, text revision)
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders (fourth edition)
DSM-V	Diagnostic and Statistical Manual of Mental Disorders (fifth edition)
EIBI	Early intensive behavioural intervention
F	*F*-ratio (*F*-distribution)
f^2	Cohen's effect size measure for hierarchical multiple regression
ICD-10	International Statistical Classification of Diseases and Related Health Problems (tenth revision)
M	Mean
n	Number of cases
N	Total sample size
NAS	National Autistic Society
NCBRF	Nisonger Child Behavior Rating Form
ODD	Oppositional defiant disorder
p	Probability, significance of a test statistic
PAQ	Parental Attribution Questionnaire

PDD	Pervasive developmental disorders
PDD-NOS	Pervasive developmental disorder not otherwise specified
r	Pearson's product-moment correlation coefficient
R^2	Variance accounted for by a set of one or more variables
SCQ	Social Communication Questionnaire
SD	Standard deviation
SE	Standard error
SSTP	Stepping Stones Triple P
TARF	Treatment Acceptability Rating Form
TARF-R	Treatment Acceptability Rating Form-Revised
TEI	Treatment Evaluation Inventory
TEI-SF	Treatment Evaluation Inventory-Short Form
UK	United Kingdom
Δ	Increment of change

Chapter One. Parental Acceptability of Behavioural Interventions for Children's Problem Behaviour: The Role of Parental Attributions

1.1 Introduction

Most children naturally exhibit problem behaviour from time to time (Egger & Angold, 2006; McClellan & Speltz, 2003; Webster-Stratton & Hammond, 1997). In this review, the term *problem behaviour* refers to a broad range of externalising behaviours displayed by children such as aggression, property destruction, noncompliance, stereotypy, self-injury, tantrums, inattention, hyperactivity, or impulsiveness (Briggs-Gowan, Carter, Bosson-Heehan, Guyer, & Horwitz, 2006; S. B. Campbell, Shaw, & Gilliom, 2000; Kohlboeck, Quadflieg, & Fichter, 2011; Lecavalier, Aman, Hammer, Stoica, & Mathews, 2004; Singh et al., 2006). Although discrete instances of problem behaviour can be expected as part of typical development and are typically transient, in some cases, they can become pervasive and persistent (S. B. Campbell, 1995; S. B. Campbell et al., 2000; Fox, Keller, Grede, & Bartosz, 2007; K. Keenan & Wakschlag, 2000). For example, a child's problem behaviour may escalate to a level of severity and rate of frequency that warrants a clinical diagnosis of disruptive behaviour disorders, including oppositional defiant disorder (ODD) or conduct disorder (CD), or a diagnosis of attention deficit-hyperactivity disorder (ADHD) (American Psychiatric Association [APA], 2000; Carr, 1999; Egger & Angold, 2006; Fox et al., 2007; Maughan, Christiansen, Jenson, Olympia, & Clark, 2005; Rich & Eyberg, 2001). In other words, it is the persistence, pervasiveness, and impairing nature of problem behaviour that determines whether such behaviour is regarded as clinically significant (K. Keenan & Wakschlag, 2000; Maughan et al., 2005; Powell, Dunlap, & Fox, 2006).

Researchers have suggested that some child characteristics may increase the likelihood of problem behaviour in children, such as having a developmental disability (Chadwick, Piroth, Walker, & Taylor, 2000; Magee & Roy, 2008; Singh, Lancioni, Winton, & Singh, 2011). Common diagnosable developmental disabilities include intellectual disability, Down syndrome, and autism spectrum disorders (ASD) (Romagnano & Gavidia-Payne, 2009). There is research evidence which highlights that children who have a developmental disability are at an increased risk of developing problem behaviour (Eisenhower, Baker, & Blacher, 2005; Farmer & Aman, 2011; J. L. Matson & Shoemaker, 2009; O. Murphy, Healy & Leader, 2009). For example, Baker, Blacher, Crnic, and Edelbrock (2002) found that 3-year-old children with

developmental disabilities showed a heightened risk for problem behaviour and were 3 to 4 times more likely to exhibit clinical levels of problem behaviour than 3-year-old children without developmental disabilities. More specifically, research suggests that children with certain types of developmental disabilities such as ASD are at increased risk of presenting greater levels of problem behaviour (e.g., self-injurious behaviour) than children with other developmental disabilities such as Down syndrome (Griffith, Hastings, Nash, & Hill, 2010).

It is generally accepted that untreated problem behaviour in children with and without developmental disabilities tends to persist and become chronic (Baker et al., 2003; Khosroshahi, Pouretemad, & Khooshabi, 2010; Mesman & Koot, 2001; G. H. Murphy et al., 2005). A substantial body of research has documented the continuity of problem behaviour (e.g., Moffitt, Caspi, Harrington, & Milne, 2002; Rich & Eyberg, 2001). In a large community sample of 1,082 parents of young children, Briggs-Gowan et al. (2006) found that approximately half of the children who were reported by parents to exhibit problem behaviour in the first year of the study (ages 12–40 months) continued to have such behaviour in the second year of the study (ages 23–48 months). Another research study has shown that a community sample of 332 children exhibiting problem behaviour at ages 2 to 3 years were at nearly 5 times greater risk for developing clinical diagnoses of externalising problems 8 years later (Mesman & Koot, 2001). The chronic nature of children's problem behaviour, therefore, highlights the importance of intervention to address such behaviour (Dunlap & Fox, 2009). In particular, it has been suggested that early intervention is optimal because children's problem behaviour is more amenable to intervention early in life and may not yet be clinically established or resistant to change (Dunlap & Fox, 2009; Dunlap, Johnson, & Robbins, 1990; Holtz, Carrasco, Mattek, & Fox, 2009; Tremblay, 2006).

Behavioural interventions that are based on operant conditioning principles are one of the most widely used interventions for children's problem behaviour (Arndorfer, Allen, & Aljazireh, 1999; Bregman, Zager, & Gerdtz, 2005; Maughan et al., 2005). A considerable amount of research has demonstrated that behavioural interventions are an evidence-based approach for alleviating problem behaviour in both children with and without developmental disabilities (e.g., Brosnan & Healy, 2011; Horner, Carr, Strain, Todd, & Reed, 2002; Nowak & Heinrichs, 2008; Serketich & Dumas, 1996). However, some researchers have argued that even a behavioural intervention firmly embedded in a strong evidence base will not be very successful in changing a child's problem

behaviour if it is not acceptable to those who are involved in the treatment process, particularly the child's parents (e.g., Carter, 2010; S. N. Elliott, 1988; Gage & Wilson, 2000; Kazdin, 1980).

A number of variables have been found to influence parents' acceptability of behavioural interventions for their child's problem behaviour, including severity of the problem behaviour itself and family income level (e.g., Carter, 2007; Miltenberger, 1990). In particular, parental attributions have received increasing attention as a key factor that may potentially play a role in their treatment engagement and their acceptance of an intervention for their child (e.g., Hoza, Johnston, Pillow, & Ascough, 2006; Mah & Johnston, 2008; Morrissey-Kane & Prinz, 1999). Accordingly, an examination of the research literature on the possible relationship between parental attributions and treatment acceptability of behavioural interventions is important.

The current review will describe the background of treatment acceptability research and explore some variables that have been found to influence treatment acceptability, with particular reference to parents' acceptability of behavioural interventions for their child's problem behaviour. Studies that have focused primarily on treatment acceptability provided by raters other than parents (e.g., teachers or care staff), or acceptability of other practices or interventions in other fields (e.g., social skills interventions to increase children's self-esteem), are not included. This is followed by an overview of research regarding the role of parental attributions in influencing parental engagement in the treatment process for their child's problem behaviour. Subsequently, research studies suggesting a potential relationship between parental attributions and parental acceptability of behavioural interventions will be examined. Finally, methodological issues will be considered and directions for future research will be discussed.

1.2 What is Treatment Acceptability?

Treatment acceptability was originally defined by Kazdin (1980, 1981) as the judgements that consumers of treatment[1] (e.g., nonprofessionals, clients, or laypersons) make as to "whether treatment procedures are appropriate, fair, and reasonable for the problem or client" (Kazdin, 1981, p. 493).

[1] The terms *intervention* and *treatment* are used interchangeably in this review.

The conceptual foundation of *treatment acceptability* largely originates from Wolf's (1978) work on social validity. Wolf coined the term *social validity* to refer to the social importance of an intervention, and advocated the significance of examining the social validity of interventions when offering them to consumers. Social validity is conceptualised as encompassing three related levels: (a) the social significance of the treatment goals (e.g., addressing questions of how meaningful it is for the consumers to decrease problem behaviour), (b) the social appropriateness of the treatment procedures (e.g., addressing whether the consumers consider the treatment procedures as acceptable), and (c) the social importance of the treatment effects (e.g., addressing whether the consumers are satisfied with the treatment outcome) (Boothe & Borrego, 2004; Carter, 2010; Finn & Sladeczek, 2001; Jones, Eyberg, Adams, & Boggs, 1998; Pemberton & Borrego, 2007; Wolf, 1978). Of these three levels, it is the second component of Wolf's conceptualisation (i.e., the appropriateness of treatment procedures) that has dominated the focus of social validity research and contributed to the conceptual development of treatment acceptability (Carter, 2010; Finn & Sladeczek, 2001; Gresham & Lopez, 1996; Pemberton & Borrego, 2007).

Researchers have highlighted that treatment acceptability is an important treatment criterion in its own right when planning interventions (Kazdin, 1980, 1981; Varnado-Sullivan & Horton, 2006; Waschbusch et al., 2011). An effective intervention may not necessarily be perceived to be acceptable by its consumers, whereas an acceptable intervention may not necessarily be the most effective (Calvert & Johnston, 1990; Kazdin, 1980, 1981). In practice, professionals generally strive to promote evidence-based practice and are keen to recommend empirically supported interventions for the target problem or concern in consultation (Foster & Mash, 1999; Kratochwill & Hoagwood, 2005; Kratochwill & Stoiber, 2000; Stoiber & Kratochwill, 2001). Hence, one ultimate goal should be for professionals to recommend interventions that are not only effective but also acceptable to the consumers (Boothe & Borrego, 2004; Stewart & Carlson, 2010).

1.3 Importance of Treatment Acceptability

Several researchers have proposed that treatment acceptability plays a critical role in influencing the success of a proposed intervention and is considered of particular importance right from the initial stages of the treatment process (S. N. Elliott, 1988; Reimers, Wacker, & Koeppl, 1987). It is generally assumed that acceptable

interventions are more likely to be selected, initiated, and adhered to than interventions that consumers perceive to be unacceptable (Calvert & Johnston, 1990; Kazdin, 1980; Krain, Kendall, & Power, 2005).

Witt and Elliott (1985) described the first working model of treatment acceptability that stressed the sequential and reciprocal relationships amongst treatment acceptability, treatment use, treatment integrity, and treatment effectiveness. According to this model, it is hypothesised that initial judgements about the acceptability of an intervention can influence its likelihood of being used. This in turn may influence the extent to which treatment procedures are implemented as planned (i.e., treatment integrity), and this might ultimately have an impact on the effectiveness of an intervention (S. N. Elliott, 1988; Witt & Elliott, 1985). Hence, it seems plausible that the initial acceptance of an intervention may create a window of opportunity for an intervention to be successful.

In fact, there is empirical research that has examined the distinct value of treatment acceptability in influencing various aspects of the treatment process, particularly the initiation of an intervention. For example, one study found that parents of children with ADHD were more likely to enrol in a pharmacological intervention for reducing their child's ADHD-related problem behaviour when they reported higher acceptability ratings of medication (Corkum, Rimer, & Schachar, 1999). Likewise, Krain et al. (2005) examined parents' acceptability of medication and behavioural interventions for their child with ADHD and the relationships between parents' acceptability and subsequent pursuit of treatment recommendations (i.e., medication or behavioural intervention). The findings revealed that parents' acceptability ratings of medication were significantly predictive of their pursuit of medication as a treatment for their child with ADHD. However, Krain et al. did not find a statistically significant relationship between parents' acceptability ratings of behavioural intervention and their initiation of behavioural intervention. Failure to find a significant relationship between parents' acceptability ratings of behavioural intervention and pursuit of this intervention may, however, be due to limited variability in the acceptability ratings of behavioural intervention in the sample, where parents who initiated the intervention and those who did not reported similarly high acceptability ratings of the intervention (Krain et al., 2005).

Another line of empirical research has suggested that treatment acceptability can shape treatment preferences or choices (i.e., the intervention option that consumers want

to choose), which is another important aspect of the treatment process (Sidani et al., 2009). This area of research revealed that judgements of treatment acceptability are associated with treatment preferences, whereby individuals who view the intervention option as acceptable tend to express a preference for that option and select it as a treatment choice (e.g., Sidani et al., 2009; Swift & Callahan, 2010; Zoellner, Feeny, Cochran, & Pruitt, 2003). In fact, research has commonly examined parental preferences for their child's intervention through the evaluation of treatment acceptability (e.g., R. A. Keenan, Wild, McArthur, & Espie, 2007; Stewart & Carlson, 2010; Waschbusch et al., 2011). Several researchers have also highlighted that treatment acceptability judgements could play a significant role in guiding one's choice of intervention (Miltenberger, 1990; Singh, Watson, & Winton, 1987). Hence, there is a general consensus that treatment acceptability is of particular importance when determining whether or not an intervention option would be selected by the consumers at the treatment selection stage.

1.4 Measurement of Treatment Acceptability

Treatment acceptability is typically measured by asking individuals to rate their perception of the appropriateness and effectiveness of treatment procedures through the format of a Likert-type rating scale, where an overall acceptability score is then computed to reflect the raters' acceptability levels of an intervention (Finn & Sladeczek, 2001). This model for assessing treatment acceptability was originally established by Kazdin (1980), who developed the first treatment acceptability measure called the Treatment Evaluation Inventory (TEI).

The TEI was designed to reflect an individual's overall evaluation of a treatment procedure in correspondence to Kazdin's (1980) definition of treatment acceptability, comprising various dimensions of acceptability judgements such as those relating to the willingness to use the proposed intervention, the perceived effectiveness and likeability of the proposed intervention, and the appropriateness of and the ethical issues around the application of the proposed intervention. A number of treatment acceptability measures have subsequently been designed as revisions to the TEI, including the Treatment Evaluation Inventory-Short Form (TEI-SF; Kelley, Heffer, Gresham, & Elliott, 1989), the Treatment Acceptability Rating Form (TARF; Reimers & Wacker, 1988), and the Treatment Acceptability Rating Form-Revised (TARF-R; Reimers, Wacker, Cooper, & de Raad, 1992).

An important distinction between treatment acceptability and consumer satisfaction is based upon the different methods of measurement. Whereas treatment acceptability is concerned with the measurement of individuals' judgements about an intervention before the intervention is initiated, consumer satisfaction is concerned with the evaluation of individuals' attitudes towards an intervention after its implementation or completion (Calvert & Johnston, 1990; Calvert & McMahon, 1987). As Calvert and Johnston (1990) stated, this distinction is important because assessments taken once an intervention has started cannot indicate how the intervention might have been evaluated prior to treatment, such as at the treatment selection stage.

1.5 Treatment Acceptability of Behavioural Interventions for Children's Problem Behaviour

Following Kazdin's (1980) seminal work on treatment acceptability, other researchers have investigated this concept in a wide range of contexts (see Calvert & Johnston, 1990; Carter, 2007; S. N. Elliott, 1988; and Miltenberger, 1990 for reviews). In particular, a significant body of treatment acceptability research has focused on interventions that aim to address problem behaviour in children (Calvert & Johnston, 1990; Carter, 2010; Jones et al., 1998). This may stem from Kazdin's (1980, 1981, 1984) initial work which was designed to examine treatment acceptability of interventions recommended for reducing children's problem behaviour. One type of intervention that has been extensively examined in treatment acceptability research is behavioural interventions.

The term *behavioural intervention* is operationalised for this review as any intervention that utilises behavioural techniques or procedures based on operant conditioning principles. Four types of operant procedures were identified by Skinner (1953): positive reinforcement, negative reinforcement, positive punishment, and negative punishment. Numerous behavioural procedures have been designed for managing problem behaviour in children (Ringdahl, Kopelman, & Falcomata, 2009). The more commonly used reinforcement-based behavioural procedures include use of verbal praise and physical rewards, token economies, differential reinforcement of other behaviour (DRO), and differential reinforcement of incompatible behaviour (DRI). Examples of punishment-based behavioural procedures include presentation of aversive stimuli, overcorrection, time-out, and response cost. The reader is directed to Bregman

et al. (2005) and Ringdahl et al. (2009) for a more comprehensive review of behavioural interventions.

Behavioural interventions have typically been considered to be one of the most widely used interventions for managing children's problem behaviour. There is also a large body of research that supports the evidence base of behavioural interventions for reducing problem behaviour in children with and without developmental disabilities (see Brosnan & Healy, 2011; Fabiano et al., 2009; Maughan et al., 2005; Serketich & Dumas, 1996 for reviews). For these reasons, it is important to continue to focus on exploring treatment acceptability of behavioural interventions, so as to better understand the context through which they are most likely to be successful and beneficial in alleviating children's problem behaviour.

1.6 Parental Acceptability of Behavioural Interventions

As children are not yet competent to make informed and independent treatment decisions, parents are most often the gatekeepers to their children's access to services in addition to playing an essential role in making decisions concerning interventions for them (e.g., selecting an intervention plan) (Garralda, 2004; Goin-Kochel, Mackintosh, & Myers, 2009; Ho & Chung, 1996; Waschbusch et al., 2011). Critically, there are a number of widely used behavioural intervention packages developed to train parents in the use of appropriate behavioural procedures to manage their child's problem behaviour (Chronis, Chacko, Fabiano, Wymbs, & Pelham, 2004; Eyberg, Nelson, & Boggs, 2008). This category of behavioural interventions is generally referred to as *parent-focused behavioural interventions,* as opposed to *child-focused behavioural interventions* that focus exclusively on teaching the target child directly, typically by trained therapists.

In fact, since the 1960s, behavioural parent training (BPT), falling under the category of parent-focused behavioural interventions, has been one of the most commonly used and empirically supported behavioural interventions for children exhibiting problem behaviour, including children with and without clinical levels of disruptive behaviour (Calvert & McMahon, 1987; Eyberg et al., 2008; Maughan et al., 2005; Serketich & Dumas, 1996), children with ADHD (Anastopoulos, Shelton, DuPaul, & Guevremont, 1993; Chronis et al., 2004), and children with developmental disabilities (Feldman & Werner, 2002). Currently, training of parents in the use of behavioural procedures has remained a significant component of a range of well-

established parent training programmes, such as the Stepping Stones Triple P (SSTP) programme (Sanders, Mazzecchelli, & Studman, 2003), the EarlyBird programme (Shields, 2001), and the Incredible Years programme (Webster-Stratton, 2006). As parents are required to actively participate in these parent-focused behavioural interventions themselves (e.g., good attendance at the training sessions), it follows that their acceptance of these interventions is crucial for the treatment success (Pemberton & Borrego, 2007). For instance, if parents perceive a BPT programme to be unacceptable for managing their child's problem behaviour, they may discontinue the intervention or fail to follow its implementation procedures even if they have enrolled into the intervention; conversely, if parents perceive the intervention to be acceptable, they may be more willing to be trained and adhere to the behavioural procedures with their child (Boothe & Borrego, 2004).

Taken together, in the planning of interventions for children exhibiting problem behaviour, it is particularly important to explore whether parents perceive a behavioural intervention recommended for their child as acceptable.

1.7 Variables Influencing Parental Acceptability of Behavioural Interventions

A large body of research on treatment acceptability has focused on clarifying which variables are related to treatment acceptability (S. N. Elliott, 1988; Miltenberger, 1990; Pemberton & Borrego, 2007). Within the context of parents' treatment acceptability, an examination of the published literature reveals three general categories of variables: (a) treatment characteristics, (b) child characteristics, and (c) parent characteristics. Some of the more frequently examined variables will be discussed in turn.

1.7.1 Treatment Characteristics

Several treatment characteristics have been found to influence parental acceptability of behavioural interventions for children's problem behaviour.

1.7.1.1 Type of behavioural procedures. Studies have typically found that reinforcement-based behavioural procedures are more acceptable than punishment-based behavioural procedures. For example, part of the study conducted by Kazdin (1980) asked 88 undergraduate students as participants to rate the acceptability of four interventions for children's problem behaviour (i.e., reinforcement, time-out, drug

treatment, and electric shock). The participants first listened to a case description of a hypothetical child exhibiting either oppositional or disruptive behaviour, and then rated the acceptability of the four interventions using the TEI. Results indicated that reinforcement was consistently rated as more acceptable than the other procedures with the following order of acceptability: reinforcement, time-out, drug treatment, and electric shock. It should however be noted that the responses of undergraduate students may not accurately represent those of actual parents. Nonetheless, subsequent studies directly examining parents' treatment acceptability have revealed similar patterns of results (e.g., Calvert & McMahon, 1987; Jones et al., 1998). One study by Jones et al. (1998) involved 20 mothers of children with disruptive behaviour disorders (ODD or CD). Jones et al. examined the parents' treatment acceptability of six behavioural procedures, namely positive reinforcement, response cost, differential attention, time-out, overcorrection, and spanking. They found that positive reinforcement was rated by the mothers as more acceptable than all of the other interventions, whereas spanking was rated as the least acceptable.

Several researchers have also examined the acceptability ratings of parents of children with developmental disabilities (Pickering & Morgan, 1985; Singh et al., 1987). Singh et al. (1987) asked 96 mothers of children with intellectual disabilities to rate the acceptability of four interventions (i.e., DRI, overcorrection, time-out, and medication). The results showed that the mothers viewed DRI as the most acceptable, followed by overcorrection, and rated both time-out and medication as least acceptable. This hierarchy of acceptability is in line with the research findings of Kazdin (1980) and Jones et al. (1998). Similarly, Pickering and Morgan (1985) involved 73 parents of typically developing children, 13 parents of children with ASD, and 33 parents of children with other disabilities (e.g., severe visual or hearing impairments), and asked them to provide acceptability ratings for four interventions (i.e., DRI, time-out, overcorrection, and electric shock). The results indicated that all groups of parents rated DRI as more acceptable than electric shock.

More recently, Boothe and Borrego (2004) conducted a study to examine what parents of children with communication difficulties found to be acceptable intervention options from seven interventions for problem behaviour (i.e., positive reinforcement, time-out, response cost, spanking, overcorrection, differential attention, and medication). They asked 87 parents of children with communication difficulties to rate their acceptability of each of the seven interventions using the TEI-SF. Contrary to previous

research which has consistently found reinforcement-based procedures as the most acceptable rated intervention, Boothe and Borrego found that the parents rated response cost as the most acceptable amongst other interventions with the following order of acceptability: response cost, overcorrection, time-out, positive reinforcement, differential attention, medication, and spanking. However, Boothe and Borrego suggested that these inconsistent findings might be specific to parents of children with communication difficulties, whereby the response cost procedure requires less verbal skills for their children to understand.

1.7.1.2 Treatment side effects. The side effects associated with treatment procedures have also been suggested to influence treatment acceptability (e.g., Kazdin, 1981). Kazdin (1981) examined the impact of adverse side effects on acceptability ratings of interventions for children's problem behaviour (i.e., DRI, overcorrection, time-out, and medication). Each treatment procedure was described as having either strong or weak adverse side effects in terms of the degree and duration of the side effects. The side effects of DRI, overcorrection, and time-out included crying and aggression, whereas the side effects of medication included headaches and drowsiness. Using the TEI, a sample of 112 undergraduate students rated DRI as the most acceptable, followed in order by overcorrection, time-out, and medication. Specifically, the results revealed that the presence of stronger adverse side effects significantly reduced the acceptability of all treatment procedures, suggesting that interventions with more severe side effects may be less acceptable (Kazdin, 1981). Nonetheless, it should once more be noted that responses of undergraduate students may not accurately represent those of parents.

By contrast, Pickering, Morgan, Houts, and Rodrigue (1988) demonstrated that parents' acceptability ratings were generally unaffected by the adverse side effects associated with the treatment procedures in their study. They involved 32 mothers and 29 married women with no children and examined the influence of the risk-benefit information on parental acceptability ratings of four interventions for children's self-injurious behaviour (i.e., DRO, overcorrection, time-out, and electric shock). Regardless of the presence of the risk-benefit information (e.g., information attested to the negative side effects of DRO vs. information attested to the positive side effects of shock), both mothers and nonmothers were generally found to rate DRO as the most acceptable and

electric shock as the least acceptable (Pickering et al., 1988). However, the findings could be limited by the small sample size.

1.7.2 Child Characteristics

A second category of variables that has been found to influence treatment acceptability is child characteristics, which represent variables associated with the child being targeted for intervention.

1.7.2.1 Severity of problem behaviour. Research has suggested that treatment acceptability varies as a function of problem severity (Kazdin, 1980; Reimers et al., 1987). Frentz and Kelley (1986) asked 82 mothers to rate their acceptability of five behavioural procedures (i.e., differential attention, response cost, time-out, spanking, and time-out with spanking). The mothers were presented with case scenarios of a hypothetical child varying in severity of problem behaviour (mild vs. severe) and then rated the five interventions using the TEI. The results showed that all procedures were rated by the mothers as more acceptable when applied to more severe problem behaviour than when applied to less severe problem behaviour.

Another investigation was conducted by Reimers et al. (1992) to examine whether the severity of problem behaviour would have an influence on treatment acceptability through both analogue and naturalistic evaluations. For the analogue evaluation, a total of 40 parents were asked to rate the acceptability of one of three interventions (i.e., positive reinforcement, time-out, or medication) when described as applied to a hypothetical child exhibiting either mild or severe problem behaviour. Reimers et al. revealed that only medication was rated as more acceptable for more severe problem behaviour, whereas positive reinforcement and time-out were rated as more acceptable for less severe problem behaviour. In addition, for the naturalistic evaluation, the same parents were asked to report the severity of problem behaviour exhibited by their own child and rate the acceptability of some positive reinforcement procedures (e.g., verbal praise and token systems) recommended for their child. Findings of the naturalistic evaluation revealed that parents of children with less severe problem behaviour generally rated the recommended procedures as more acceptable than parents of children with more severe problem behaviour. In contrast to the findings of Frentz and Kelley (1986), Reimers et al. therefore demonstrated a negative

association between severity of problem behaviour and treatment acceptability of behavioural procedures.

Other studies, however, have failed to find a relationship between treatment acceptability and severity of problem behaviour (e.g., Johnston, Hommersen, & Seipp, 2008; Tarnowski, Simonian, Park, & Bekeny, 1992). In a sample of 109 mothers of boys with ADHD, Johnston et al. (2008) found no significant relationship between treatment acceptability and the severity of children's problem behaviour. The mothers were asked to rate the acceptability of either behavioural or pharmacological interventions for case scenarios of hypothetical boys with ADHD varying in severity of ODD-related problem behaviour. The mothers were also asked to report the level of ODD-related problem behaviour exhibited by their own child with ADHD. Findings revealed that the severity of ODD-related problem behaviour, either as manipulated in the case scenarios or as assessed in the mothers' own child, failed to influence mothers' acceptability ratings for both behavioural and pharmacological interventions.

1.7.2.2 Age. The effect of a child's age on treatment acceptability was examined by Norton, Austen, Allen, and Hillton (1983). Norton et al. (1983) asked a subsample of 48 parents to rate the acceptability of five behavioural procedures (i.e., reinforcement, isolation, contingent observation, isolation and contractual agreement, and withdrawal of attention backed by isolation). They found that all of the procedures, apart from reinforcement, were rated as more acceptable for managing disruptive behaviour exhibited by a hypothetical 5-year-old child than by a hypothetical 10-year-old child (Norton et al., 1983). These findings therefore suggest that behavioural interventions perceived by parents to be acceptable for younger children may not be regarded by parents as being equally acceptable for older children.

Conversely, other research has failed to find a relationship between treatment acceptability and age (e.g., A. J. Elliott & Fuqua, 2002). In the study by A. J. Elliott and Fuqua (2002), 233 undergraduate students were asked to read one of six case scenarios describing an individual with chronic hair pulling, with each case scenario counterbalanced for age (8 years vs. 16 years vs. 26 years) and the severity of hair pulling (mild vs. severe). Although specific to the problem of chronic hair pulling, results showed that the individual's age described in the case scenarios did not significantly alter the acceptability ratings of interventions (e.g., behavioural and medication interventions). In a sample of 55 parents or guardians of children with

ADHD, Krain et al. (2005) also found nonsignificant relationships between their acceptability ratings of both behavioural and pharmacological interventions and their own child's age.

1.7.3 Parent Characteristics

Researchers have also examined whether treatment acceptability can be influenced by variables associated with the characteristics of parents when parents rate the acceptability of an intervention for their child.

1.7.3.1 Income level. Research has demonstrated the significant influence of parents' income level on their judgements of treatment acceptability. Heffer and Kelley (1987) assessed 83 mothers' acceptability ratings of five interventions (i.e., positive reinforcement, response cost, time-out, spanking, and medication). The results showed that levels of household income influenced mothers' acceptance of the interventions. Specifically, low-income mothers viewed both spanking and medication as moderately acceptable and rated positive reinforcement and response cost as significantly more acceptable than time-out, whereas middle-to-upper income mothers perceived time-out, positive reinforcement, and response cost as equally acceptable and as significantly more acceptable than spanking and medication (Heffer & Kelley, 1987). Likewise, the influence of parents' income level on treatment acceptability ratings was also reported by Kelley, Grace, and Elliott (1990), who found that parents on lower incomes were likely to view spanking as more acceptable. By contrast, a study by Krain et al. (2005) demonstrated that the socioeconomic status of parents or guardians of children with ADHD did not significantly influence the acceptability ratings of both behavioural and pharmacological interventions.

1.7.3.2 Understanding of intervention. Another variable that may influence treatment acceptability is one's understanding of intervention, which may be acquired through education or direct treatment experience (Boothe & Borrego, 2004; Singh & Katz, 1985; Reimers et al., 1987). To parallel the close interconnection between these variables, it should be noted that both education and prior treatment experience are grouped into the factors that may increase one's understanding of intervention here.

A study by Singh and Katz (1985) involved 96 college students who rated the acceptability of three behavioural procedures (i.e., DRI, overcorrection, and time-out)

and the "humanistic parenting" control condition (e.g., supportive and sensitive parenting behaviour) using the TEI. The initial ratings indicated that DRI was rated as the most acceptable, followed by humanistic parenting, overcorrection, and time-out. Following the initial phase, the same participants then attended a training session on the three behavioural procedures in which they were given specific details of each procedure including its empirical evidence and potential side effects (Singh & Katz, 1985). After the training session, the acceptability ratings of the three behavioural interventions increased, with the re-evaluated rankings for acceptability as: DRI, overcorrection, time-out, and humanistic parenting. However, it is noteworthy that no control group (i.e., participants who did not receive the training session) was included and participants' knowledge of the interventions was not directly assessed in this study; thus, it is difficult to determine if participants' understanding of the interventions had actually increased as a result of the training session. Moreover, college students rather than parents were employed as participants in the study.

In another study, Gage and Wilson (2000) asked 30 parents of children with ADHD and 30 parents of children without ADHD to rate the acceptability of three interventions (i.e., behavioural intervention, medication, and a combination of both) for a hypothetical boy with ADHD. Findings revealed that parents of children with ADHD rated the behavioural intervention as significantly less acceptable and the medication intervention as significantly more acceptable, in comparison to parents of children without ADHD. As approximately 90% of the parents of children with ADHD in the sample reported using medications with their own child, Gage and Wilson (2000) therefore hypothesised that the higher acceptability ratings of medication amongst parents of children with ADHD may be due to their prior treatment experience. Nonetheless, this hypothesis, as well as the specific effect of prior experience of behavioural interventions on parental acceptability ratings, warrant further research.

1.7.4 Summary and Limitations of Research Findings

In summary, the treatment acceptability research has considered numerous variables that could influence parental acceptability of behavioural interventions for children's problem behaviour, including treatment characteristics, child characteristics, and parent characteristics. Nevertheless, research on some of these variables has yielded inconsistent results, and thus further research is needed to discern the influence of such variables on treatment acceptability.

Moreover, despite the extensive body of treatment acceptability research, parents of children with developmental disabilities have been underrepresented in the literature. From the reviewed literature, most research has been conducted with parents of children with ODD or CD (Jones et al., 1998), parents of children with ADHD (Gage & Wilson, 2000; Johnston et al., 2008; Krain et al., 2005), and an uncategorisable group of parents due to unclear sample description (e.g., Frentz & Kelley, 1986; Heffer & Kelley, 1987; Norton et al., 1983). Relatively fewer studies have explicitly addressed treatment acceptability issues with parents of children with developmental disabilities, such as intellectual disabilities (Singh et al., 1987) and ASD (Pickering & Morgan, 1985). The extent to which the research findings for parents of children without developmental disabilities can be generalised to these clinical populations is unclear.

Notwithstanding these limitations, researchers have highlighted the importance of exploring and identifying variables that could influence treatment acceptability in order to help improve one's acceptability judgements of an intervention (Kazdin, 2000; Miltenberger, 1990). Whereas certain variables are invariant aspects of the intervention itself (e.g., treatment side effects) or less changeable factors (e.g., income level), several researchers have pointed out that some parent characteristics (e.g., parent cognitions) may have greater malleability and be more readily subject to modification (Hoza et al., 2006; Kazdin, 2000; Mah & Johnston, 2008). One particular parent cognition—parental attributions—has increasingly been suggested to play a potential role in parents' acceptance of a particular treatment procedure for their child (Hoza et al., 2006; Mah & Johnston, 2008). In the sections that follow, the research literature on parental attributions, with particular focus on preliminary evidence suggesting the potential relationship between parental attributions and treatment acceptability of behavioural interventions, will be reviewed.

1.8 Parental Attributions for Their Child's Problem Behaviour

Parental attributions are defined as the causal explanations parents make with regard to their child's behaviour (Morrissey-Kane & Prinz, 1999; Whittingham, Sofronoff, Sheffield, & Sanders, 2008). Parents readily formulate attributions as "interpretive filters" through which meaning is sought for their child's behaviour (Bugental, Johnston, New, & Silvester, 1998, p. 460). Parental attributions can be divided into child-referent attributions that refer to parents' attributions about the child's role in causing the behaviour, and parent-referent attributions that refer to parents'

attributions about their own causal role in their child's behaviour (Johnston & Freeman, 1997; Joiner & Wagner, 1996; Morrissey-Kane & Prinz, 1999; Slep & O'Leary, 1998; Whittingham et al., 2008).

Attributions of a person's behaviour are typically described by a multidimensional taxonomic structure of perceived causality (Hewstone, 1989; Slep & O'Leary, 1998). One of the most influential taxonomic structures is based on Weiner's (1980, 1985, 1986) three-dimensional approach. According to this approach, there are three dimensions underlying one's causal attributions: locus or internality (internal–external), controllability (controllable–uncontrollable), and stability (stable–unstable) (Hewstone, 1989; Weiner, 1980, 1985, 1986). Other attributional dimensions such as globality (specific–general) and universality (personal–universal) have also been suggested, although these dimensions have garnered relatively less theoretical and empirical support than the three traditional dimensions proposed by Weiner (Hewstone, 1989; Peters, Calam, & Harrington, 2005; Weiner, 1985, 1986). Hence the focus of this review will be on the standard dimensions of internality, controllability, and stability.

Within the context of child-referent and parent-referent parental attributions, internality indicates the extent to which the causal explanation for the child's behaviour is seen as being internal or external to the child or the parent; controllability indicates the degree to which the behaviour is controllable or uncontrollable by the child or the parent; and stability indicates the temporal nature of the child-related or parent-related causes, ranging from persistent (i.e., stable) to transient (i.e., unstable) (Johnston, Chen, & Ohan, 2006; Whittingham et al., 2008). It has been proposed that individuals' perceptions of causes along the attributional dimensions may vary greatly between people (Weiner, 1985). For example, one individual may perceive stubbornness as an internal, controllable, and stable child-related cause for a child's behaviour, whereas another individual may view stubbornness as an internal, uncontrollable, and stable child-related cause. Consequently, some researchers have argued for the importance of assessing individuals' perceptions of causes along the underlying attributional dimensions (e.g., Hewstone, 1989; Russell, 1982; Russell, McAuley, & Tarico, 1987).

Given that parental attributions are considered to be an important determinant of parenting reactions to their child's behaviour (Chavira, Lopez, Blacher, & Shapiro, 2000; Johnston & Patenaude, 1994; Wilson, Garden, Burton, & Leung, 2007; see also Johnston & Ohan, 2005; Joiner & Wagner, 1996; S. A. Miller, 1995 for reviews), an increasing body of research has also highlighted the potential role of parental

attributions in influencing the treatment process for children's problem behaviour (Hoza et al., 2000; Mah & Johnston, 2008; G. E. Miller & Prinz, 2003; Morrissey-Kane & Prinz, 1999; Whittingham, Sofronoff, Sheffield, & Sanders, 2009). In the next section, parental attributions will be reviewed more broadly in relation to parental engagement in the treatment process for their child, before moving on to a consideration of how parental attributions may be associated with treatment acceptability. In line with the distinction between treatment acceptability and consumer satisfaction (see Section 1.4), it should be made clear that only research primarily examining parents' attributions prior to intervention are reviewed here.

1.9 Parental Attributions and Treatment Process

Morrissey-Kane and Prinz (1999) were in one of the first research groups to argue that parental attributions may be linked to parents' motivation for, and successful participation in, interventions for their children. As only a small body of research has been conducted specifically on behavioural interventions in this area, research concerning other interventions for children's problem behaviour will also be considered when necessary.

1.9.1 The Attributional Conceptual Framework

Based on Weiner's (1980, 1985) cognition-emotion-action attributional model of motivation, Morrissey-Kane and Prinz (1999) proposed a conceptual framework to describe the relationship between parental attributions and parental engagement in the treatment process of child mental health treatment. The framework suggests that parents spontaneously make child-referent and parent-referent attributions for their child's problem behaviour, which in turn influence their emotional response, expectancy for change, and subsequent response to the treatment (Morrissey-Kane & Prinz, 1999). According to the framework, when a parent makes child-referent attributions for their child's problem behaviour that are of high internality, high controllability, and/or high stability, these negative child-referent attributions are associated with poor parental engagement in the treatment process, whereby such associations are mediated by negative affect and low expectation for the child to change. In addition, the framework predicts that when a parent makes parent-referent attributions for their child's problem behaviour that are of low internality, low controllability, and/or high stability, these negative parent-referent attributions are associated with poor parental engagement in the

treatment process, whereby the associations are mediated by negative affect and low expectation for the parent to be an effective change agent. Although Morrissey-Kane and Prinz's (1999) complete framework has not been empirically examined, it serves as a preliminary conceptual model that highlights the potential influence of parental attributions on parental engagement in the treatment process. Particularly, some aspects of the model, such as the negative directionality of each attributional dimension, have been useful in guiding future research in this area. The framework is summarised in Figure 1.

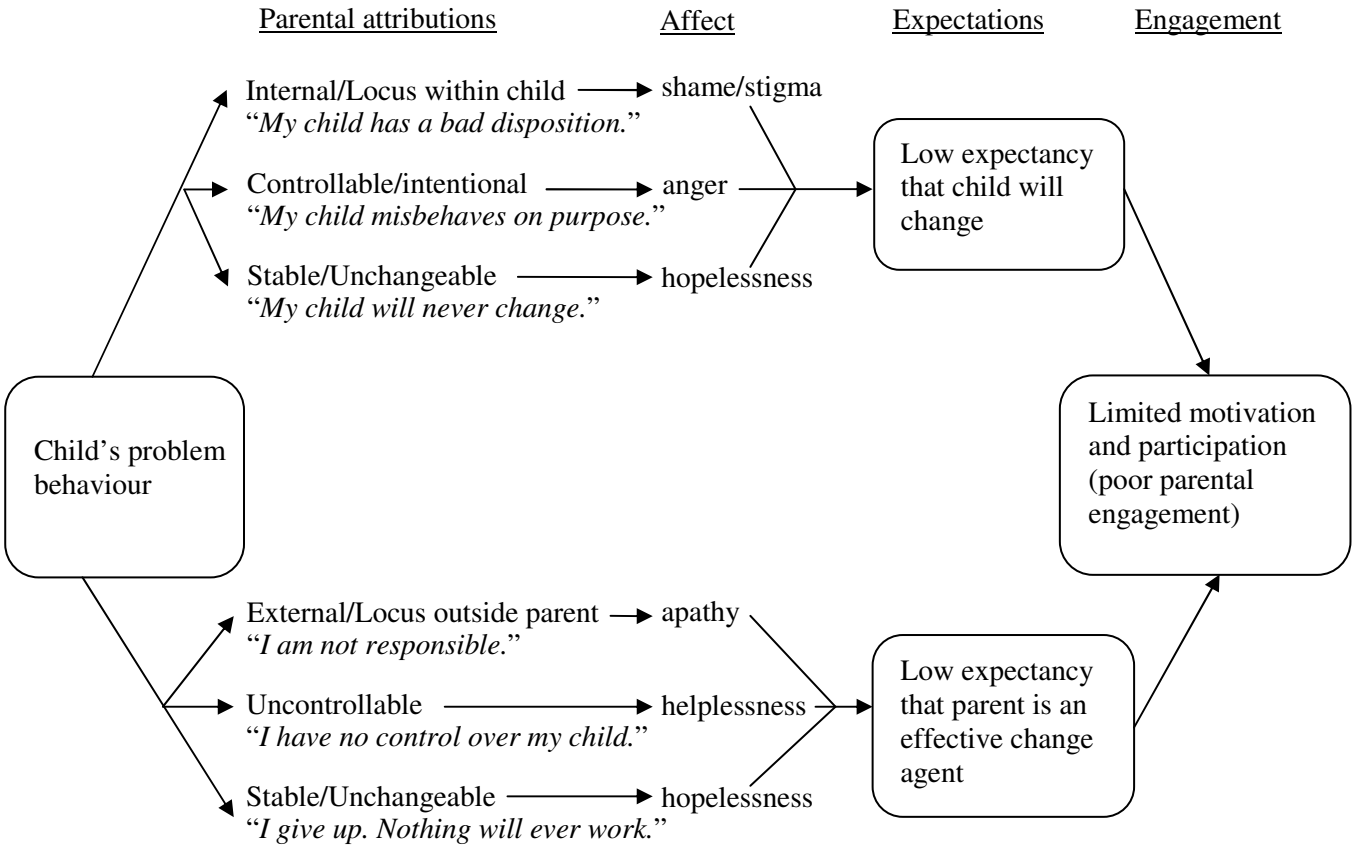

Figure 1. A conceptual framework of the parental attributional process as it relates to parental engagement in child mental health treatment. Adapted from "Engagement in Child and Adolescent Treatment: The Role of Parental Cognitions and Attributions," by E. Morrissey-Kane and R. J. Prinz, 1999, *Clinical Child and Family Psychology Review, 2*, p. 192. Copyright 1999 by Plenum Publishing Corporation.

In line with Morrissey-Kane and Prinz's (1999) conceptual framework, there is a growing body of literature highlighting the role of parental attributions in various

aspects of the treatment process for their child's problem behaviour, including treatment attendance and treatment outcome.

1.9.2 Treatment Attendance

Several studies have found an association between parental attributions and treatment attendance. For example, in a sample of 147 parents of boys with disruptive behaviour disorders (ODD or CD), G. E. Miller and Prinz (2003) demonstrated that premature treatment termination was predicted by whether the assignment to a treatment condition for parents was matched to parents' pretreatment attributions. Specifically, if parents attributed their child's problem behaviour as external to themselves (i.e., parent-referent attributions of low internality), they were more likely to drop out of an assigned parent-focused intervention (i.e., an enhanced family treatment) than an assigned child-focused intervention (i.e., a child cognitive treatment) (G. E. Miller & Prinz, 2003). Those parents were also found to exhibit limited participation in the parent-focused intervention prior to dropout as reflected by a lower rate of attendance. The findings are therefore consistent with Morrissey-Kane and Prinz's (1999) framework, whereby parent-referent attributions of low internality are associated with poor parental engagement in a parent-focused treatment process.

Similarly, Peters et al. (2005) asked 75 mothers of children with disruptive behaviour disorders (ODD or CD) to take part in a parent management training intervention. Prior to the first training session, child-referent attributions of internality, controllability, stability, and universality, as well as parent-referent attributions of internality and controllability were examined. Furthermore, Peters et al. computed *indices of responsibility* by counting specific patterns of individual attributional dimensions, namely *mother-responsibility* attributions (external, uncontrollable, and universal to the child but internal to and controllable by the mother) and *child-responsibility* attributions (internal, controllable, and personal to the child but external to and uncontrollable by the mother). The results demonstrated that mothers who attended more training sessions and completed the parent training reported greater mother-responsibility attributions than mothers who did not complete the intervention. However, it should be noted that individual attributional dimensions of both child-referent and parent-referent attributions were not found to be significantly different between completers and noncompleters, indicating the possibility that it might be the

attributional dimensions in combination that would be associated with treatment attendance (Peters et al., 2005).

By contrast, findings reported by Roberts, Joe, and Rowe-Hallbert (1992) failed to support an association between parental attributions and treatment attendance. In a sample of 72 parents of children exhibiting oppositional behaviour, Roberts et al. (1992) examined whether holding an external locus of control was associated with parents' premature termination from a parenting programme. Typically, parents with an external locus of control would perceive their child's problem behaviour as external, stable, and uncontrollable by the parent (Morrissey-Kane & Prinz, 1999). Inconsistent with Morrissey-Kane and Prinz's (1999) framework, the results revealed that having an external locus of control was not related to parents' completion status of the parenting programme. However, these findings may be limited by the low number of parents' treatment dropout in the sample.

1.9.3 Treatment Outcome

Parental attributions have also been shown to be associated with treatment outcome. For example, Hoza et al. (2000) reported on a subsample of 105 parents of children with ADHD from a larger-scale study on multimodal treatments for ADHD, whereby the parents were randomly assigned to one of four treatment conditions: medication management, behavioural treatment, the combination of medication and behavioural treatment, and routine community care. The findings revealed that the fathers' attributions of their child's noncompliant behaviour as a consequence of their child's insufficient effort and bad mood were predictive of poorer treatment outcome for their child (i.e., less improvement in ADHD- and ODD-related problem behaviour) 14 months later, after controlling for treatment effects (Hoza et al., 2000). However, no significant relationship was found for the mothers' attributions. It should also be noted that the attributional measure employed in the study did not allow causal attributions to be directly translated into attributional dimensions by the parents.

More recently, in a subsample of 29 parents of children with ASD who took part in the SSTP programme, Whittingham et al. (2009) demonstrated that parents who perceived their child's problem behaviour as being internal to and controllable by the child (i.e., child-referent attributions of high internality and high controllability) prior to the intervention reported greater improvements in parental over-reactivity and parental verbosity, respectively. Notwithstanding the significant findings, the direction of the

relationship found was inconsistent with the framework proposed by Morrissey-Kane and Prinz (1999). Nevertheless, having compared pretreatment with posttreatment parental attributions, Whittingham et al. argued that parents had become less likely to attribute their child's problem behaviour as internal to the child following the programme, and thus the change in parental attributions itself during participation in the SSTP programme may have implicitly led the parents to become more engaged in the treatment process and to consequently achieve a better treatment outcome. Additionally, the results showed that parental attributions were not significantly predictive of change in children's behaviour. The results may, however, be limited by the small sample size.

Overall, the current literature has, at least in part, demonstrated the critical role of parental attributions in different stages of the treatment process, from treatment attendance through to treatment outcome. In line with this, some researchers have begun to stress the importance of understanding the specific role that parental attributions may have with regard to parents' judgements of treatment acceptability.

1.10 Parental Attributions and Treatment Acceptability: Are They Related?

The consideration of the role of parental attributions in treatment acceptability has received increased attention from researchers (Hassall & Rose, 2005; Hoza et al., 2006; Mah & Johnston, 2008; Thornton & Calam, 2011; Williford, Graves, Shelton, & Woods, 2009). In this view, parental attributions regarding the causes of their child's problem behaviour may affect how acceptable they find a particular intervention for managing the behaviour. This may, in turn, affect their treatment responses from the initial stages of the treatment process (e.g., Mah & Johnston, 2008). For example, the influence of parental attributions on treatment acceptability may determine whether or not an intervention option is selected at the treatment selection stage.

1.10.1 The Hypothesised Relationship Between Parental Attributions and Treatment Acceptability

Researchers have hypothesised that a relationship exists between parental attributions and treatment acceptability within the domain of parent-focused behavioural interventions (e.g., Hoza et al., 2006; Mah & Johnston, 2008; Thornton & Calam, 2011). It is commonly argued that parents who perceive their child's problem behaviour as being due to causes that are unrelated to parental influences (e.g., child's disposition) are less likely to find a parent-focused behavioural intervention as acceptable (Hoza et

al., 2006; Mah & Johnston, 2008). As mentioned previously, parent-focused behavioural interventions are provided to train parents to use appropriate behavioural strategies with their child to change specified problem behaviour. Thus, when such an implicit attributional nature of parent-focused behavioural interventions fails to match with how parents attribute the causes of their child's problem behaviour, these parents are expected to elicit low acceptability judgements regarding a parent-focused behavioural intervention for reducing problem behaviour in their child (Mah & Johnston, 2008; Thornton & Calam, 2011).

1.10.2 Direct Research Evidence

One of the first empirical studies in this area was carried out by Reimers, Wacker, Derby, and Cooper (1995), who involved a sample of 58 parents receiving training in parent-focused behavioural strategies recommended for their child. Parental attributions of the *physical* causes (e.g., child's health problems) and the *environmental* causes (e.g., home situation) of their child's problem behaviour and parents' treatment acceptability were assessed at preintervention, 1-, 3-, and 6-month follow-ups. Parental attributions of the physical causes of problem behaviour were found to be significantly negatively associated with parental acceptability of the parent-focused behavioural strategies at the 1-, 3-, and 6-month follow-ups. However, in line with the distinction between treatment acceptability and consumer satisfaction (see Section 1.4), it is uncertain whether the variable that Reimers et al. (1995) measured and referred to at 1-, 3-, and 6-month follow-ups did in fact fall under the rubric of parents' consumer satisfaction as opposed to parents' treatment acceptability. Nevertheless, Reimers et al. did report a trend towards a negative association between parental attributions of the physical causes of problem behaviour and parental acceptability ratings at preintervention.

More recently, Williford et al. (2009) examined the relationship between parental attributions and treatment acceptability of several common interventions for children's problem behaviour (i.e., child social skills training, behaviourally based parent training, and medication). Using a survey design, they asked 87 mothers of preschool children exhibiting problem behaviour (e.g., hyperactivity or aggression) to complete a set of measures, including the TEI-SF and a measure of parental attributions providing an overall composite score of child-referent internality, stability, and globality. According to the findings, mothers who reported an overall pattern of more

negative attributions for their child's problem behaviour (i.e., a higher composite score) were more likely to rate the child-focused social skills training as acceptable. Parental attributions were also found to be associated with treatment acceptability of medication. Specifically, mothers with high levels of contextual risks (e.g., low education and low income) who held an overall pattern of more negative attributions also reported greater acceptability of medication, whereas those with low levels of contextual risks who reported an overall pattern of more negative attributions were found to perceive medication as less acceptable. With respect to parent training, although parental attributions were not significantly related to acceptability of the training, Williford et al. pointed out that this may have been due to the mothers' overall high acceptance of parent training that restricted the variability in its acceptability ratings. In general, the findings of Williford et al. provided some support for the relationship between parental attributions and treatment acceptability of child-focused social skills and medication interventions, although the generalisability of the findings to child-focused behavioural interventions is unknown.

Moreover, in a sample of 101 mothers of children with ADHD, Johnston, Mah, and Regambal (2010) demonstrated an association between parental attributions and parental acceptability of a brief BPT session for their child's ADHD-related problem behaviour (e.g., inattentive and impulsive behaviour). Inconsistent with the direction of the aforementioned hypothesised relationship, the results revealed that mothers who held an overall pattern of more negative child-referent attributions (i.e., a higher composite score combining child-referent internality, controllability, globality, and stability) for their child's behaviour reported higher acceptability of the parent-focused behavioural strategies taught at a brief training session, after controlling for other variables such as severity of inattentive symptoms. According to Johnston et al. (2010), parents of children with ADHD often hold a disease model for their child's problem behaviour (e.g., uncontrollable by the child), and thus parental attributions of their child as having some control over the behaviour may possibly be desirable if these parents are to accept a parent-focused behavioural intervention.

Furthermore, Whittingham, Sofronoff, and Sheffield (2006) examined the relationship between parental attributions and parental acceptability of parent-focused behavioural strategies from the SSTP programme amongst 42 parents of children with ASD. They, however, failed to find a significant relationship between parents' ratings of treatment acceptability and parents' child-referent attributions of internality,

controllability, and stability. It is possible that the findings may be limited by the small sample size. It could also be argued that the construct of treatment acceptability may be ill-defined in Whittingham et al.'s (2006) study, whereby treatment acceptability was assessed with only a single item. Whilst Whittingham et al. used another item to explore the so-called "usability" of the strategies, they found that parents who attributed their child's problem behaviour to be stable and controllable by their child were less likely to find the strategies useful for their child. As the usability concept appears to be relatively similar to a dimension of the treatment acceptability construct (i.e., acceptability judgements relating to the perceived effectiveness of the proposed intervention), the findings may shed some light on the hypothesised relationship between parental attributions and treatment acceptability.

1.10.3 Indirect Research Evidence

Further to the studies reviewed, indirect support for the hypothesised relationship between parental attributions and treatment acceptability has also come from research that has explored the relationship between parental attributions and treatment choices (e.g., Johnston, Seipp, Hommersen, Hoza, & Fine, 2005) and a study that was carried out in the field of children's sleep problems (R. A. Keenan et al., 2007).

In a sample of 73 parents of boys with ADHD, Johnston et al. (2005) found an association between parents' child-referent attributions and treatment choices for their children. Child-referent attributions of internality, controllability, stability, and globality were assessed in the study. According to the findings, parents who chose to use child-focused interventions (e.g., diet or vitamin treatment) were more likely to rate their child's ADHD-related problem behaviour as being stable/global and internal to the child. However, the direction of the association is unclear. That is, parental attributions may play a significant role in shaping treatment preferences or choices, whereas, alternatively, the treatment experience of implementing the chosen treatment itself may have influenced the parental attributions (Johnston et al., 2005).

Moreover, in a study that assessed parental attributions and treatment acceptability of interventions specific to children's sleep problems, R. A. Keenan et al. (2007) asked a sample of 58 parents of children with developmental disabilities to rate their acceptability of a parent-focused behavioural intervention and a child-focused medication treatment. Specifically, R. A. Keenan et al. found that parents who attributed their child's sleep problem to factors external to the child (e.g., bedroom environment or

diet) were more likely to rate the parent-focused behavioural intervention as acceptable. By contrast, those parents who perceived their child's sleep problem as stemming from factors internal to the child (e.g., child's disability or temperament) were less likely to rate the parent-focused behavioural intervention as acceptable. With respect to the medication treatment, parents who perceived their child's sleep problem as being external to the child (e.g., family problems) were less likely to rate the medication treatment as acceptable.

1.10.4 Summary and Limitations of Research Findings

Although there is a common belief that a hypothesised relationship exists between parental attributions and treatment acceptability of parent-focused behavioural interventions for children's problem behaviour (Hoza et al., 2006; Mah & Johnston, 2008), the empirical research to date has been very limited and has revealed some inconsistent results. Despite this, there is indirect research evidence that sheds some light on the direction of this relationship within the more general context of children's interventions, whereby parents with child-referent attributions of high internality (i.e., more internal to the child) are commonly found to hold lower treatment acceptability of parent-focused interventions but hold greater treatment acceptability of child-focused interventions (e.g., Johnston et al., 2005; R. A. Keenan et al., 2007). Thus, although not specifically related to behavioural interventions for children's problem behaviour, there is some complementary evidence providing greater insight into the potential relationship between parental attributions and treatment acceptability in general.

Further to the limited quantity of research studies and the specific limitations of each study mentioned above, there are also some general methodological limitations common to most existing studies. For instance, the measures of parental attributions varied largely across studies and, more importantly, some of these measures were ill-defined and lacked a sound theoretical basis. Some studies only measured one of the attributional dimensions (e.g., R. A. Keenan et al., 2007) or simply assessed parents' perceived causes of behaviour rather than the corresponding attributional dimensions (e.g., Reimers et al., 1995). Other studies only assessed specific patterns of parental attributions through the use of an overall composite variable, which did not allow an exploration of how each of the attributional dimensions might be related to treatment acceptability (e.g., Johnston et al., 2010; Williford et al., 2009). Moreover, the sample description was unclear in some of the studies (e.g., Reimers et al., 1995; Williford et al.,

2009), and thus it is unknown whether or not those samples included parents of children with any clinical diagnosis (e.g., CD or ODD). Furthermore, the reviewed literature has only focused on parent-focused behavioural interventions, and so the potential relationship between parental attributions and treatment acceptability of child-focused behavioural interventions remains unexplored. Similarly, existing research has thus far focused exclusively on child-referent parental attributions. Hence, it is not yet known how parent-referent attributions may be associated with parental acceptance of behavioural interventions for children's problem behaviour. Lastly, some of the studies did not adequately minimise confounding factors that may operate to influence parents' ratings of treatment acceptability (e.g., Reimers et al., 1995; Whittingham et al., 2006).

In summary, although there are some preliminary findings to support the possible role of parental attributions as an important mechanism involved in treatment acceptability of parent-focused behavioural interventions, it is by no means conclusive. It is clear that additional research is warranted to clarify the relationship between parental attributions and their treatment acceptability specifically related to behavioural interventions for children's problem behaviour. If confirmed by further research, this will provide a clearer explanation of how a mismatch between parents' attributions and the implicit attributional emphasis of a behavioural intervention may lead to difficulties in parental acceptance of the intervention for their child.

1.11 Conclusions and Directions for Future Research

Treatment acceptability has generally been considered to play a critical role in influencing the success of an intervention, whereby it is assumed that acceptable interventions are more likely to be selected, initiated, and adhered to. Empirical research has also highlighted the importance of treatment acceptability right from the initial stages of the treatment process. For example, regardless of its strong empirical support, an intervention that is perceived as unacceptable might not be selected in the first place at the treatment selection stage. There are some commonly examined variables that may influence parental acceptability of behavioural interventions for children's problem behaviour, including treatment characteristics (e.g., type of behavioural procedures and treatment side effects), child characteristics (e.g., severity of problem behaviour and age of child), and parent characteristics (e.g., income level and parents' understanding of intervention). However, research on some of these variables has yielded mixed findings

and more research is needed to further examine their associations with treatment acceptability.

Increasingly, researchers have suggested the potential role for parental attributions in understanding the treatment process for their child (e.g., Morrissey-Kane & Prinz, 1999). Morrissey-Kane and Prinz (1999) proposed a conceptual framework to describe the possible relationship between parental attributions and parental engagement in the treatment process. There is also a growing body of empirical research supporting the role of parental attributions in treatment attendance and treatment outcome. In line with this, researchers have considered the specific role that parental attributions may play with regard to parents' judgements of treatment acceptability. Preliminary findings have suggested a possible association between parental attributions and treatment acceptability within the domain of parent-focused behavioural interventions for children's problem behaviour. First, some researchers have highlighted the existence of a hypothesised relationship between parental attributions and treatment acceptability of parent-focused behavioural interventions for children's problem behaviour. Second, several empirical studies have provided some direct and indirect support to the possible relationship between parental attributions and treatment acceptability, although not all specific to behavioural interventions. Nevertheless, the research in this area is sparse and the existing empirical studies are often undermined by methodological issues. Hence, further work is needed to clarify the relationship between parental attributions and parental acceptance of behavioural interventions for their child's problem behaviour.

There are some suggestions for future research directions. As mentioned previously, of the studies reviewed, the measures of parental attributions varied greatly across studies and often lacked a sound theoretical basis. Given that attributional dimensions of the same perceived causes can vary significantly between people (see Section 1.8), it would also be important to ascertain how different attributional dimensions may be related to parents' acceptability judgements. Hence, future research should adopt more consistent use of theoretically based measures of attributions, whereby all attributional dimensions of both child-referent and parent-referent attributions may be assessed. Further studies should also take into account other factors that may potentially operate to influence parents' ratings of treatment acceptability and obscure the interpretation of findings (e.g., severity of problem behaviour).

Moreover, future research may profit from considering how parental attributions may influence parental acceptability of both parent-focused and child-focused

behavioural interventions. To date, the relationship between parental attributions and treatment acceptability of child-focused behavioural interventions remains largely unknown. More important, a comparison condition of child-focused behavioural interventions would allow a better exploration of whether certain patterns of attributional dimensions might be associated with lower acceptance of parent-focused behavioural interventions but greater acceptance of child-focused behavioural interventions, or with lower levels of acceptability of behavioural interventions in general. In fact, other lines of research have provided indirect support for the former hypothesis. Specifically, although within the domain of children's sleep problems, R. A. Keenan et al. (2007) demonstrated that parents who viewed their child's sleep problem as external to the child were more likely to rate a parent-focused behavioural intervention as acceptable and rate a child-focused pharmacological intervention as less acceptable. Similarly, G. E. Miller and Prinz (2003) showed that parents who perceived their child's problem behaviour as external to them were more likely to drop out of a parent-focused intervention but less likely to drop out of a child-focused intervention. Hence, consideration of both parent-focused and child-focused behavioural interventions may help to extend the existing research base and provide a more complete picture of the potential relationship between parental attributions and treatment acceptability.

In addition, future research should place greater emphasis on investigating the relationship between parental attributions and treatment acceptability amongst parents of children with developmental disabilities. As children with developmental disabilities are at heightened risk of exhibiting problem behaviour, their parents are likely to become the actual consumers and be involved in planning or even implementing behavioural interventions for managing problem behaviour. Despite this, parents of children with developmental disabilities have been underrepresented in the treatment acceptability literature. More specifically, parents of children with developmental disabilities, such as ASD, may be more likely to hold attributions for their child's problem behaviour that are consistent with a disease model whereby causes for problem behaviour are attributed as uncontrollable by the child (e.g., Whittingham et al., 2008). As Johnston et al. (2010) argued, the relationship between parental attributions and treatment acceptability may vary to some degree between parents who hold a disease model of their child's behaviour and those who do not. Thus it is particularly important

to further extend the research on the relationship between parental attributions and treatment acceptability in clinical populations, such as parents of children with ASD.

In conclusion, parents' treatment acceptability can be an important factor contributing to the success of behavioural interventions in managing children's problem behaviour. Preliminary findings suggest that parental attributions for their child's problem behaviour are, at least in some situations, related to their acceptance of parent-focused behavioural interventions. It is clear, however, that further research is needed to improve the understanding of the potential relationship between parental attributions and treatment acceptability specific to behavioural interventions. In practice, professionals, including educational psychologists, are often involved in recommending and planning interventions with parents for supporting their children. A better understanding of the relationship between parental attributions and treatment acceptability may therefore help inform these professionals about potential strategies to identify and improve parental acceptance of a behavioural intervention for their child's problem behaviour (e.g., promoting a match between parental attributions and the implicit attributional nature of a behavioural intervention), and thus increase the likelihood that the parents as well as their children would benefit from an evidence-based behavioural intervention.

Chapter Two. Do Maternal Attributions Play a Role in the Acceptability of Behavioural Interventions for Problem Behaviour in Children with Autism Spectrum Disorders?

2.1 Introduction

2.1.1 Autism Spectrum Disorders

Autism is a lifelong developmental condition that presents differently across individuals (Jones, 2002; Wall, 2004). In the early 1980s, autism was first suggested to represent a continuum of impairments and skills, and the concept of ASD was introduced to capture a range of manifestations in varying degrees of severity (Gillberg, 2006; Irwin, MacSween, & Kerns, 2011; Wing, 1996). Currently, as exemplified in the latest edition of both the *International Statistical Classification of Diseases and Related Health Problems* (ICD-10, World Health Organization, 1994) and the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV TR; APA, 2000), ASD are defined as pervasive developmental disorders (PDD) which manifest along an autism spectrum and embrace a group of developmental conditions with social deficits at their core, including autistic disorder or childhood autism, Asperger's syndrome, Rett's syndrome, childhood disintegrative disorder, and pervasive developmental disorder not otherwise specified (PDD-NOS) or atypical autism (Canitano & Scandurra, 2008; Filipek et al., 1999; Gillberg, 2006; Kozlowski & Matson, 2012; Sturm, Fernell, & Gillberg, 2004). However, recent evidence suggests that the inclusion of Rett's syndrome in the autism spectrum may be misplaced and it is likely to be dropped from the ASD subtypes in the next revision of the APA diagnostic classification system (DSM-V) (Gillberg, 2006, 2011; Irwin et al., 2011; Volkmar, State, & Klin, 2009). A recent prevalence of ASD is estimated at 69.2 cases per 10,000, with about 5 times more males diagnosed than females (C. A. Campbell, Davarya, Elsabbagh, Madden, & Fambonne, 2011).

The current diagnostic criteria for ASD still reflect Wing and Gould's (1979) triad of impairments, whereby ASD are typically characterised by varying degrees of impaired development of social interaction, deficiencies in verbal and nonverbal communication, and/or repetitive behaviour and restricted interests (APA, 2000). In line with the conceptualisation of an autism spectrum, ASD subtypes are generally described along a continuum, with autistic disorder representing the classic form of autism at the most severe end of the spectrum and PDD-NOS being at the relatively mild end of the spectrum (Lecavalier, Snow, & Norris, 2011; J. L. Matson & Dempsey, 2008). The notion of an autism spectrum also denotes the fact that no two children with ASD would

present the same characteristics to the same degree (Wall, 2004; Wing, 1997). For example, children with ASD present with a range of cognitive abilities from having severe learning difficulties to above average cognitive functioning (Jones, 2002). Moreover, they may experience the core social deficits alone or in combination with other developmental syndromes or medical conditions, such as developmental coordination disorder and epilepsy (Gillberg, 2006; Wing, 1997).

2.1.2 Problem Behaviour in Children with ASD

In addition to the diagnostic criteria of repetitive and stereotyped behaviour, children with ASD are at an increased risk of exhibiting a wide range of other externalising problem behaviour (Canitano & Scandurra, 2008; I. L. Cohen, Yoo, Goodwin, & Moskowitz, 2011; Singh et al., 2011). Examples of problem behaviours include hyperactivity, self-injury, and a group of disruptive behaviours consisting of aggression, property destruction, tantrums, rule breaking, and noncompliance (Hagopian, 2007; Horner et al., 2002; Lecavalier et al., 2004; J. L. Matson, 2009; O'Reilly et al., 2009; Reese, Richman, Zarcone, & Zarcone, 2003; Reese, Richman, Belmont, & Morse, 2005; Roberts & Pickering, 2010). Researchers have suggested that problem behaviour may not only have negative consequences on a child's overall development but also create significant challenges to the child's parents and other family members (McCracken et al., 2002; Singh et al., 2011; West & Waldrop, 2006). Given that problem behaviour is likely to persist and become chronic without appropriate intervention (Horner et al., 2002; Khosroshahi et al., 2010; G. H. Murphy et al., 2005), this explicitly highlights the importance of interventions for addressing problem behaviour in children with ASD.

One of the most widely used evidence-based interventions for alleviating problem behaviour in children with ASD is behavioural interventions based on operant conditioning principles (Boyd, McDonough, & Bodfish, 2011; Bregman et al., 2005; J. M. Campbell, 2003; V. A. Green et al., 2006; Horner et al., 2002; Myers & Johnson, 2007). In particular, within the range of these interventions that aim to reduce problem behaviour, there appears to be a shift from the sole focus of child-focused behavioural interventions, which are typically carried out by trained therapists to focus exclusively on teaching the target child (e.g., early intensive behavioural intervention [EIBI] or applied behaviour analysis [ABA] programmes), towards an increasing recognition of parent-focused behavioural interventions, which are provided to train parents in the use

of appropriate behavioural strategies with their child (e.g., the SSTP programme) (e.g., Birkin, Anderson, Moore, & Seymour, 2004; Brookman-Frazee, Stahmer, Baker-Ericzén, & Tsai, 2006; Brookman-Frazee, Vismara, Drahota, Stahmer, & Openden, 2009; Francis, 2005; M. L. Matson, Mahan, & Matson, 2009; Schreibman, 2000; Schreibman & Anderson, 2001). This increasing availability of parent-focused behavioural interventions, in turn, serves to highlight the greater role that parents of children with ASD play not only in seeking assistance and deciding which interventions to use, but also in actively learning and implementing the interventions themselves. With this shift in mind, promoting parental acceptability of behavioural interventions will have increasing value for professionals supporting children with ASD.

2.1.3 Treatment Acceptability of Behavioural Interventions For Children's Problem Behaviour

Treatment acceptability is defined as "judgments by laypersons, clients, and others of whether treatment procedures are appropriate, fair, and reasonable for the problem or client" (Kazdin, 1981, p. 493). In other words, it refers to the degree to which an intervention is viewed as acceptable by its consumers prior to treatment commencing (Calvert & Johnston, 1990; Varnado-Sullivan & Horton, 2006). Although identifying the evidence base for an intervention is pivotal, treatment acceptability is suggested as another important criterion which plays a critical role in the success of an intervention (Calvert & Johnston, 1990; Carter, 2007, 2010; S. N. Elliott, 1988; Kazdin, 1980, 2000). In particular, researchers have argued that interventions that are viewed as more acceptable may be more likely to be selected, initiated, and adhered to than interventions rated as less acceptable (Kazdin, 1980; Miltenberger, 1990; Witt & Elliott, 1985). Hence, regardless of its possible effectiveness, it is possible that an evidence-based intervention that is perceived as unacceptable may not be implemented with fidelity or even selected in the first place by its potential consumers (Kazdin, 1980; Kazdin, French, & Sherick, 1981).

Most of the research literature on treatment acceptability has focused on identifying the factors that are associated with treatment acceptability (Calvert & Johnston, 1990; S. N. Elliott, 1988; Miltenberger, 1990). Factors that may influence parental acceptability of behavioural interventions for their child's problem behaviour include treatment characteristics (e.g., type of treatment procedures and treatment side effects) and child characteristics (e.g., severity of problem behaviour and age of child).

Generally, the treatment acceptability literature highlights that parents are more likely to find reinforcement-based behavioural interventions more acceptable than punishment-based behavioural interventions (Jones et al., 1998; Pickering & Morgan, 1985; Singh et al., 1987). Some research studies have also indicated that parents may rate punishment-based behavioural procedures as more acceptable for younger children (Norton et al., 1983) and may perceive certain behavioural procedures (e.g., verbal praise) as more acceptable for children exhibiting less severe problem behaviour (Reimers et al., 1992).

Additionally, the characteristics of parents, such as income level and understanding of intervention, have also been found to influence their acceptability of behavioural interventions. For example, research suggests that low-income parents may be more likely to rate punishment-based behavioural interventions as more acceptable (Heffer & Kelley, 1987; Kelley et al., 1990) and that parents' prior treatment experience may increase their treatment acceptability (Gage & Wilson, 2000). Recently, several researchers have argued that some parent characteristics, such as parental cognitions, may be more readily subject to modification than other factors, highlighting the benefits of addressing the relations of these parental cognitions to treatment acceptability (Hoza et al., 2006; Kazdin, 2000; Mah & Johnston, 2008). In particular, given the potential malleability of parental cognitions, it is possible that professionals may help to facilitate parents' willingness to accept a potentially beneficial evidence-based intervention through addressing parental cognitions. Parental attributions have been suggested as one of these parental cognitions (Hoza et al., 2006; Mah & Johnston, 2008; Morrissey-Kane & Prinz, 1999).

2.1.4 Treatment Acceptability and Parental Attributions

In this domain, parental attributions refer to the causal explanations parents make about their child's behaviour (Whittingham et al., 2008, 2009). Based on Weiner's (1980, 1985, 1986) three-dimensional approach, there are three attributional dimensions of perceived causality: locus or internality (internal–external), controllability (controllable–uncontrollable), and stability (stable–unstable). Specifically, parental attributions can be divided into child-referent attributions concerning parents' attributions about the child's role in causing the behaviour, and parent-referent attributions concerning parents' attributions about their own role in causing their child's behaviour (Johnston & Freeman, 1997; Joiner & Wagner, 1996; Morrissey-Kane & Prinz, 1999). In line with these views, a conceptual framework regarding the role of

parental attributions in treatment engagement proposed by Morrissey-Kane and Prinz (1999) suggests that parents would spontaneously make child-referent and parent-referent attributions for their child's problem behaviour: Child-referent attributions of high internality, high controllability, and high stability, and parent-referent attributions of low internality, low controllability, and high stability are considered to be negative parental attributions that are associated with poor parental engagement in the treatment process for their child (see Section 1.9.1). Explanations of each of the attributional dimensions are summarised in Table 1.

Table 1

Explanations of Attributional Dimensions of Child-referent and Parent-referent Parental Attributions

Attribution Dimensions	Explanation
Child-referent Parental Attributions	
Child-referent Internality	The degree to which the causes are internal to the child (i.e., personality, disposition vs. the situation)
Child-referent Stability	The likelihood of the child-related causes persisting with time (i.e., enduring vs. temporary)
Child-referent Controllability	The degree to which the child can control the behaviour (i.e., purposeful, controllable vs. unintentional, uncontrollable)
Parent-referent Parental Attributions	
Parent-referent Internality	The degree to which the causes are internal to the parent (i.e., parent caused, accidentally or deliberately vs. unrelated to parent behaviour)
Parent-referent Stability	The likelihood of parent-related causes persisting with time (i.e., enduring vs. temporary)
Parent-referent Controllability	The degree to which the parent can control the behaviour (i.e., controllable vs. uncontrollable)

Note. Adapted from "Do parental attributions affect treatment outcome in a parenting program? An exploration of the effects of parental attributions in an RCT of Stepping Stones Triple P for the ASD population," by K. Whittingham, K. Sofronoff, J. Sheffield, and M. R. Sanders, 2009, *Research in Autism Spectrum Disorders*, 3, p. 131. Copyright 2008 by Elsevier Ltd.

An increasing number of researchers have begun to consider the specific role parental attributions may play in parental acceptability of an intervention proposed for their child (e.g., Hassall & Rose, 2005; Hoza et al., 2006; Mah & Johnston, 2008; Thornton & Calam, 2011; Williford et al., 2009). In particular, some researchers highlight a hypothesised relationship between parental attributions and treatment acceptability of parent-focused behavioural interventions for children's problem behaviour, in which parents who perceive the causes of the behaviour as being unrelated to any parental influences (e.g., child's disposition) are less likely to judge those interventions as acceptable (Hoza et al., 2006; Mah & Johnston, 2008). It is hypothesised that a mismatch between certain parental attributions and the implicit attributional nature of parent-focused behavioural interventions may lead to low treatment acceptability of the interventions (Mah & Johnston, 2008; Thornton & Calam, 2011).

There are several empirical studies which have examined this hypothesised relationship between parental attributions and treatment acceptability. In a pioneer study by Reimers et al. (1995), parental attributions of the physical causes for their child's problem behaviour (e.g., child's health problems) were generally found to be negatively associated with their acceptability of parent-focused behavioural strategies recommended for their child. More recently, Williford et al. (2009) asked mothers of preschool children to report their child-referent attributions of their child's problem behaviour and their acceptability ratings of three interventions (i.e., child social skills training, behaviourally based parent training, and medication). The results revealed that the mothers who reported an overall pattern of more negative child-referent attributions (i.e., greater composites of child-referent internality, stability, and globality) were more likely to view the child-focused social skills training as acceptable. With respect to medication, when mothers reported high levels of contextual risks (e.g., low education and low income), their negative child-referent attributions were related to higher acceptability of medication; whereas negative child-referent attributions were associated with lower acceptability of medication for mothers who had low levels of contextual risks. Conversely, no significant relationships were found between parental attributions and treatment acceptability of parent training. Nonetheless, Williford et al. indicated that this lack of relationship may be due to the overall high acceptability ratings of parent training reported by the mothers.

Furthermore, in a sample of mothers of children with ADHD, Johnston et al. (2010) examined the relationship between parental attributions and treatment acceptability of a brief BPT session for their child's ADHD-related problem behaviour. They found that mothers who reported an overall pattern of more negative child-referent attributions (i.e., greater composites of child-referent internality, controllability, globality, and stability) were more likely to report high acceptability of parent-focused behavioural strategies (Johnston et al., 2010), even after controlling for other variables such as severity of inattentive symptoms. It should however be noted that this relationship is in the opposite direction of the aforementioned hypothesised relationship. Similarly, Whittingham et al. (2006) conducted a study to explore the association between parental attributions and treatment acceptability of parent-focused behavioural strategies amongst parents of children with ASD. The results revealed no significant relationship between parents' ratings of treatment acceptability and their child-referent attributions of internality, controllability, and stability. Nevertheless, Whittingham et al. assessed treatment acceptability with a single-item scale and thus the construct of treatment acceptability may have been ill-defined in their study.

Overall, there appears to be a small but growing body of research that speaks to the potential role of parental attributions in parents' acceptance of parent-focused behavioural interventions for their child's problem behaviour. It should, however, be noted that the existing empirical studies have revealed some inconsistent findings and are limited by certain methodological issues. First, the measures of parental attributions varied greatly across studies and often lacked a theoretical basis. For example, some studies only assessed parents' perceived causes of behaviour in general without acknowledging the theoretically-based dimensions of the parental attribution construct (e.g., Reimers et al., 1995). Second, some measures of parental attributions used in existing studies only allowed an examination of an overall pattern of parental attributions through the computation of a composite variable, and thus it is unclear which attributional dimension was in fact related to treatment acceptability (e.g., Johnston et al., 2010; Williford et al., 2009). Third, existing research has thus far solely focused on the relationship between child-referent attributions and treatment acceptability within the domain of parent-focused behavioural interventions, largely ignoring the potential influence of parent-referent attributions on treatment acceptability. Lastly, some of the studies did not adequately take into account other potential factors that may influence parents' ratings of treatment acceptability (e.g., severity of problem

behaviour) when examining the relationship between parental attributions and treatment acceptability, and thus these findings might be obscured (e.g., Reimers et al., 1995; Whittingham et al., 2006).

2.1.5 Rationale and Aims of the Present Study

Given the high prevalence of problem behaviour in children with ASD and the increasing availability of parent-focused behavioural interventions, an understanding of the relationship between parental attributions and treatment acceptability of behavioural interventions is particularly relevant for the ASD population. For instance, such an understanding may help to clarify whether certain parental attributions may act as a potential barrier or a catalyst to the acceptance of a parent-focused behavioural intervention, which may in turn affect the likelihood of it being selected, implemented with fidelity, and potentially, producing more beneficial outcomes. To date, there is however exceedingly scant research exploring the relationship between parental attributions and treatment acceptability of behavioural interventions amongst parents of children with ASD. The methodological limitations of existing research in this area further indicate that such a relationship has not been explored in a way that could provide real insight into promoting parents' acceptance of behavioural interventions for these children.

The main purpose of the present study was to explore the relationship between parental attributions and treatment acceptability of behavioural interventions for problem behaviour in children with ASD. To examine this relationship, disruptive behaviour of children with ASD was identified as the target problem behaviour. Unlike other forms of problem behaviour that may typically be defined as ASD-related behaviour (e.g., stereotyped behaviour), disruptive behaviour is not necessarily related to the child's ASD condition (J. L. Matson, 2009; Reese et al., 2005). It is therefore expected that parental attributions of their child's disruptive behaviour are more likely to reflect their parental attributional style without the influence of an apparent ASD-related cause. Also, as disruptive behaviour can create particular challenges for parents (Birkin et al., 2004; McCracken et al., 2002; Shea et al., 2004; West & Waldrop, 2006), interventions are very likely to be required to address this group of behaviours. Furthermore, to provide a more complete picture of the potential relationship between parental attributions and treatment acceptability, both parent-focused and child-focused behavioural interventions were examined. It was hoped that this would allow an

examination of whether certain attributional dimensions may be related to lower acceptability of parent-focused behavioural interventions but higher acceptability of child-focused behavioural interventions.

Additionally, given the methodological limitations of existing literature, the present study aimed to examine the relationship between parental attributions and treatment acceptability using a more rigorous research design. Specifically, this study was designed to explore how each attributional dimension of both child-referent and parent-referent attributions may be related to parents' acceptability judgements. Also, as there are other factors that may operate to influence parents' treatment acceptability, this study aimed to examine the relationship between parental attributions and treatment acceptability, whilst controlling for some of these potentially confounding variables. The variables that were found to be associated with treatment acceptability and were eligible to be controlled for in this study included income level, age of child, prior treatment experience, severity of the child's disruptive behaviour, and severity of the child's ASD symptoms.

In the present study, the following research question was specifically addressed: Does each attributional dimension play a role in parental acceptability of behavioural interventions (parent-focused and child-focused) for problem behaviour in children with ASD, after controlling for other related variable(s)?

2.2 Method

2.2.1 Ethics

Ethical approval was obtained from the University of Southampton's Psychology Ethics Committee and Research Governance Office (see Appendix A).

2.2.2 Participants

Mothers of a child with a formal diagnosis of ASD between the ages of 3 and 9 years living in the United Kingdom (UK) were invited to participate in the present study. To be included in the sample, mothers had to report (a) they had a child with ASD aged 3 to 9 years, (b) the age at which their child was diagnosed with ASD, (c) that their child was formally diagnosed with ASD by a registered health professional (e.g., psychiatrist or paediatrician), and (d) the actual diagnosis of their child on the autism spectrum. The age range of 3 to 9 years was chosen because children's problem behaviour is generally more amendable early in life (Dunlap & Fox, 2009; Dunlap et al.,

1990); thus, understanding the relationship between parental attributions and treatment acceptability for this age group would be particularly useful in identifying ways for promoting early interventions. If a mother had more than one child with ASD in this age range, the target child was determined as the one for whom the mother had the greatest behavioural concerns. The focus on mothers was justified by the recognition that mothers are commonly the primary carers of their child in childrearing activities (Craig, 2006; McBride & Mills, 1993).

Potential participants were recruited from numerous sources and organisations that provide support for children diagnosed with ASD (see Section 2.2.4). They were given the option to take part through completing the survey materials online or on paper. A total of 140 participants completed the survey online and 13 participants completed the survey on paper. Fourteen participants (n = 13 completed online and n = 1 completed on paper) were excluded from data analyses as they did not meet the above inclusion criteria. Thus, the final study sample consisted of 139 participants who were all biological mothers of their child with ASD. The mean chronological age of the mothers was 38.31 years (SD = 6.11), with an age range between 22.50 years and 49.42 years. Their child ranged in age from 3.00 years to 9.92 years (M = 6.78, SD = 1.89). A list of other demographic information is presented in Table 2.

Table 2

Demographic Information

	n	%
Household		
Single-parent household	30	21.6
Two-parent household	109	78.4
Ethnicity		
White British	125	89.9
Any other White background	8	5.8
Other	6	4.2
Home region		
South East England	75	54.0
North West England	19	13.7
South West England	18	12.9
East Midlands	10	7.2
West Midlands	6	4.3
London	4	2.9
Northern Ireland	2	1.4
Scotland	2	1.4
East of England	1	0.7
Wales	1	0.7
Yorkshire and the Humber	1	0.7
Annual household income		
Less than £10,000	12	8.6
£10,000-£19,999	22	15.8
£20,000-£29,999	25	18
£30,000-£49,000	36	25.9
£50,000-£74,999	26	18.7
More than £75,000	8	5.8
Not reported	10	7.2
Highest level of education of mother		
Primary education	2	1.4
Secondary education	20	14.4
Post-secondary education	47	33.8
Undergraduate degree	54	38.8
Postgraduate degree	16	11.5
Prior treatment experience of mother		
Parent-focused behavioural interventions	49	35.3
Child-focused behavioural interventions	10	7.2
Child gender		
Boy	115	82.7
Girl	24	17.3
ASD diagnosis of child		
Autistic disorder or childhood autism	93	66.9
Asperger's syndrome or high functioning autism	42	30.2
PDD-NOS or atypical autism	4	2.9

Note. ASD = autism spectrum disorders; PDD-NOS = pervasive developmental disorder not otherwise specified.

2.2.3 Materials

2.2.3.1 Demographic questionnaire. A demographic questionnaire was administered to gather information about the participants (see Appendix B), including their age, ethnicity, highest level of education, income level, household information, home region, relationship to child, age of child, and gender of child. Information about the child's diagnosis of ASD was obtained through four individual items that addressed the ASD-related inclusion criteria mentioned previously. To assess their prior treatment experience of behavioural interventions for managing their child's behaviour, participants were also asked to indicate whether they had used parent-focused behavioural interventions (e.g., the SSTP programme, the EarlyBird programme, and the Incredible Years programme) and/or child-focused behavioural interventions (e.g., EIBI or ABA programmes). This variable was coded categorically, whereby a rating of "1" or "0" was used to indicate the presence or the absence of prior treatment experience, respectively.

2.2.3.2 Parental Attribution Questionnaire (PAQ; Whittingham et al., 2008, 2009). The PAQ was used to assess each attributional dimension, namely child-referent internality, child-referent controllability, child-referent stability, parent-referent internality, parent-referent controllability, and parent-referent stability. According to Whittingham et al. (2008, 2009), the PAQ was designed specifically for use with parents of children in the ASD population and was based on Weiner's (1980) attributional theory and Morrissey-Kane and Prinz's (1999) framework. It consists of three different scenarios involving good, bad or naughty, and ASD-related behaviour. For the purpose of this study, only the bad or naughty behaviour scenario was used. This scale involved asking participants to recall a recent example of their child's bad or naughty behaviour. It was anticipated that the example behaviour the participants would think of might vary greatly across different types of problem behaviour (e.g., ranging from stereotyped behaviour to self-injurious behaviour) and this might obscure interpretation of the findings, therefore a list of disruptive behaviour examples[2] was added to the scale in this study as a prompt to help parents recall an example of their child's disruptive behaviour. The disruptive behaviour examples were based on the

[2] The disruptive behaviour examples included the following: having a tantrum, threatening people, not feeling guilty after misbehaving, hitting someone, being cruel to others, challenging adult authority, getting angry easily, getting in physical fights, destroying property, running away, having to do things own way, and violating rules.

conduct problem subscale of the Nisonger Child Behavior Rating Form (NCBRF; Aman, Tassé, Rojahn, & Hammer, 1996; Tassé, Aman, Hammer, & Rojahn, 1996) and were reviewed by a senior researcher with specialism in ASD. A similar design of providing a list of behaviour examples has been used in previous research assessing parental attributions (e.g., Snarr, Slep, & Grande, 2009). Based on their perceived causes of the behavioural example they identified in their own child, participants were then asked to rate their agreement with 12 attributional statements, with two statements assessing each attributional dimension, using a 5-point Likert scale (1 = *strongly disagree* and 5 = *strongly agree*). Items 2, 4, 6, 8, 10, and 12 were reverse scored. Sample items include "*In my opinion, my child could control this behaviour if s/he wanted to*" and "*In my opinion, if I wanted to, I could control this behaviour in my child*". The subscale items were summed to yield a score for each attributional dimension, with higher scores indicating greater attributions on a dimension. According to the original publication, this scenario of the PAQ has internal consistency for each subscale ranging from $\alpha = .61$ to .84 (Whittingham et al., 2008). The internal consistency coefficients for each attributional dimension in the present study were .50 for child-referent internality, .75 for child-referent controllability, .82 for child-referent stability, .52 for parent-referent internality, .79 for parent-referent controllability, and .86 for parent-referent stability.

2.2.3.3 Treatment acceptability measure (see Appendix C). The treatment acceptability measure consisted of the case vignette, the treatment descriptions, and the TEI-SF (Kelley et al., 1989) to assess parental acceptability of parent-focused and child-focused behavioural interventions. This method of assessing treatment acceptability, by using a case vignette and a treatment description and then asking parents to rate their acceptability of the described intervention, has been commonly used in treatment acceptability research (e.g., Boothe & Borrego, 2004; Jones et al., 1998; D. L. Miller, Manne, & Palevsky, 1998; Pemberton & Borrego, 2007).

***Case vignette*.** The case vignette was designed to provide a brief description of a hypothetical 9-year-old boy with ASD exhibiting disruptive behaviour that is commonly observed in children with ASD. In line with the example list of disruptive behaviour on the PAQ, the description of disruptive behaviour in the case vignette was based on the conduct problem subscale of the NCBRF and was also populated by examples from clinical experience. To further ensure the validity of the case vignette in depicting common disruptive behaviour presented by children with ASD, the case vignette was

reviewed by professionals with extensive experience in working with children with ASD, including several educational psychologists and a senior researcher with specialism in ASD. A boy character, as opposed to a girl character, was chosen for the case vignette because of the higher prevalence of ASD in boys than girls (Baird et al., 2006; C. A. Campbell et al., 2011).

Treatment descriptions. Two treatment descriptions were designed to provide a summary of the typical components of a parent-focused behavioural intervention and a child-focused behavioural intervention for managing children's problem behaviour, respectively. The treatment descriptions were based on the literature (e.g., Krain et al., 2005) and were reviewed by professionals who have good knowledge of behavioural interventions, including a senior researcher and educational psychologists. The treatment descriptions were of similar length and were worded in a similar style.

TEI-SF (Kelley et al., 1989). The TEI-SF was used to assess participants' treatment acceptability of both the behavioural interventions described. The TEI-SF consists of nine items. Sample items include "*I like the procedures used in this method*" and "*I believe this method is likely to be effective*". Each item was rated on a 5-point Likert scale (1 = *strongly disagree* and 5 = *strongly agree*). Item 6 was reverse scored. Items were summed to yield a total TEI-SF score, whereby a higher score indicates greater acceptance of an intervention. A score of 27 (range 9–45) indicates moderate acceptability of an intervention (Kelley et al., 1989). The TEI-SF has been demonstrated to have excellent psychometric properties and to effectively discriminate between alternative interventions (Kelley et al., 1989). In the present study, the internal consistency for the TEI-SF ratings of acceptability for the parent-focused behavioural intervention and for the child-focused behavioural intervention were high (α = .90 and α = .91, respectively). Additionally, to further support the validity of the TEI-SF used in this study, participants were asked to make a forced-choice indication of their treatment preference after completing the TEI-SF for both interventions. The TEI-SF ratings of the parent-focused behavioural intervention were significantly associated with the participants' preferred choice for the parent-focused behavioural intervention (r = .33, p < .001), whereas the TEI-SF ratings of the child-focused behavioural intervention were significantly associated with their preferred choice for the child-focused behavioural intervention (r = −.23, p = .008).

2.2.3.4 The Conduct Problem subscale of the NCBRF-Parent version (Aman et al., 1996; Tassé et al., 1996). The conduct problem subscale of the parent version of the NCBRF was used to assess the severity of disruptive behaviour presented by the participants' own child. Items on the conduct problem subscale are found to correspond well to DSM-IV symptoms of disruptive behaviour disorders (Aman et al., 2002). Specifically, the NCBRF has been demonstrated to have good construct validity in the ASD population and to contain items measuring behaviours that are commonly observed in children and adolescents with ASD (Lecavalier et al., 2004). The conduct problem subscale is composed of 16 items, including disruptive behaviour such as disobedience and temper tantrums. Items were rated on a 4-point Likert scale concerning both the frequency of occurrence and the degree to which the behaviour was a problem over the last month (0 = *Did not occur or was not a problem* and 3 = *Occurred a lot or was a serious problem*). The subscale was scored by summing the items, with a higher score indicating more severe disruptive behaviour. The internal consistency of the conduct problem subscale in the present study was high (α = .93) and thus was consistent with that found in previous research (α = .92; Lecavalier et al., 2004).

2.2.3.5 Social Communication Questionnaire-Current version (SCQ; Rutter, Bailey, & Lord, 2003). The current version of the SCQ was used to measure the severity of ASD symptoms presented by the participants' own child. The SCQ is a 40-item questionnaire that enquires about behavioural characteristics related to core diagnostic features of autism (Rutter et al., 2003). It is based on the Autism Diagnostic Interview-Revised (ADI-R; Lord, Rutter, & Le Couteur, 1994) (Berument, Rutter, Lord, Pickles, & Bailey, 1999; Rutter et al., 2003). The SCQ current version specifically assesses the child's behaviour in the recent three months. Participants were asked to answer yes-or-no questions to indicate whether or not their child showed a specific symptom, with a scoring value of either "1" indicating the presence of the symptom or "0" indicating the absence of the symptom. Item 1 was not included in the scoring but was used to determine whether the child had sufficient verbal skills to score the next six language items (Items 2–7). If the child was nonverbal, the six language items were left out. Items were summed to yield a total SCQ score, with a higher score indicating greater severity of ASD symptoms. As this would have resulted in a total possible score of 0–33 for nonverbal children and 0–39 for verbal children, the total SCQ scores were

converted to average scores as the unit of measurement for the purpose of this study, whereby an average score was computed using the average score per item. In the present study, the internal consistency for the SCQ was α = .84 for Items 2–40 (including language items) and α = .86 for Items 8–40 (excluding language items).

2.2.4 Procedure

The researcher contacted a wide range of organisations providing support for children diagnosed with ASD in the UK, including local autistic societies, parent support groups, schools, and charities, to seek permission to advertise the research information to the parents. A study advert was designed and used for the recruitment of participants (see Appendix D). For those organisations that provided permission, the research information was forwarded to the parents either through electronic mailing lists or through posting a paper copy of the study advert to them. Potential participants were also recruited via the Internet, whereby the researcher posted notices about the present study on the National Autistic Society (NAS) website, websites of local autistic societies, and web discussion forums for parents of children diagnosed with ASD. Interested participants were invited to access the survey materials by following the secure University-based web link where the electronic version of the survey materials was set up or by contacting the researcher directly for a paper copy of the survey.

The content of the survey materials presented online or on paper were made identical and included the opt-in consent form and information sheet, a demographic questionnaire, the PAQ, the treatment acceptability measure (i.e., the TEI-SF with the case vignette and the treatment descriptions), the conduct problem subscale of the NCBRF, the SCQ, and the debriefing statement (see Appendix E for consent documents and debriefing statement). After providing consent to take part, participants were asked to complete the demographic questionnaire and then the PAQ. Next, participants completed the treatment acceptability measure in which they were first presented with the case vignette, then one of the two treatment descriptions, followed by the TEI-SF. After completing the TEI-SF for one intervention, participants were then asked to read another treatment description and rate the acceptability of that intervention using the TEI-SF again. The presentation of the two treatment descriptions was counterbalanced to control for order effects. To further reduce possible influences of prior treatment experience, participants were requested to regard the described intervention as a novel intervention. When completing the TEI-SF, participants were also asked to imagine that

their child presented with behaviour as described in the case vignette and the described intervention was suggested as an intervention option for their child. The conduct problem subscale of the NCBRF and the SCQ were then presented, respectively.

After completing all survey measures, the participants were provided with the debriefing statement and were thanked for their involvement in the study. They were also asked whether they would like to enter a prize draw of a £25 gift voucher (20 prizes) as an honorarium for their participation. Participants who chose to enter the prize draw were asked to provide their contact details. They were assured that any identifying information would not be linked in any way to their survey responses.

2.2.5 Design and Data Analysis

A correlational design was used in the present study. Prior to analysis, data inspection was conducted. To determine the advisability of including a particular variable as a covariate in later analyses, correlational analyses were used to explore the associations of demographic variables (i.e., income level, child's age, and prior treatment experience), severity of disruptive behaviour, and severity of ASD symptoms, with treatment acceptability ratings of the parent-focused and child-focused behavioural interventions. Any of these variables found to be significantly associated with treatment acceptability ratings were to be included as covariate(s) in the regression analyses. Hierarchical regression analyses were then used to examine the relationship between parental attribution variables and treatment acceptability ratings of the parent-focused and child-focused behavioural interventions separately, after controlling for the covariate(s).

2.3 Results

2.3.1 Data Inspection

Data inspection was conducted to ensure the integrity and appropriateness of the data. Using the outlier identification rule suggested by Hoaglin and colleagues (e.g., Hoaglin & Iglewicz, 1987; Hoaglin, Iglewicz, & Tukey, 1986) that declares a score to be an outlier if it is outside the interval between the calculated cut-off points, four outliers (2.90%) were identified for the TEI-SF scores of the parent-focused behavioural intervention and two outliers (1.45%) for the TEI-SF scores of the child-focused behavioural interventions. Following Tahachnick and Fidell's (2007) recommendation, these outliers were replaced by a score equal to one unit above or below the nearest

nonoutlier score. No outliers were found on other variables. All variables appeared normally distributed, with all skewness and kurtosis values within ±1. It has been suggested that a skewness or kurtosis value of ±1 is an indication of an approximately normal distribution (Cutting, n.d.; Leech, Barrett, & Morgan, 2005). The dataset contained some missing values due to incomplete measures (see Table 3). Missing data were excluded through the pairwise method for all analyses (Pallant, 2010; Tabachnick & Fidell, 2007).

2.3.2 Descriptive Statistics

Means and standard deviations for measures of parental attributions, treatment acceptability of parent-focused and child-focused behavioural interventions, severity of disruptive behaviour, and severity of ASD symptoms are presented in Table 3.

Table 3

Means and Standard Deviations for Parental Attributions, Treatment Acceptability, Severity of Disruptive Behaviour, and Severity of ASD Symptoms

Measure (Range)	*n*	*M*	*SD*
PAQ (Range 2–10)			
Child-referent Internality	138	6.39	1.86
Child-referent Controllability	139	4.62	1.74
Child-referent Stability	138	6.94	1.86
Parent-referent Internality	139	4.94	1.67
Parent-referent Controllability	139	4.61	1.62
Parent-referent Stability	139	6.69	1.71
TEI-SF (Range 9–45)			
TEI-SF for Parent-focused Behavioural Intervention	138	33.70	5.51
TEI-SF for Child-focused Behavioural Intervention	138	30.64	6.19
NCBRF-Conduct Problem (Range 0–48)	138	21.43	11.49
SCQ-Current (Average Score) (Range 0–1)	134	0.57	0.20

Note. *n*s vary due to missing values. PAQ = Parental Attribution Questionnaire; TEI-SF = Treatment Evaluation Inventory-Short Form; NCBRF-Conduct Problem = the conduct problem subscale of the Nisonger Child Behavior Rating Form; SCQ-Current = the current version of the Social Communication Questionnaire.

Specifically, in terms of treatment acceptability ratings, 91.4% of mothers (n = 127) and 79.9% of mothers (n = 111) reported a score of 27 or greater for the parent-focused behavioural intervention and the child-focused behavioural intervention, respectively.

2.3.3 Examination of Covariates

Pearson's correlations were used to examine the associations of treatment acceptability ratings of both behavioural interventions with demographic variables (i.e., income level, child's age, and prior treatment experience) and other variables (i.e., severity of disruptive behaviour and severity of ASD symptoms). All parametric assumptions were met.

The results showed that severity of disruptive behaviour was negatively associated with treatment acceptability ratings of the parent-focused behavioural intervention ($r = -.32$, $p < .001$) and the child-focused behavioural intervention ($r = -.18$, $p = .041$). No significant associations were found between income level, child's age, prior treatment experience of parent-focused behavioural interventions, or severity of ASD symptoms, and treatment acceptability of the parent-focused behavioural intervention. Similarly, with respect to treatment acceptability of the child-focused behavioural intervention, no significant associations were found for income level, child's age, prior treatment experience of child-focused behavioural interventions, or severity of ASD symptoms. Thus, only severity of disruptive behaviour was retained as a covariate in subsequent analyses. All correlations are presented in Table 4.

Table 4

Correlations Between Variables

Variable	1	2	3	4	5	6	7	8
1 Income Level	1	−.01	.25**	.07	−.16	−.18*	.13	.04
2 Child's Age	-	1	.25**	.11	−.07	−.31***	.03	.06
3 Prior Treatment Experience of Parent-focused Behavioural Interventions	-	-	1	.09	−.08	−.11	.07	.04
4 Prior Treatment Experience of Child-focused Behavioural Interventions	-	-	-	1	−.14	.03	−.09	.16
5 Severity of Disruptive Behaviour	-	-	-	-	1	.26**	−.32***	−.18*
6 Severity of ASD Symptoms	-	-	-	-	-	1	−.15	.04
7 Treatment Acceptability of Parent-focused Behavioural Intervention	-	-	-	-	-	-	1	.37***
8 Treatment Acceptability of Child-focused Behavioural Intervention	-	-	-	-	-	-	-	1

Note. ASD = autism spectrum disorders.

*$p < .05$. **$p < .01$. ***$p < .001$.

2.3.4 Hierarchical Multiple Regression

Hierarchical multiple regression analyses were conducted to examine the association of parental attribution variables with treatment acceptability of parent-focused and child-focused behavioural interventions, respectively.

2.3.4.1 Parent-focused behavioural intervention. To conduct the hierarchical regression analysis for predicting treatment acceptability of the parent-focused behavioural intervention, severity of disruptive behaviour was entered into the model as a covariate at Step 1. All attributional dimensions were then entered simultaneously into the model at Step 2. This hierarchical order of entry has previously been used in treatment acceptability research to control for covariates (e.g., Bennett, Power, Rostain, & Carr, 1996).

The final model of this hierarchical regression analysis after entry of all variables is presented in Table 5. The overall model was significant, $F(7, 129) = 3.01$,

p = .006. According to J. Cohen (1988), this corresponds to a small effect (f^2 = .05). After controlling for severity of disruptive behaviour, the combination of parental attribution variables accounted for 4.1% of the variance in the ratings of treatment acceptability. As shown in Table 5, only the attributional dimension of parent-referent stability contributed a significant unique effect (β = −.27, p = .031), with greater attributions of parent-referent stability being associated with lower treatment acceptability of the parent-focused behavioural intervention. The other attributional dimensions did not significantly contribute to the model and were therefore not significant predictors of treatment acceptability of the parent-focused behavioural intervention. All necessary assumptions for the regression model were met (e.g., independence, non-multicolinearity, and homoscedasticity) supporting the generalisability of the model obtained in this study.

Table 5

Hierarchical Multiple Regression Analysis Predicting Treatment Acceptability of the Parent-focused Behavioural Intervention from Parental Attributions

Variable	*B*	*SE B*	β
Step 1:			
Control			
Severity of Disruptive Behaviour	−.15	.04	−.32**
Step 2:			
Control			
Severity of Disruptive Behaviour	−.14	.04	−.28**
Parental Attributions			
Child-referent Internality	.24	.26	.08
Child-referent Controllability	−.04	.28	−.01
Child-referent Stability	.40	.36	.13
Parent-referent Internality	.03	.30	.01
Parent-referent Controllability	.07	.32	.02
Parent-referent Stability	−.88	.40	−.27*

Note. R^2 = .10 for Step 1; ΔR^2 = .04 for Step 2 (p = .006).

*p < .05. **p < .01.

2.3.4.2 Child-focused behavioural intervention. As with the previous hierarchical regression analysis, to examine the relationship between parental attributions and treatment acceptability of the child-focused behavioural intervention, severity of disruptive behaviour was entered at Step 1 and all attributional dimensions were entered at Step 2. The final model of this hierarchical regression analysis after entry of all variables is presented in Table 6. The overall model was nonsignificant, $F(7, 129) = 1.61$, $p = .137$, $f^2 = .05$. After controlling for severity of disruptive behaviour, the addition of the parental attribution variables did not significantly contribute to the prediction for treatment acceptability of the child-focused behavioural intervention. No violation of the necessary assumptions for the regression model was found.

Table 6

Hierarchical Multiple Regression Analysis Predicting Treatment Acceptability of the Child-focused Behavioural Intervention from Parental Attributions

Variable	*B*	*SE B*	β
Step 1:			
Control			
Severity of Disruptive Behaviour	−.09	.05	−.18*
Step 2:			
Control			
Severity of Disruptive Behaviour	−.10	.05	−.19*
Parental Attributions			
Child-referent Internality	.24	.30	.07
Child-referent Controllability	.32	.33	.09
Child-referent Stability	.81	.42	.24
Parent-referent Internality	.15	.35	.04
Parent-referent Controllability	−.25	.37	−.07
Parent-referent Stability	−.80	.47	−.22

Note. $R^2 = .03$ for Step 1; $\Delta R^2 = .05$ for Step 2 ($p = .137$).

*$p < .05$

2.4 Discussion

2.4.1 Summary of Findings

The focus of the present study was to explore the relationship between parental attributions and treatment acceptability of behavioural interventions for problem behaviour in children with ASD. The results showed that the parent-referent stability dimension significantly predicted low acceptability of the parent-focused behavioural intervention. Conversely, the other attributional dimensions (i.e., child-referent internality, child-referent controllability, child-referent stability, parent-referent internality, and parent-referent controllability) did not show any significant effect on predicting treatment acceptability of the parent-focused behavioural intervention. Moreover, no attributional dimensions were found to significantly predict treatment acceptability of the child-focused behavioural intervention. Although not central to the hypotheses, it is also noteworthy that mothers' ratings of the severity of disruptive behaviour in their child with ASD were significantly negatively correlated with their acceptability of both parent-focused and child-focused behavioural interventions.

Given that no previous study has explicitly investigated parent-referent attributional dimensions in this context, the findings provide preliminary evidence supporting the important role of parent-referent stability in the acceptability of parent-focused behavioural interventions within the ASD population: If parents perceived that the parent-related causes for their child's problem behaviour were likely to persist with time, they were less likely to find a parent-focused behavioural intervention acceptable. Following the aforementioned hypothesis suggested by other researchers (e.g., Mah & Johnston, 2008; Thornton & Calam, 2011), this relationship may stem from the mismatch between parental attributions and the implicit attributional nature of a parent-focused behavioural intervention. When parents of children with ASD perceive that the parent-related causes for their child's problem behaviour are enduring and mostly permanent, it is possible that this attributional style would fail to match with the implicit attributional nature of a parent-focused behavioural intervention in terms of its key objective of improving future parenting behaviour (e.g., use of more appropriate behavioural strategies), thus resulting in low acceptability of the intervention for reducing their child's problem behaviour. In other words, parental attributions of parent-referent stability appear to provide a psychological mechanism that may explain low acceptance of parent-focused behavioural interventions in parents of children with ASD. By contrast, the remaining parent-referent attributional dimensions, internality and

controllability, were not found to be significant predictors of treatment acceptability of the parent-focused behavioural intervention, suggesting that they may not play a salient role in this process.

Moreover, the findings suggested that none of the child-referent attributional dimensions were associated with treatment acceptability of the parent-focused behavioural intervention. These results are in line with the findings of Williford et al. (2009) and Whittingham et al. (2006), who did not find significant relationships between child-referent parental attributions and treatment acceptability of parent-focused behavioural interventions. Conversely, these findings are inconsistent with previous research conducted by Reimers et al. (1995) and Johnston et al. (2010), who reported some form of relationship between these variables. Given that the present study aimed to extend the existing research by adopting a more rigorous research design, there are several methodological differences between this study and previous studies, including the examination of each attributional dimension separately and the use of a covariate model to control for severity of disruptive behaviour. Another possible explanation for the inconsistent findings is that some previous researchers have used a composite measure of child-referent attributional dimensions. It may be that only the combination of certain child-referent attributional dimensions is associated with treatment acceptability ratings. Indeed, although not specific to treatment acceptability, Peters et al. (2005) found that only the combined pattern of parental attributions, but not individual attributional dimensions, were significantly associated with mothers' treatment attendance. In future research, a research design that also incorporates the measurement of the overall composite of attributional dimensions would allow this assumption to be tested.

With respect to the child-focused behavioural intervention, no associations were found between any attributional dimension and its treatment acceptability. Hence, the present findings provide new insight into the existing literature that parental attributions may not play a significant role in the acceptability of child-focused behavioural interventions. It is possible that other variables may play a much greater role in their treatment acceptability, and thus further research is fundamental to identify the key variables that influence parental acceptance of child-focused behavioural interventions. For example, Tzanakaki et al. (2012) reported that variables such as empirical and anecdotal evidence of treatment effectiveness may influence mothers' decision to select a child-focused behavioural intervention, whereby their decision may be potentially

relevant to the treatment acceptability construct. Specifically, with no relationship found between parental attributions and treatment acceptability of the child-focused behavioural intervention in the present study, it was not possible to explore whether specific attributional dimensions might be related to lower acceptance of the parent-focused behavioural intervention but greater acceptance of the child-focused behavioural intervention. Future research may extend the findings by including other types of child-focused interventions (e.g., medication) in the research design, to provide a more comprehensive picture of the possible relationships between parental attributions and treatment acceptability.

Furthermore, the present findings revealed that with increasing severity of their child's disruptive behaviour, parental acceptability towards both behavioural interventions was diminished. These findings are consistent with previous research conducted by Reimers et al. (1992), supporting the negative association between severity of problem behaviour and behavioural procedures, and also extend the existing findings to the ASD population. It is possible that parents of children who display more severe problem behaviour may find it more acceptable to use more immediate and/or restrictive techniques such as spanking or medication (e.g., Frentz & Kelley, 1986; McCracken et al., 2002; Miltenberger, 1990). One plausible explanation is that parents of children with more severe problem behaviour may experience higher levels of parenting stress, and thus these parents may be more likely to find "quick-fix" interventions (e.g., medication) more acceptable than behavioural interventions that take a relatively longer intervention period (e.g., Williford et al., 2009). Although this hypothesis remains to be tested, there is some research evidence that maternal stress is significantly predicted by the severity of problem behaviour in their child with ASD (e.g., Hastings et al., 2005; Koegel et al., 1992). Nevertheless, it is important to emphasise that the goal in this study was to control the severity of disruptive behaviour as a covariate rather than to study it. Hence, additional research is required to examine this variable further.

2.4.2 Limitations and Future Research

Certain limitations must be considered when interpreting the results of this study. First, given the sample used in the present research, the generalisability of the findings may be limited to biological mothers of children with ASD aged 3 to 9 years. Also, the large majority of participants in this study were white British. Future research may

include a more diverse sample of participants, including fathers and other caregivers of children at different ages (e.g., preadolescence) and those from ethnic minority backgrounds. An associated limitation concerns the specific focus on disruptive behaviour as the target behaviour in this study. Although this focus fits well with the purpose of the present study, there is a need for replication to determine whether the present findings hold in other types of problem behaviour (e.g., self-injurious behaviour).

Moreover, in the current sample, 91.4% of mothers and 79.9% of mothers reported at least moderate acceptability (i.e., TEI-SF score ≥ 27) for the parent-focused and child-focused behavioural interventions, respectively. This narrow range of variability in the acceptability ratings may have led to the limited number of significant relationships found between the attributional dimensions and treatment acceptability measured for both behavioural interventions. Similarly, the sample size used in this study may have resulted in restricted power to detect effects. As an initial exploratory study, the minimum sample size estimated for this study was 111 according to the general rule of thumb for multiple regression analyses (e.g., S. B. Green, 1991). However, the present study revealed a small effect size for the regression analyses for both behavioural interventions. Since a large sample size (e.g., $N > 700$) is required for regression analyses with a small effect size (e.g., Field, 2009; S. B. Green, 1991), this has implications for limited statistical power. Taking these issues into account, this study therefore requires replication in a much larger sample which would reflect a wider variation in treatment acceptability ratings.

Furthermore, caution is warranted in relation to the use of the PAQ in assessing parental attributions in this study. In particular, the current results showed that some of the PAQ subscales (e.g., child-referent internality) may not be as reliable as was expected from the original publication (Whittingham et al., 2008). The small number of items for each PAQ subscale may have limited its psychometric properties. Also, some researchers have raised concerns about the ecological validity of rating-scale methods for assessing parental attributions, as it is unclear to what extent these assessments reflect parental attributions spontaneously made by parents in naturalistic contexts (Bugental et al., 1998; Johnston, Reynolds, Freeman, & Geller, 1998; Wilson, Calam, & White, 2007). For this reason, some researchers have suggested the use of open-ended methods (e.g., interviews) to allow parental attributions to be elicited during more spontaneous attributional processes (Johnston et al., 1998; White & Barrowclough,

1998). Nevertheless, for the initial exploratory purpose of this study, it was thought more appropriate to adopt a published measure of parental attributions that was specifically designed for use with the ASD population and has a sound theoretical basis concerning each of the attributional dimensions. Further research is required to replicate this study using more reliable and ecologically valid methods to assess parental attributions.

Another methodological issue is that the study was based solely on data gathered from self-report measures, wherein self-reported data could be subject to response bias such as socially desirable responses (Hancock & Flowers, 2001; Paulhus, 1984). For example, the possibility cannot be ruled out that the participating mothers collaborated with others (e.g., fathers or friends) in the completion of the survey measures, thus increasing the likelihood of socially desirable responses. It is also unknown as to whether any of the mothers may have experienced difficulties in understanding or interpreting the written content of the survey. A related limitation concerns the reliance on parent-reported ASD diagnostic status of their child. Future research would therefore benefit from using other data collection methods such as parent interviews where an independent examiner can provide appropriate support when needed. In addition to this, a gold-standard research diagnostic measure for ASD (e.g., ADI-R; Lord et al., 1994) may also be adopted in future research to further verify a diagnosis of ASD.

Additionally, given that this was an analogue study that relied on use of a written case vignette and treatment descriptions, it is unclear to what extent it provides a true indication of the mothers' treatment acceptability of behavioural interventions in naturalistic contexts. In particular, the written materials used in the present study only provided minimal information and may not be representative of the complexity of real-life situations. Also, the behaviours described in the case vignette may not have been ones that all mothers could equally identify with. Nonetheless, in an attempt to address these issues, the written materials were verified by professionals and all participants were specifically asked to complete the acceptability ratings whilst imagining that the described intervention was also proposed for their own child. There is also research evidence supporting the correspondence between acceptability ratings assessed using analogue and naturalistic methodologies (Reimers et al., 1992). Future research replicating the present study in naturalistic conditions would however allow for more extensive consideration of this issue. This might also allow extension of the findings to

examine how parental acceptability may later be related to actual parental engagement in treatment in this context.

Finally, it is noteworthy to mention that the cross-sectional nature of this study does not allow for determination of causality between parental attributions and treatment acceptability. Further research is needed to draw causal conclusions from the present findings.

2.4.3 Implications for Practice

The present findings have important practical implications for professionals working with parents of children with ASD. Given that children with ASD are at a heightened risk of developing problem behaviour, professionals, including educational psychologists, are highly likely to be involved in recommending and planning possible interventions in collaboration with the children's parents. The present findings therefore provide preliminary evidence to suggest that these professionals should be more aware of how the parent-referent stability dimension might act as a barrier to parental acceptance of a parent-focused behavioural intervention. For example, regardless of its potential empirical effectiveness, a parent who perceives the parent-related causes for their child's problem behaviour to be permanent may find a parent-focused behavioural intervention unacceptable and may decide not to select it in the first place. The findings therefore have important implications for addressing parental attributions of parent-referent stability at the pretreatment stage, especially where parent-focused behavioural interventions have increasingly become an available intervention option for children with ASD. It may be that professionals could provide an opportunity for parents to discuss any concerns related to parent-referent stability issues when planning intervention at the consultation phase, and thus to help reduce any potentially distorted attributions of permanent parent-related causes for their child's problem behaviour. Alternatively, professionals may try to identify another intervention option that parents may find more acceptable to insure a greater probability of treatment success.

In recent years, there has been research on some adjunctive interventions combined with parent-focused behavioural interventions for promoting change in parental attributions during the treatment process, in order to enhance treatment outcomes (e.g., Sanders et al., 2004; Sanders & McFarland, 2000). For example, in the study by Sanders et al. (2004), additional sessions were added to a standard parent-focused behavioural programme to explicitly support parents to identify and challenge

negative parental attributions they held regarding their child's behaviour. Specific techniques, such as the use of video feedback, have also been shown to promote positive change in parental attributions in other contexts (e.g., Schechter et al., 2006). However, there has been little empirical attention devoted to any interventions addressing parental attributions at the pretreatment stage that aim to encourage treatment acceptability. In view of the present findings, it might be beneficial to explore whether professionals may adapt those adjunctive interventions into some form of treatment preparation technique for enhancing parental acceptance of a parent-focused behavioural intervention before the first intervention session. For example, a preparatory discussion may be carried out to identify and challenge distorted attributions of parent-referent stability for their child's problem behaviour.

Although not the main focus of the present study, the results also highlight the negative relationship between severity of disruptive behaviour and treatment acceptability of both parent-focused and child-focused behavioural interventions. This may have potential implications for the importance of early identification of and early intervention for problem behaviour in children with ASD. That is, having identified those children presenting problem behaviour early on, behavioural interventions could be introduced to parents whilst the children's problem behaviour is not yet severe; this might promote parental acceptance and potentially better utilisation of behavioural interventions, which might in turn prevent the increasing severity of the children's problem behaviour.

2.4.4 Concluding Comments

In conclusion, the present study is one of the first to explore the role of each attributional dimension in parental acceptability of parent-focused and child-focused behavioural interventions for problem behaviour in children with ASD, in order to clarify the possible relationship between parental attributions and treatment acceptability within this context. Findings provide initial support for the parent-referent stability dimension as a significant predictor of low acceptability of parent-focused behavioural intervention, highlighting the value of reducing distorted attributions of parent-referent stability for enhancing acceptance of parent-focused behavioural interventions amongst parents of children with ASD. Nevertheless, taking the study limitations into account, the present results should be considered preliminary and replication of the findings in a larger and more representative sample is necessary.

Future research should also continue to explore other key variables that account for greater variance in treatment acceptability of behavioural interventions, especially for child-focused behavioural interventions, so as to inform better practice for professionals.

Notwithstanding the preliminary nature of this study, the exploration of parental attributions may represent a concrete step for professionals, including educational psychologists, to identify and promote parental acceptance of an empirically supported parent-focused behavioural intervention for managing problem behaviour in children with ASD, thus increasing the likelihood that it will bring beneficial outcomes. Given the general emphasis upon evidence-based practice, it is hoped that the present findings could act as a prompt to reinforce an essential goal for professionals to develop a jointly agreed intervention plan incorporating behavioural interventions that are not only effective but also acceptable to the parents.

Appendix A. Ethical Approval

Your Ethics Submission (Ethics ID:648) has been reviewed and approved
ERGO [DoNotReply@ERGO.soton.ac.uk]

Sent: 09 June 2011 22:36
To: Choi Y.K.

Submission Number: 648
Submission Name: An Investigation of the Relationship between Parental Attributions and Treatment Acceptability amongst Parents of Children with Autism Spectrum Conditions (ASC)
This is email is to let you know your submission was approved by the Ethics Committee.

You can begin your research unless you are still awaiting specific Health and Safety approval (e.g. for a Genetic or Biological Materials Risk Assessment)

Comments
None
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DO NOT REPLY TO THIS EMAIL

Appendix B. Demographic Questionnaire

Demographic Questionnaire

Please provide the following background information about you and your child. All your responses will be kept confidential and will not contain any personally identifiable information.

1. **Your gender:**

☐ Female
☐ Male

2. **Your age (e.g., 30 years 1 month):** ……years……..month(s)

3. **How would you describe your Ethnicity?**

a) Black or Black British
- ☐ Caribbean
- ☐ African
- ☐ Any other Black background within (a)

b) Mixed
- ☐ White & Black Caribbean
- ☐ White & Black African
- ☐ White & Asian
- ☐ Any other mixed background

c) White
- ☐ British
- ☐ Irish
- ☐ Any other White background

d) Other ethnic groups
- ☐ Chinese
- ☐ Japanese
- ☐ Any other ethnic group
- ☐ Do not state

e) Asian or Asian British
- ☐ Indian
- ☐ Pakistani
- ☐ Bangladeshi
- ☐ Any other Asian background within (c)

4. **Please describe your household:**

☐ Single-parent household
☐ Two-parent household
☐ Other: (please specify) ……..

5. **Which region of the UK are you living in?**

☐ South East England ☐South West England ☐London ☐East of England
☐ East Midlands ☐West Midlands ☐Yorkshire and The Humber
☐ North West England ☐North East England
☐ Wales
☐ Scotland
☐ Northern Ireland

6. **What is your post code?** (*this will only be used to gather information about the neighbourhood area of participants in general*)

…….. ☐ Prefer not to state

7. **What is the highest level of education you have completed?**

☐ Pre-primary Education
☐ Primary Education
☐ Secondary Education (GCSE)
☐ Post-Secondary Education (College, A-Levels, NVQ3 or below, or similar)
☐ Undergraduate Degree (BA, BSc etc.)
☐ Postgraduate Degree (MA, MSc, PhD etc.)

8. **What is your current occupation?**

☐ Full-time employment
☐ Part-time employment
☐ Not in paid employment
☐ Other (e.g., housewife, full-time mother): (please specify) ……

Please turn over

9. **Which category would best describe your annual household income?**
☐ Less than £10,000
☐ £10,000 - £19,999
☐ £20,000 - £29,999
☐ £30,000 - £49,000
☐ £50,000 - £74,999
☐ More than £75,000
☐ Do not state

10. **How many children do you have?**
☐ 1
☐ 2
☐ 3
☐ 4
☐ More than 5

11. **Do you have a child between the ages of 3 and 9 with a diagnosis of Autism Spectrum Disorders/Conditions (ASD/ASC)?**
☐ Yes
☐ No

Please answer the following questions with your child between the ages of 3 and 9 years with a diagnosis of ASD/ASC in mind (*If you have more than one child with ASD/ASC aged 3-9 years, please base your answer on the child with your greatest behavioural concerns*)*:*

12. **Your relationship to the child**
☐ Biological parent
☐ Step-parent
☐ Adoptive parent
☐ Parent's partner
☐ Foster parent
☐ Other: (please specify) ……

13. **Your child's current age (e.g., 3 years 10 months):** ……years…….month(s)

14. **Your child's gender:**
☐ Female
☐ Male

15. **Did your child receive a formal diagnosis of ASD/ASC from a registered health care professional (e.g. doctor/paediatrician, psychologist/psychiatrist)?**
☐ Yes
☐ No

16. **Age of child when ASD/ASC diagnosis was made:** ……

17. **What is your child's ASD/ASC diagnosis?**
☐ Autistic disorder / Childhood autism
☐ Asperger's syndrome (AS) / High functioning autism
☐ Pervasive developmental disorder–not otherwise specified (PDD-NOS) / Atypical autism
☐ Other: (please specify) ……..

18. **Have you used any interventions for management of your child's behaviour?**
☐ No - I do not have experience in using any interventions for management of my child's difficult behaviour
☐ Yes - I have used the following intervention(s) for my child: (*please check all that apply*)
  ☐ 'ABA' programme (involving trained therapists only)
  ☐ 'ABA' programme (I was involved as one of the therapists)
  ☐ EarlyBird programme
  ☐ Triple P programme (e.g., Stepping Stone Triple P)
  ☐ Incredible Years programme
  ☐ Other: (please specify)……
  ……

Appendix C. Treatment Acceptability Measure

The treatment acceptability measure included the case vignette, the treatment description of the parent-focused behavioural intervention (described as *Intervention A*), the treatment description of the child-focused behavioural intervention (described as *Intervention B*), and the TEI-SF (Kelley et al., 1989).

Treatment Acceptability Measure

Instructions

Please read the following scenario. After reading the scenario, continue to the next page. The following page will contain descriptions of two interventions/treatments that are used for helping with children's difficult behaviour. Each description is followed by a series of questions, which will ask you to rate your impressions of the treatment. The last page of this measure will ask you to choose which one of the two interventions you prefer.

Case Scenario

Joe is a 9-year-old boy with a diagnosis of Autism Spectrum Disorders/Conditions (ASD/ASC). He often refuses to do things his mother asks him to do, such as picking up toys or helping around the house. When his mother asks him to put his toys away, Joe often has a temper tantrum which includes screaming, throwing, and breaking his toys. If anything breaks during a temper tantrum he never says sorry. He is stubborn and has to do things in his own way. He gets angry very easily. He does whatever he wants to do whether his mother has told him "no" many times. If he doesn't get his own way or what he wants, he often runs away, and may hit or kick his mother. Joe does things to bother other children such as poking them over and over. He sometimes gets in physical fights with them too. Joe does not always follow rules set by his mother. For example, the other day when his mother asked him to wait for her before crossing the road, Joe crossed the road without waiting for her.

Please turn over

Treatment descriptions

The following pages contain descriptions of two interventions: ***Intervention A*** *and* ***Intervention B****. Please read each of the interventions, and then answer the 9 questions that follow each intervention in the order in which they are given.*

Intervention A:

This intervention aims at teaching parents a set of skills to manage their child's difficult behaviour. Parents will meet with a trained practitioner (e.g. a psychologist, a behavioural consultant) for several sessions. During the sessions, parents will be taught how to conduct a functional analysis of their child's behaviour to understand what purpose the behaviour serves. Behavioural strategies for reducing their child's difficult behaviour will also be taught to parents. These strategies involves setting clear rules for the child's behaviour, and also offer instant positive or negative consequences for the behaviour. For example, parents will learn to utilise the token economy technique to establish a reward system that allows their child to earn points for good behaviour (e.g., completing work, following directions). Parents will also learn how to reduce their child's difficult behaviour by using the timeout technique (e.g. sending their child to a quiet room or corner for a few minutes) or by using an extinction strategy (e.g., taking no notice of the difficult behaviour). Parents will be taught to ensure that the commands they give to their child are short and clear. The practitioner will provide support to parents with any questions regarding the behavioural strategies taught during the sessions.

Please turn over

Treatment Evaluation Inventory-Short Form

Please complete the items listed below by placing a checkmark on the line next to each question that best indicates how you feel about the treatments described in the previous section. Please read the items very carefully because a checkmark accidentally placed on one space rather than another may not represent the meaning you intended.

Make the following ratings thinking of the use of **Intervention A** as an intervention for Joe's difficult behaviour described in the case scenario. Please also imagine how you would react to the treatment possibility if your own child presented behaviour like Joe and if this intervention was presented to you as a treatment option for your child.

Although you may have prior experience of using similar types of intervention, please see the intervention as a novel intervention and base your ratings only on the information given in the written description.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I find this treatment to be an acceptable way of dealing with the child's problem behavior.	_____	_____	_____	_____	_____
2. I would be willing to use this procedure if I had to change the child's problem behavior.	_____	_____	_____	_____	_____
3. I believe that it would be acceptable to use this treatment without children's consent.	_____	_____	_____	_____	_____
4. I like the procedures used in this treatment.	_____	_____	_____	_____	_____
5. I believe this treatment is likely to be effective.	_____	_____	_____	_____	_____
6. I believe the child will experience discomfort during the treatment.	_____	_____	_____	_____	_____
7. I believe this treatment is likely to result in permanent improvement.	_____	_____	_____	_____	_____
8. I believe it would be acceptable to use this treatment with individuals who cannot choose treatments for themselves.	_____	_____	_____	_____	_____
9. Overall, I have a positive reaction to this treatment.	_____	_____	_____	_____	_____

Please turn over

Treatment descriptions

Intervention B:

This intervention consists of a child having 1:1 sessions with a behavioural therapist, during which the child will be taught to reduce his/her difficult behaviour. Parents will identify a behavioural therapist to carry out individual sessions with their child. During the sessions, the behavioural therapist will conduct a functional analysis to identify what purpose the child's behaviour serves and will make use of behavioural strategies to teach the child to decrease his/her difficult behaviour. The strategies involves setting clear rules for the child's behaviour, and also offer instant positive or negative consequences for the behaviour. For example, the behavioural therapist will use a token economy technique to establish a reward system that allows the child to earn points for good behaviour (e.g., completing work, following directions). The behavioural therapist will also use the timeout technique (e.g., sending the child to a quiet room or corner for a few minutes) or an extinction strategy (e.g., taking no notice of the behaviour) in order to teach the child to reduce difficult behaviour. The therapist will give short and clear comments to the child throughout the sessions. The therapist will meet with parents to discuss the progress of reducing their child's difficult behaviour.

Please turn over

Treatment Evaluation Inventory-Short Form

Please complete the items listed below by placing a checkmark on the line next to each question that best indicates how you feel about the treatments described in the previous section. Please read the items very carefully because a checkmark accidentally placed on one space rather than another may not represent the meaning you intended.

Make the following ratings thinking of the use of **Intervention B** as an intervention for Joe's difficult behaviour described in the case scenario. Please also imagine how you would react to the treatment possibility if your own child presented behaviour like Joe and if this intervention was presented to you as a treatment option for your child.

Although you may have prior experience of using similar types of intervention, please see the intervention as a novel intervention and base your ratings only on the information given in the written description.

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1. I find this treatment to be an acceptable way of dealing with the child's problem behavior.	_____	_____	_____	_____	_____
2. I would be willing to use this procedure if I had to change the child's problem behavior.	_____	_____	_____	_____	_____
3. I believe that it would be acceptable to use this treatment without children's consent.	_____	_____	_____	_____	_____
4. I like the procedures used in this treatment.	_____	_____	_____	_____	_____
5. I believe this treatment is likely to be effective.	_____	_____	_____	_____	_____
6. I believe the child will experience discomfort during the treatment.	_____	_____	_____	_____	_____
7. I believe this treatment is likely to result in permanent improvement.	_____	_____	_____	_____	_____
8. I believe it would be acceptable to use this treatment with individuals who cannot choose treatments for themselves.	_____	_____	_____	_____	_____
9. Overall, I have a positive reaction to this treatment.	_____	_____	_____	_____	_____

Please turn over

Treatment Preferences

After reading both of the intervention descriptions, which intervention would you prefer to use for management of Joe's difficult behaviour? Your response should reflect which intervention you prefer for your own child if your child presented behaviour like Joe as well.

☐ **Intervention A**
☐ **Intervention B**

The intervention descriptions are presented here again for your information:

Intervention A:

This intervention aims at teaching parents a set of skills to manage their child's difficult behaviour. Parents will meet with a trained practitioner (e.g. a psychologist, a behavioural consultant) for several sessions. During the sessions, parents will be taught how to conduct a functional analysis of their child's behaviour to understand what purpose the behaviour serves. Behavioural strategies for reducing their child's difficult behaviour will also be taught to parents. These strategies involves setting clear rules for the child's behaviour, and also offer instant positive or negative consequences for the behaviour. For example, parents will learn to utilise the token economy technique to establish a reward system that allows their child to earn points for good behaviour (e.g., completing work, following directions). Parents will also learn how to reduce their child's difficult behaviour by using the timeout technique (e.g. sending their child to a quiet room or corner for a few minutes) or by using an extinction strategy (e.g., taking no notice of the difficult behaviour). Parents will be taught to ensure that the commands they give to their child are short and clear. The practitioner will provide support to parents with any questions regarding the behavioural strategies taught during the sessions.

Intervention B:

This intervention consists of a child having 1:1 sessions with a behavioural therapist, during which the child will be taught to reduce his/her difficult behaviour. Parents will identify a behavioural therapist to carry out individual sessions with their child. During the sessions, the behavioural therapist will conduct a functional analysis to identify what purpose the child's behaviour serves and will make use of behavioural strategies to teach the child to decrease his/her difficult behaviour. The strategies involves setting clear rules for the child's behaviour, and also offer instant positive or negative consequences for the behaviour. For example, the behavioural therapist will use a token economy technique to establish a reward system that allows the child to earn points for good behaviour (e.g., completing work, following directions). The behavioural therapist will also use the timeout technique (e.g., sending the child to a quiet room or corner for a few minutes) or an extinction strategy (e.g., taking no notice of the behaviour) in order to teach the child to reduce difficult behaviour. The therapist will give short and clear comments to the child throughout the sessions. The therapist will meet with parents to discuss the progress of reducing their child's difficult behaviour.

Appendix D. Study Advert Inviting Participation in Research

Study Advert

Are you a mother of a child between 3-9 years with a diagnosis of Autism Spectrum Disorders/Conditions (ASD/ASC)?

This is a unique opportunity to participate in a nationwide research study that would help identify ways forward in which parents of children with ASD/ASC can be better supported by professionals, particularly in terms of planning interventions that would best fit the children's and the parents' needs.

I am a Trainee Educational Psychologist and I am very keen on supporting parents of children with ASD/ASC. It is hoped that this research will help to better understand the links between parents' views of their child's behaviour and parents' acceptance of interventions. You are welcome to request a summary of the research findings when the research is completed. To make this research study possible, I really need your help!

If you have a child who has been formally diagnosed with ASD/ASC and is between the ages of 3 and 9 years, I would like to invite you to participate in this research. The research will involve completing a set of questionnaires and will approximately take 25-30 minutes.

As a thank you for taking part in the research, participants will be given the option to take part in a prize draw of £25 "Marks & Spencer" gift voucher (approximately a one in six chance of winning!). In addition, you will play a vital role in contributing to psychological research in supporting children with ASD/ASC!

If you are happy to take part, please visit the survey materials via the secure University-based website (www.isurvey.soton.ac.uk/2638; password: 2638) at your convenience. Alternatively, if you would like to complete the survey on paper, please contact me via email (ykc1g09@soton.ac.uk) or phone (07776291399) and I will post the questionnaire pack to you, along with a stamped addressed envelope. This research is fully supervised by Dr Hanna Kovshoff, a senior researcher with specialism in ASD/ASC, at the University of Southampton.

Your help with this research is greatly appreciated. Thank you.

Yours faithfully,

Kathy Choi
Doctorate in Educational Psychology
University of Southampton

Appendix E. Consent Documents and Debriefing Statement

E.1 Participant Consent Form

PARENTAL CONSENT FORM

Dear Parent/Guardian,

I am Kathy Choi, a Trainee Educational Psychologist from the University of Southampton. For my doctoral research thesis, I am conducting a survey to learn more about parental attributions and treatment acceptability in mothers of children with Autism Spectrum Disorders/Conditions (ASD/ASC). It is hoped that the findings of this research will provide valuable information to help provide better services and support to parents in supporting their children with ASD/ASC in the future. This research is fully supervised by Dr Hanna Kovshoff, a senior researcher with specialism in ASD/ASC, at the University of Southampton.

I am, therefore, inviting mothers—who have a child (aged 3-9 years old) with a diagnosis of ASD/ASC—to complete a set of questionnaires. These questionnaires can be completed online at your convenience, and should take no longer than 25-30 minutes. Please read the attached information sheet for further information. If you are interested in participating, please visit the survey materials via the secure, University-based, password-protected website (www.isurvey.soton.ac.uk/2638; PASSWORD: 2638). Alternatively, if you would like to complete the survey on paper, please contact me via email (ykc1g09@soton.ac.uk) or phone (07776291399) and I will post the questionnaire pack to you, along with a stamped addressed envelope.

I can ensure that your responses will be completely confidential and used only for this research. If completing the survey online, you will not be asked to provide any names or any other identifying information which ensures that your identity will be fully protected. All information given will be treated in the strictest confidence. Your participation in this study is entirely voluntary and you may discontinue any questionnaire at any time.

As a thank you for taking part in this research, participants will be given the option to take part in a prize draw of £25 "Marks & Spencer" gift voucher (approximately a one in six chance of winning!).

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the Chair of the Ethics Committee, School of Psychology, University of Southampton, Southampton, SO17 1BJ. Phone: (023) 8059 5578.

Your help with this research is greatly appreciated. Thank you.

Yours faithfully,

Kathy Choi
Doctorate in Educational Psychology
University of Southampton

If you choose to complete the survey on paper, please complete the following Consent Form together with the completed questionnaires and then return all of it to the researcher.

✂.....

Consent Form

Please initial the box(es) if you agree with the statement(s):

I have read and understood the information sheet (Version 2)	☐
I agree to take part in this research project and agree for my data to be used for the purpose of this study	☐
I understand my participation is voluntary and I can withdraw at any time	☐

Signature …….. Name …….

Date ……..…….

E.2 Participant Information Sheet

Information Sheet for parents

What is the research about?
This research project looks at parental attributions and treatment acceptability in mothers of children with Autism Spectrum Disorders/Conditions (ASD/ASC). In particular, the project will explore the links between parents' views of their child's behaviour and preference for two different types of interventions. Through this research, it is hoped that a deeper understanding of relationships between parental attributions and treatment acceptability will help provide better support and services to parents in managing difficult behaviour presented by their children with ASD/ASC. This research is conducted in association with my doctoral thesis and is fully supervised by Dr Hanna Kovshoff, a senior researcher with specialism in ASD/ASC, at the University of Southampton.

Am I eligible to take part?
If you have a child who has been formally diagnosed with ASD/ASC and is between the ages of 3 and 9 years, I would like to invite you to participate in this research. If you are happy to take part in the survey, please visit the survey materials via the secure University-based website (www.isurvey.soton.ac.uk/2638; PASSWORD: 2638). Alternatively, if you would like to complete the survey on paper, please contact me via email (ykc1g09@soton.ac.uk) or phone (07776291399) and I will post the questionnaire pack to you, along with a stamped addressed envelope.

What will happen to me if I take part?
You will be asked to complete a set of questionnaires. These include questionnaires that ask you about your demographic background, your views of your child's behaviour, your acceptability of two different types of interventions, your child's ASD/ASC symptoms, and ratings of your child's behaviour. It is estimated that the survey will take approximately 25-30 minutes. All your responses will be submitted via a secure, University-based, password-protected website.

Are there any benefits in my taking part?
As appreciation for your participation in this research, you will be given an opportunity to enter into a prize draw of a £25 "Marks & Spencer" gift voucher. There are 20 prizes of £25 gift vouchers available, and thus it is anticipated that you will have approximately 1 in 6 chance of winning a prize. If you would like to enter the prize draw, you will be directed to a separate web link at the end of the survey to enter your contact details. This will not be linked in any way to your survey responses.

Moreover, you will play a vital role in contributing to psychological research in supporting children with ASD/ASC and a better understanding of the links between parental attributions and treatment acceptability!

Are there any risks involved?
A risk assessment is conducted to ensure any potential risks are minimised. There are no known risks associated with participation in this study. You are free to exit the survey or discontinue any questionnaire at any time.

Will all participation be confidential?
In accordance with the Data Protection Act, all your data will remain confidential. Any data provided by you will be submitted in a secure, University-based, password-protected website and will then be stored electronically on a password protected computer. In order to maintain confidentiality any information associated with this study will not contain your name or any

other identifying characteristics. If you choose to complete the questionnaires on paper, please also be assured that any names provided by you on the paper consent form will not be associated with any of your survey responses. Your responses will only be used for this research.

What happens if I change my mind?
You may withdraw consent at any time without consequence. Participation in this study is entirely voluntary.

What happens if something goes wrong?
In the unlikely case of concern or complaint, please contact the chair of the ethics committee, School of Psychology, University of Southampton, Southampton, SO17 1BJ. Phone: (023) 8059 5578.

Where can I get more information?
If you would like more information, please email the researcher on ykc1g09@soton.ac.uk.

Thank you. Your help with this research project is greatly appreciated.

Yours faithfully,

Kathy Choi
Doctorate in Educational Psychology
University of Southampton

E.3 Debriefing Statement

Debriefing Statement for Parents

The aim of this research was to explore the relationship between parental attributions and treatment acceptability of interventions for their child's difficult behaviours in mothers of children with ASD/ASC. Your data will contribute to a greater understanding of how parental attributions may influence parents' ratings of treatment acceptability to different types of intervention. Through this research, it is hoped to help inform and improve services that are offered to parents of children with ASD/ASC in managing their children's difficult behaviour. Any information associated with this study will not include your name or any other identifying information. The data presented in written format will be summarised as a group, of which your responses will be one and your identity will be fully protected. If you would like to have a summary of the research findings when the study is completed, you can request a copy by contacting the researcher via email (ykc1g09@soton.ac.uk).

If you would like to talk to the researcher about any concerns you might have regarding this study or have any further questions, please contact the researcher via email ykc1g09@soton.ac.uk.

If any questions contained in the questionnaires have caused you any concern regarding parenting and you would like to discuss these concerns, you can contact the following support services:

- ParentlinePlus: www.parentlineplus.org.uk or freephone: 0808 800 2222 for confidential help and support on any parenting issue 24 hours a day, 7 days a week.

- Relate for parents: www.relateforparents.org.uk or telephone: 0300 100 1234. This is a free advisory service which offers parenting support, guidance and information.

Thank you for your participation in this research.

Signature _____ Name _____

Date _____

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the Chair of the Ethics Committee, School of Psychology, University of Southampton, Southampton, SO17 1BJ.
Phone: (023) 8059 5578.

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