ACCEPTABILITY OF TREATMENTS FOR CHILDHOOD ADHD: 
THE INFLUENCE OF EXPERIENCE, TREATMENT DEMANDS, 
AND SIDE EFFECTS

by

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Abstract

Parental treatment preferences for children’s mental health treatment have received the most attention using the construct of treatment acceptability. Research has reported that mothers generally endorse greater treatment acceptability for behavioral parent training (BPT) compared to stimulant medication for the treatment of symptoms of childhood Attention-Deficit/Hyperactivity Disorder (ADHD). My study investigated the influence of experience parenting a child with ADHD in moderating mothers’ ratings of treatment acceptability for these two treatments. I also investigated the influence of communicating information regarding the demands of BPT and the probability of experiencing side effects of stimulant medication on mothers’ acceptability ratings. To expand the measurement of treatment acceptability beyond the usual rating scale approach, I also used a measure of treatment preferences. Mothers reported which treatment (BPT vs. medication) they would recommend and why, if they were advising the parent of a child with ADHD. Participants included 71 mothers of boys with ADHD and a comparison group of 71 mothers of boys without behavioral problems. As predicted experience with ADHD moderated treatment acceptability. Mothers in the comparison group endorsed greater acceptability for BPT compared to medication; however, mothers in the ADHD group did not differ in ratings of acceptability for BPT and medication. In addition, mothers in the ADHD group endorsed greater treatment acceptability for stimulant medication compared to mothers in the comparison group. The two groups of mothers did not differ in their ratings of acceptability for BPT. This difference also emerged on the alternate measure of treatment acceptability. Mothers in the ADHD group were over six times more likely to report that they would recommend stimulant medication over BPT,
compared to mothers in the comparison group. Although mothers identified treatment
demands and risks as important contributors to their choice, varying the communication
of this information did not influence ratings of treatment acceptability or treatment
recommendation choice.
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Introduction

Attention-Deficit/Hyperactivity Disorder (ADHD) is an important child mental health concern, placing children at risk for a number of concurrent difficulties and negative outcomes in adolescence and adulthood (Barkley, 2006). ADHD is now considered to be a chronic disorder and long-term treatment planning is required (American Association of Pediatrics, 2001). Research is just beginning to examine how parents make decisions regarding their child’s mental health treatment. Treatment preferences have been identified as a key element in treatment decision making processes (Pierce & Hicks, 2000; Wills & Holmes-Rovner, 2006). This paper will examine one element in how parents form treatment preferences for ADHD, by investigating the relation of experience parenting a child with ADHD and information about treatment to treatment acceptability ratings. Two empirically supported treatments for ADHD are behavioral interventions, such as behavioral parent training (BPT), and pharmacotherapy, often using stimulant medications (Pelham & Fabiano, 2008). Both forms of treatment have their own unique strengths and limitations and parents must evaluate these benefits and trade-offs when establishing preferences. Although little research has examined parents’ actual treatment decision making processes, studies have looked at mothers’ stated treatment preferences by gathering acceptability ratings for both behavioral and medication therapies. However, the treatment descriptions used in these acceptability studies may not accurately describe the risks of stimulant medication and the demandingness of BPT, the extent of raters’ experience with ADHD has varied across studies, and measures of treatment acceptability may have been limited to closed-ended rating scales. My study examined the relation of experience parenting a child with ADHD
to mothers’ ratings of treatment acceptability, and how this experience interacted with how information about the risks of stimulant therapy and the demandingness of implementing BPT influence mothers’ treatment acceptability ratings. In addition to the usual rating scale measure of treatment acceptability, as an alternate measure of treatment preferences, I asked mothers which treatment, BPT or stimulant medication, they would recommend if they were advising the mother of a boy recently diagnosed with ADHD.

**Treatment Acceptability and Health Care Decision Making**

The study of how health care consumers or patients make treatment decisions is a growing field of interest. Most patients express a preference for taking an active role in making decisions about their own health (Brown, Carroll, Boon, & Marmoreo, 2002). The increase in patient-centered interventions in many health care settings (Lauver et al., 2002; Van Dulmen, 2003) and increased sharing of decision making between patient and physician in most medical situations (see Benbassat, Pilpel, & Tidhar, 1998, for a review of studies), have fuelled interest in the study of how patients develop preferences and arrive at their treatment decisions (Ryan & Farrar, 2000; Wills & Holmes-Rovner, 2006). Since the study of patients’ decision making has just recently received serious attention, the important elements of this process are only beginning to be identified (Wills & Holmes-Rovner, 2006). No comprehensive framework for understanding patients’ treatment decisions has been developed, and given the complexity and number of variables involved in patients’ decision making processes, it will likely be several years before such a model is fully articulated (Pierce & Hicks, 2001).

Although interest in patients’ treatment decision making is growing, two areas that have received less attention are parents’ treatment decision making on behalf of their
children and decision making for mental health treatments compared to other medical
treatments (Cooper-Patrick, Power, Jeneckes, Gonzales, Levine, & Ford, 1997; Wills &
Holmes-Rovner, 2006). As a result, little or no research has looked at parents’ treatment
decision making for children’s mental health treatments. Research has recognized that
parents are gatekeepers to children’s access to services and are responsible for seeking
out services and arranging for referrals (Garralda, 2004; Ho & Chung, 1996; Reid et al.,
2006) and parents play an essential role in planning treatment for child ADHD. Although
relatively little research exists regarding parents’ overall decision making processes when
selecting treatments for their child’s symptoms of ADHD, several studies have examined
acceptability for treatments for child mental health problems in general (see Cross
Calvert & Johnston, 1990 for a review). Specific to ADHD, ratings of treatment
acceptability have been found to predict parents’ pursuit of initial recommendations
regarding medication treatments for ADHD (e.g. Krain, Kendall, & Power, 2005). Until
the overall process of medical and mental health treatment decision making is better
understood, the research examining treatment acceptability provides a useful starting
point for the study of parents’ decision making for their child’s mental health.

Original models of treatment decision making were based on an expected utility
(EU) approach (Edwards, 1954; see also Pierce & Hicks, 2001; Wills & Holmes-Rovner,
2006 for reviews), which assumes the decision maker will select the option that results in
the maximal utility or benefit. However, EU models are often poor predictors of patients’
decisions and it has been recognized that people often do not make entirely “rational”
decisions in health contexts (Bravata, Rastegar, & Horowitz, 2002; Redelmeier, Rozin, &
Kahneman, 1993). These models also have been criticized for their failure to consider the
subjective nature of which features a decision maker will attend to when selecting a treatment preference and the role of the patient’s values, information and knowledge, and context in shaping these preferences (Pierce & Hicks, 2001; Wills & Holmes-Rovner, 2006). More recent models of treatment decision making have used narrative analysis to identify the features of a treatment that patients focus on when making decisions (Pierce & Hicks, 2001). Most such models incorporate four elements (Wills & Holmes-Rovner, 2006). The first element includes information about risks, benefits, and lifestyle changes associated with each treatment option, the values or the importance that individuals place on this information, and the patient’s decision making context. The second element is the development of preferences. Information about the treatment options is considered a key input to treatment preferences. The third element is the actual decision, which is shaped by patient preferences, and the fourth element is the outcome of the patient’s behavior and decision. Although these four elements have yet to be formed into a comprehensive model of treatment decision making, they provide a useful starting point for looking at decision making processes.

Treatment acceptability, which reflects individuals’ liking of and willingness to use treatments for themselves or their children, is one important facet of preferences. The way the patient views the acceptability of the available treatment alternatives will inevitably influence the decision making process. Given these arguments supporting the importance of preferences in treatment decision making, this dissertation examines parents’ acceptance of medication and BPT as treatments for childhood ADHD. I begin by describing ADHD and its treatment and reviewing previous research examining the acceptability of these treatments among parents of children with and without ADHD. I
then outline the specific hypotheses regarding how information available to mothers about BPT and medication treatments for ADHD is related to treatment preferences. I argue that previous treatment acceptability research may have provided parents with too little information regarding the demandingness of BPT and the probability of experiencing side effects of stimulant medication, thereby causing parents to underestimate the demandingness of BPT and overestimate the risk of side effects of medication.

**ADHD, Associated Difficulties, and Etiology**

Children with ADHD represent 3-7.5% of the school-aged population and account for a significant number of referrals to children's mental health services (American Psychiatric Association, 2000; Leibson, Katusic, Barbaresi, Ransom, & O'Brien, 2001). In community samples, boys are three times more likely than girls to be diagnosed with ADHD (Leibson et al., 2001; Szatmari, Offord, & Boyle, 1989b) and in clinical samples boys outnumber girls six to one (Barkley, 2006). ADHD is now regarded as a chronic condition and up to 60% of children with ADHD continue to have symptoms as adults (Weiss & Hechtman, 1993). ADHD presents in children and adolescents as developmentally inappropriate elevations of two groups of symptoms: hyperactivity/impulsivity and inattention, either alone or in combination (American Psychiatric Association, 2000). Examples of symptoms of inattention are: failing to pay attention to details, making careless mistakes, and not listening. Hyperactive-impulsive symptoms include: fidgeting, being out of one's seat, running or climbing excessively, talking excessively, difficulty waiting one's turn, and blurting out answers before a question has been completed. ADHD can present as one of three subtypes: combined,
predominantly inattentive, and predominantly hyperactive (American Psychiatric Association, 2000).

Many children with ADHD experience comorbid emotional and behavioral difficulties. As many as 50 to 70% of children with ADHD have a comorbid conduct disorder or oppositional defiant disorder (Biederman, Newcorn, & Sprich, 1991). Children with ADHD are likely to experience learning difficulties, reading problems and school failure (Biederman et al., 1996; Fergusson, Lynskey, & Horwood, 1997; Szatmari, Offord, & Boyle, 1989a; Wilson & Marcotte, 1996), emotional difficulties such as depression or anxiety disorders (Biederman et al., 1996; Leibson et al., 2001; Treuting & Hinshaw, 2001), poor peer acceptance, and disrupted parent-child relationships (Barkley, Fischer, Edelbrock, & Smallish, 1990; Biederman et al., 1996; Buhrmester, Camparo, Christensen, Gonzalez, & Hinshaw, 1992; Johnston, Pelham, & Murphy, 1985; Szatmari et al., 1989a). In addition, children with comorbid ADHD and academic problems are at greatest risk for peer difficulties compared to children with learning problems who do not have ADHD (Wiener, 2002). Not only is ADHD associated with considerable impairment in children’s emotional and behavioral functioning, the median health care costs for individuals with ADHD are more than double the costs for individuals without ADHD both in U.S. (Leibson et al., 2001) as well as European healthcare systems (Hakkart-van Roijen et al., 2007). Children with ADHD are more likely to be admitted to hospital emergency departments, and inpatient and outpatient hospital services compared to children without ADHD (Hakkart-van Roijen et al., 2007; Leibson et al., 2001).

ADHD is considered to be a chronic disorder and symptoms persist throughout childhood (Biederman et al., 1996) and into adolescence for most individuals (Barkley,
Fisher, Edelbrock, & Smallish, 1991). Forty-six to 66% of children diagnosed with
developmentally inappropriate levels of hyperactivity, using earlier diagnostic criteria for
ADHD, show symptoms as adults (Barkley, Fischer, Smallish, & Fletcher, 2002; Weiss
& Hechtman, 1993). Adults with ADHD are more likely to have been arrested, have
fewer years of education, poorer job performance, attain lower socioeconomic status, and
have held more jobs compared to adults without ADHD (Barkley et al., 2002; Mannuzza,
Klein, Bessler, Malloy, & LaPadula, 1993). In summary, for many individuals the
impairments associated with ADHD are not restricted to childhood, and management of
ADHD symptoms must often be continued from childhood into adolescence and
adulthood.

The etiology of ADHD appears to be primarily biologically based. ADHD has
been found to be related to genetic factors (Laurin et al., 2008; Nyman et al., 2007;
Sunohara et al., 2000), prenatal exposure to cigarette smoke (see Barkley, 2006, for a
review of studies; also Millberger, Biederman, Faraone, Chen, & Jones, 1996), and
pregnancy or birth complications (Barkley, DuPaul, & McMurray, 1990; Hartsough &
Lambert, 1985). However, the development of comorbid conduct problems, such as
conduct disorder or oppositional defiant disorder appears to be related to both
environmental and genetic factors (Anderson, Hinshaw, & Simmel, 1994; Johnston &
Mash, 2001). In addition, positive parenting, such as affective warmth and positive
involvement with one’s child, may ameliorate genetic risks towards conduct problems
(Pfiffner, McBurnett, Rathouz, & Judice, 2005) and severity of symptoms of ADHD.
Johnston and Mash (2001) have hypothesized that responsive and sensitive parenting in
families of children with ADHD may protect against the associated risks of developing
conduct disorder, oppositional defiant disorder, or other aggressive or antisocial behaviors.

**Treatments for ADHD**

The most commonly used treatments for ADHD are central nervous system stimulants, such as methylphenidate and amphetamines, and behavioral interventions, such as BPT or classroom management, or medication and behavioral interventions in combination (Robison, Sclar, Skaer, & Galin, 2004). These are the only three treatments that have been empirically validated as effective short-term treatments for ADHD (Pelham & Fabiano, 2008). Pediatric guidelines recommend the application of general concepts of chronic-condition management to ADHD and treatment planning for ADHD needs to be long-term for both behavioral and pharmacological interventions (American Association of Pediatrics, 2001; Brown et al., 2005).

**Pharmacological Interventions.** Pharmacological interventions, in particular stimulant medications, are an increasingly used treatment for ADHD (Olofson, Gameroff, Marcus, & Jensen, 2003). Stimulant therapy for ADHD, primarily methylphenidate, is the most-well known and has received the most careful empirical documentation of any child therapy (Greenhill & Osman, 2000; Plizka, 2007; Whalen & Henker, 1991). The majority of children with ADHD in the United States and Canada are treated with stimulant medication, consisting of either methylphenidate or amphetamine compounds (Connor & Steingard, 2004). For example, one study found that 88% of children with ADHD were treated with methylphenidate (Wolraich, Lindgren, Stromquist, Milich, Davis, & Watson, 1990). More recent research has estimated that 42% of children with ADHD in the US are treated using stimulant medication alone, and an additional 32% receive stimulant
medication in combination with psychosocial interventions such as counselling and psychotherapy (Robison, et al., 2004). Some differences exist between the U.S. and Canada in the specific forms of longer-acting stimulant preparations that are approved for use, and the approval of newer drugs is constantly evolving. However, given that short-acting forms of methylphenidate and dextroamphetamine have been a mainstay of ADHD treatment, they are unlikely to change in their availability in either country in the near future.

In Canada, methylphenidate and dextroamphetamine are currently available in short-acting forms and the following long-acting preparations: methylphenidate extended release (Concerta and Ritalin SR) and dextroamphetamine sustained release (Dexedrine SR). Longer-acting preparations deliver stimulants either through osmotic pump delivery system (OROS) or wax-based tablets (Prince, 2006). Extended-release stimulants have demonstrated similar efficacy and side effect profiles and levels to shorter acting stimulant preparations (see Prince 2006 for a review; also Wilens, McBumett, Stein, Lerner, Spencer, & Wolraich, 2005). The primary advantage of longer-acting stimulant preparations is that doses do not need to be administered as frequently as with shorter-acting preparations (Prince, 2006). Atomoxetine, marketed in Canada under the name Strattera, is a recently developed longer-acting non-stimulant medication for treatment of ADHD. It is typically administered once or twice daily (Prince, 2006) and is effective in reducing ADHD symptoms in children and adolescents (Weiss et al., 2005; Wilens, Kratochvil, Newcorn, & Gao, 2006). Because longer-acting stimulants and atomoxetine are newer than the short-acting stimulants, there is less research documenting their therapeutic effects and side effects. In addition, in spite of their convenience, longer-
acting forms of medication for ADHD have not entirely replaced the use of short-acting stimulant preparations, possibly because the longer-acting forms are more expensive and dosing is more constrained. A recent study of school-aged children with ADHD living in British Columbia, Canada, found that 34% of children were taking short-acting methylphenidate, 25% short-acting dextroamphetamine, 26% longer-acting stimulants, and 15% were taking other medications such as atomoxetine (Johnston, Hommersen, & Seipp, 2008). Given that shorter-acting stimulant preparations continue to be widely used, have a larger body of literature discussing both their short and longer-term benefits and risks in treating ADHD, and appear similar in effects to the longer-acting stimulants, this study focussed solely on treatment acceptability for shorter-acting stimulant preparations.

The mechanisms of how stimulant medications operate to reduce symptoms of ADHD have yet to be clearly defined (see Denney, 2001; Solanto, 1998 for reviews). Genetically based deficits in dopamine transmission have been identified in children with ADHD (Laurin et al., 2008; Nyman et al., 2007) as well as animal models of ADHD (Sunohara et al., 2000) and are hypothesized to be responsible for the symptoms of ADHD in humans (Denney, 2001). In her review, Solanto (1998) states that stimulants appear to exert a range of compensatory effects on both dopaminergic and noradrenergic pathways, and do not appear to target one specific neurological deficit unique to ADHD because individuals with and without ADHD display similar behavioral responses to stimulants.

The efficacy of stimulant medications in treating ADHD symptoms is well documented. About 80% of children with ADHD demonstrate clinically meaningful improvement in their symptoms of ADHD when treated with stimulants (see Plizka,
Methylphenidate has been found to be effective in reducing the core behavioral symptoms of ADHD (Plizka, 2007; Connor & Steingard, 2004) and produces significant improvements in observational and teacher-reported measures of children's attention, academic efficiency, and classroom behavior with scores on these variables improving reliably as a function of increasing the daily dose at 5mg increments from 5-20mg/day (Rapport, Denney, DuPaul, & Gardner, 1994). Stimulant therapy is associated with improvements in receptiveness to social cues and responses to guidance and feedback among children with ADHD (Whalen & Henker, 1991) and improved peer relationships (Robison et al., 2004). Most of the research demonstrating efficacy for stimulants has been with school-aged children. Although stimulants reduce symptoms of ADHD in preschoolers and adolescents, treatment response is less robust (see Wilens, Biederman, & Spencer, 2002 for a review). Overall, stimulants have demonstrated efficacy for short-term improvements in attention and behavior both at home and in classroom settings (Connor & Steingard, 2004). Pharmacological treatments have the additional benefits of being less expensive and easier to administer than behavioral interventions (Pelham & Fabiano, 2008).

However, stimulant medications typically do not render the child asymptomatic, and very few children are normalized by stimulant therapy (Pelham & Fabiano, 2008). Although studies have found that methylphenidate may result in normalized levels of attention and behavior in the classroom for a large proportion of children with ADHD (Rapport et al., 1994) and improvements in short-term academic functioning (Pelham, Carlson, Sams, Vallano, Dixon, & Hoza, 1993); the proportion of students attaining
normal levels of academic efficiency (completion and accuracy of seatwork) is much smaller (Rapport et al., 1994). Similarly, other studies have found no long-term improvements in academic performance as a result of stimulant therapy (Barkley & Cunningham, 1978; Firestone, Crowe, Goodman, & McGrath, 1986; Pelham et al., 1998; MTA Cooperative Group, 2004). Another limitation of stimulant therapy is that improvements in ADHD symptoms often dissipate quickly after medication is discontinued (see Schachar & Tannock, 1993 for a review of studies).

**Behavioral Interventions for ADHD.** Behavioral interventions have been used as a treatment for ADHD for more than 20 years (see Chronis, Chacko, Fabiano, Wymbs, & Pelham, 2004; Pelham & Fabiano, 2008). Behavioral interventions can be classified into three categories: clinical behavior therapy, direct contingency management, and intensive packaged treatments (Pelham et al., 1998; Pelham & Gnagy, 1999). Clinical behavior therapy consists of outpatient-based interventions that typically involve training either parents or teachers, or both, to implement contingency management programs with their children (Pelham & Gnagy, 1999). BPT is one commonly used form of clinical behavior therapy. Parents typically attend 8 to 10, weekly, 1-hour therapy sessions where they are taught by professionals to implement contingency-management programs to use with their child with ADHD (e.g., Anastopoulos, Shelton, DuPaul, & Guevremont, 1993; Pisterman, McGrath, Goodman, Webster, & Mallory, 1989). Direct contingency management approaches are implemented directly in the setting of interest by a paraprofessional, expert teacher, or consulting professional, and are typically administered in specialized classroom settings (Pelham & Gnagy, 1999). The third type of behavioral intervention, intensive packaged behavioral treatment programs, are often
run for 8 hours per day, 5 days a week, for 8 weeks or more. Multiple psychosocial interventions are included in these treatment packages and they are administered by paraprofessionals, expert teachers, or consulting professionals. Children may receive 350 hours of intervention through these programs (Pelham & Fabiano, 2008). They often combine direct contingency management treatments and clinical behavior therapy. Paraprofessional staff often train for 75 hours before using the behavior management skills with the children (Pelham & Fabiano, 2008). One can see that across the different behavioral treatments, there is considerable variation in the level of contact with professionals, time committed to teaching behavior management skills, and intensity with which the behavior management strategies are applied.

This paper focuses on BPT when discussing acceptability for behavioral interventions for ADHD and comparing this to the acceptability of stimulant medication. This choice reflects that both treatments are parent-administered and is consistent with previous research that has compared these two treatments (e.g., Gage & Wilson, 2000; Johnston et al., 2008; Liu, Robin, Brenner, & Eastman, 1991; Reimers, Wacker, Cooper, & DeRaad, 1992). BPT is recognized as an empirically supported treatment for ADHD (Pelham & Fabiano, 2008) and is a commonly recommended non-pharmacological treatment for ADHD (Salmon & Kemp, 2002).

BPT models were first developed in the early 1960s as a form of psychotherapy for children with patterns of behavior problems that are now referred to as conduct disorder and oppositional defiant disorder (McMahon & Forehand, 2003). The techniques and parenting skills learned in BPT modify child behavior by rearranging environmental contingencies. The University of Massachusetts BPT model developed by Russell
Barkley (Barkley, 1990) is frequently used in research examining BPT as a treatment for ADHD (see Chronis et al., 2004 for a review).

Most BPT models employ a series of steps, where techniques are taught over 6 to 12 group or individual therapy sessions, and can be conceptualized in two stages (Wells, 1994). Parents are taught, over the course of these sessions to provide immediate and salient contingencies in response to child behavior, to give their child concise and clear commands, and to use techniques such as ignoring mild misbehavior or using time out to discourage inappropriate behavior. Initially the focus is on training parents to reinforce their child's positive behaviors and ignore misbehavior in order to avoid inadvertently reinforcing negative behaviors. The second phase of BPT teaches parents to actively discourage noncompliant behaviors using techniques such as time out. After being taught a technique by the professional, parents are given instructions and assistance in implementing the technique at home with their child. Home practice is necessary and parents are taught that it is through regular and consistent use of these strategies with their child, that their child’s ADHD symptoms will improve.

Although it was originally developed to treat problems with oppositional or noncompliant behaviors, which often co-occur with symptoms of ADHD, BPT has been extended to address ADHD symptoms (Pisterman et al., 1989). The enhancement of environmental contingencies provided by BPT is compatible with proposed theoretical models of the neurological dysfunctions underlying ADHD. For example, one model has proposed that ADHD symptoms are the result of disturbances in motivational processes (Sonuga-Barke, De Houwer, De Reuiter, Ajzenstzen, & Holland, 2004; Sonuga-Barke, 2005). Because BPT teaches parents to provide consistent and immediate feedback in
response to child behavior, parents provide enhanced environmental contingencies that compensate for this hypothesized disturbance in motivational processes. In an alternate causal model, Barkley (1997) proposed that symptoms of ADHD are caused by the disruption of neurocognitive control systems, resulting in deficits in inhibitory-based executive processes. Providing positive reinforcement for demonstrating behavior that is consistent with response inhibition (e.g., praising a child for waiting patiently) may help to compensate for these deficits. However, to be effective in treating ADHD, BPT must target behaviors resulting from the core characteristics of ADHD rather than oppositional and defiant behaviors (Pisterman, Firestone, McGrath, Goodman, Webster, & Mallory, 1992a). This can be done by targeting specific behaviors that are in opposition to the symptoms of ADHD (Frazier & Merrell, 1997), for example, providing positive reinforcement for time spent on a measure or for waiting one’s turn.

Research on the efficacy of behavioral interventions, including BPT, is less quantified and specific compared to the literature on pharmacological interventions for ADHD. It is recognized that the potency of standard clinical behavior therapy, where parents have weekly contact with the professional, is much lower than that of highly structured, closely monitored, contingency management programs or intensive direct behavioral treatments (Pelham et al., 1998). Studies evaluating behavioral treatments differ in the type of intervention used, the intensity of the intervention, and authors vary in the degree of detail used to describe the intervention so it is often difficult to compare across studies (Brown et al., 2005). Many studies examining the efficacy of behavioral interventions also lack information about dosage and variability in interventions (Brown et al., 2005). Another difficulty with this body of research is that often, changes in child
ADHD symptoms or behaviors are assessed using parents’ reports. Parent-reported improvements in child ADHD symptoms after participating in BPT program likely reflect both decreases in the child’s ADHD symptoms as well as gains in the parent’s ability to cope with and manage these symptoms, and should be interpreted with caution because these ratings may over-estimate the degree of objective improvement in the child’s ADHD symptoms (Anastopoulos et al., 1993). Additionally, the effects of behavioral treatments tend to be site specific and behavioral changes in one setting tend not to generalize to other settings (Whalen & Henker, 1991).

Much of the research that has documented improvements in child behavior as a result of behavioral treatment alone, or in combination with medication, has employed intensive direct behavioral treatments alone or in combination with ongoing school based treatments and BPT programs. Such treatment programs can be considered the “maximum dose” of behavioral interventions for ADHD (Whalen, 2001) and have demonstrated similar effect sizes to medication in reducing behaviors associated with ADHD, such as interrupting, problems paying attention, and overactivity (Pelham et al., 2000). Given that the deficits in child functioning associated with ADHD are typically severe and long-standing, intensive direct behavioral interventions are likely required to remediate these difficulties and it may be unrealistic to believe that weekly 1-hour sessions with parents will be sufficient to produce great or long-lasting improvement in child functioning (Pelham & Fabiano, 2008).

Nonetheless, support for BPT as an effective treatment for ADHD, even when not combined with other behavioral interventions, has been well documented (Pelham & Fabiano, 2008). BPT is associated with improvements in ADHD symptoms compared to
pre-treatment measures (Anastopoulos et al., 1993; Firestone, Kelly, Goodman, & Davey, 1981) and compared to children in wait-list control groups (Pisterman et al., 1992a; Pisterman et al., 1989). BPT was found to be more effective than a parenting support and counselling group in reducing parent-reported ADHD symptoms among 3-year olds and these effects were maintained at 15 weeks, post-treatment (Sonuga-Barke, Daley, Thompson, Laver-Bradbury, & Weeks, 2001). Factors that may reduce the efficacy of BPT interventions in improving child behavior include: parents’ mental health problems, particularly maternal depression or maternal ADHD, marital discord or being a single parent, maternal social isolation, and low family SES (see Chronis et al., 2004 for a review).

In addition to improving symptoms of ADHD, BPT improves many areas of difficulty that often co-occur with ADHD. BPT reduces symptoms of oppositional defiant disorder and conduct disorder in children with ADHD (see Barkley, 2006; Chronis et al., 2004 for reviews) and produces improvements in many areas of family functioning. For example, BPT is associated with reductions in parenting stress (Anastopoulos et al., 1993; Pisterman, Firestone, McGrath, Goodman, Webster, & Mallory, 1992b) and improvements in maternal well being (Sonuga-Barke et al., 2001). BPT reduces negative and directive parenting behavior (Pisterman et al., 1992a) and parents’ use of coercive parenting and ineffective discipline strategies (Hinshaw et al., 2000). Parents also report having a more positive view of themselves in the parenting role, an effect that was found to persist 2 months after treatment ended (Anastopoulos et al., 1993), and an improved sense of parenting competence (Pisterman et al., 1992b). The benefits in parent functioning associated with BPT are likely to improve family climate independent of
changes in child ADHD symptoms. In sum, BPT has established validity in reducing child ADHD symptoms and oppositional behaviors, as well as a variety of family and parenting difficulties.

Comparing the Efficacy of Behavioral, Pharmacological and Combined Treatments

The NIMH multimodal treatment study of ADHD (MTA) compared intensive behavioral treatment to medication, combined behavioral treatment and medication, and standard community-based ADHD treatment (typically stimulant medication) (MTA Cooperative Group, 1999a). Combined treatment and medication alone were superior to community care in improving parent and teacher reported ADHD symptoms and parent reported social skills, and better than behavior therapy alone in improving parent reported ADHD symptoms and oppositional and aggressive behaviors (MTA Cooperative Group, 1999a). These benefits persisted at the 24-month follow-up (MTA Cooperative Group, 2004) but were no longer present at the 36-month follow-up (Jensen et al., 2007). The authors attribute the lack of detectable differences among treatment groups at 36 months to changes in children’s treatment during the 22 months after the active treatment phase of the study. More specifically, children who were functioning well likely reduced or discontinued medication whereas children who were doing poorly would have initiated treatment with medication or continued using it. Combined interventions were found to have the additional advantages of allowing for reducing the overall dosage of medication (MTA Cooperative Group, 1999a; 2004) and increasing parents’ positive parenting behaviors compared to medication alone (Wells et al., 2006). In addition, children who receive combined interventions are less likely to require a second medication to manage comorbid externalizing behaviors (van den Hoofdakker, van der Veen-Mulders, Sytema,
Emmelkamp, Minderaa, & Nauta, 2007). In summary, although children’s functioning is often improved by intensive behavioral treatments, the greatest improvements are seen in the behavioral and social difficulties associated with ADHD rather than symptoms of inattention and hyperactivity/impulsivity (Pelham & Fabiano, 2008).

Overall, stimulant medication appears to offer greater improvement in the core deficits associated with ADHD compared to intensive behavioral treatments (see Brown et al., 2005; Jadad, Boyle, Cunningham, Kim, & Schachar, 1999 for reviews; also MTA Cooperative Group, 1999a; van den Hoofdakker et al., 2007). One study that compared medication and BPT, when not in combination with other behavioral treatments, found that stimulant medication resulted in greater improvement in teacher-reported ADHD symptoms compared to BPT (Firestone et al., 1981). Pisterman and colleagues (1992a) conclude that parent training is a potent intervention for children’s misbehavior, but may be much less effective with ADHD symptoms, that may be more biologically driven. In general, interventions that combine behavioral treatments with medication may be the most useful strategy to reduce many of the problems that co-occur with ADHD such as child internalizing problems, oppositional behavior, negative parenting behaviors or parental stress (Klein & Abikoff, 1997; MTA Cooperative Group, 1999a; Molina et al., 2007; van den Hoofdakker et al., 2007) as well as child delinquency and substance use (Molina et al., 2007).

Although combined interventions appear to be the most effective treatment option for most children with ADHD, I decided not to gather mothers’ acceptability ratings for combined treatments in this study. I chose to compare acceptability ratings for BPT and stimulant medication separately, on the premise that even for parents who decide to use
combined interventions, these interventions are typically not “pre-packaged” and instead the parent must seek out and evaluate the benefits and risks of the two treatment options separately when developing their treatment preferences.

**Treatment Acceptability for Interventions for ADHD**

Having reviewed stimulant medication and BPT as treatments for ADHD, I will now summarize the literature examining parental ratings of acceptability for these treatments. As described previously, no models of parental treatment decision making on behalf of their child have been fully articulated (Wills & Holmes-Rovner, 2006). Although limited qualitative research exists that provides narrative accounts of parents’ treatment decision making process for children with ADHD (e.g., DosReis, Butz, Lipkin, Anixt, Weiner, & Chernoff, 2006; Leslie, Plemmons, Monn, & Palinkas, 2007), no studies have empirically examined parental decision making on behalf of the child’s physical or mental health. However, parental preferences for ADHD treatments have received previous attention using the construct of treatment acceptability. “Treatment acceptability refers to judgements by laypersons, clients, and others of whether treatment procedures are appropriate, fair, and reasonable for the problem or client” (Kazdin, 1981, p. 493). Treatment acceptability assesses domains of liking and willingness to use a treatment, perception of treatment effectiveness, and perception of treatment risks or limitations (Kazdin, 1981).

Acceptability of treatments for ADHD is an interesting area of research for the reason that ADHD can be considered “at the interface of children’s health” because it combines both medicine and psychology (McNeal, Roberts, & Barone, 2000, p.174).
Parents are given the choice between using medically-based pharmacological treatments, nonpharmacological behavioral treatment, or a combination of the two treatments.

Among child behavior disorders in general, nonpharmacological treatments are consistently rated as more acceptable than medication (see Cross Calvert & Johnston, 1990 for a review; also Reimers et al., 1992). Research has examined the acceptability of these treatments among parents of children with and without ADHD and has found that nonpharmacological treatments for ADHD are typically rated higher in acceptability compared to treatments using stimulant medication (Gage & Wilson, 2000; Krain et al., 2005; Liu et al., 1999; Wilson & Jennings, 1996). Thus, in spite of all the support for their efficacy, parents frequently report that they find stimulant medication for ADHD the least acceptable form of treatment compared to behavioral or psychosocial treatments (Johnston et al., 2008; Wilson & Jennings, 1996). Family variables such as SES, coping style, and ratings of parenting stress appear largely unrelated to these ratings of treatment acceptability (Rostain, Power, & Atkins, 1993).

For some disorders, treatment acceptability is associated with treatment effectiveness; however, this relationship appears to be less clearly defined for ADHD (Kazdin, 2000; Wilson & Jennings, 1996) and further research in this area is needed. Johnston and colleagues (2008) found that although parents rated stimulant medication as a more effective treatment for ADHD than BPT, they still endorsed BPT as a more acceptable treatment than medication. In addition, for child disorders in general, acceptability is greater for both BPT and medication when child behavior disorders are seen as severe (see Cross Calvert & Johnston, 1990, for a review), although the acceptability of medication may increase with problem severity. For example, Reimers et
al. (1992) found that parents rated behavioral interventions as more acceptable than medication when used to treat less severe child behavior problems and that medications were rated as more acceptable than behavioral interventions for severe child behavior problems, such as self-injurious behavior (Reimers et al., 1992). In contrast, within the area of ADHD, research has found that parents who completed less than half of the treatment sessions in 8-10 session BPT programs (a possible proxy of lower acceptance of the treatment), report less severe child behavior problems compared to parents who completed the full program (Friars & Mellor, 2007). However, treatment attendance is not equivalent to treatment acceptability and it is possible that children with less severe problems improved sufficiently that parents did not need to continue attending the BPT group. A recent study by Johnston et al. (2008) using a sample of mothers of children with ADHD found that mothers' ratings of the acceptability of BPT and medication were not influenced by whether they read scenarios describing behavior problems associated with ADHD alone versus the more severe ADHD with comorbid oppositional defiant disorder. In summary, although parents typically rate all interventions as more acceptable when child disorders are seen as severe, it is possible that the relationship between problem severity and treatment acceptability for ADHD treatments is not a linear one, and instead a threshold level of perceived severity of child behavior problems must be reached before parents are willing to endorse greater acceptability for medication over BPT.

Among parent characteristics associated with treatment acceptability, beliefs about the causes of child disorders in general also are related to parents' views of the acceptability of both BPT and pharmacological interventions. Parents who acknowledge
a lack of parenting skills as contributing to their child’s behavior problems are more likely to attend BPT and less likely to terminate treatment prematurely compared to parents who attribute child problems to innate characteristics of the child (Miller & Prinz, 2003; Orrell-Valente et al., 1999; Peters, Callam, & Harrington, 2005). Summers and Caplan (1987) found that when parents attribute child behavior problems as due to epilepsy, their belief in the physical cause of the disorder was positively associated with acceptability of using medication to treat the behavior problems. In summary, parents’ acceptability for both behavioral and pharmacological interventions is related to their cognitions about the causes of the child’s difficulties. The belief that child behavior problems are related to a lack of parenting skills is positively associated with acceptability for BPT. Alternately, viewing child behavior problems as being biologically based is positively associated with acceptability for pharmacological interventions.

Experience Parenting a Child with ADHD as a Moderator of Treatment Acceptability

Parents’ experience using behavioral and pharmacological treatments for ADHD also is likely related to treatment acceptability. Parents of nonproblem children and parents of children with ADHD who have not yet tried any treatments rated behavioral treatments as more acceptable than pharmacological treatments (Krain et al., 2005; Liu et al., 1999) with the acceptability of treatments that combine medication and behavioral interventions falling in the middle of the two groups (Liu et al., 1999). However, Liu and colleagues (1999) found that at follow up, after having used medication to treat their child’s ADHD, parents rated the combined medication and behavioral intervention as the most acceptable. The authors posit that a lack of accurate information about stimulants
may promote apprehension and low initial acceptability of this treatment (Liu et al., 1999). Similarly, another study found that parents, whose children did not have ADHD, rated BPT as a more acceptable treatment for ADHD than combined medication and BPT or medication alone (Gage & Wilson, 2000). However, the parents of children with ADHD in this same study rated combined treatments as significantly more acceptable than either medication or BPT alone (Gage & Wilson, 2000). Gage and Wilson (2000) attribute this difference in acceptability ratings between the parents of children with ADHD and parents of nonproblem children, to the fact that parents of children with ADHD had greater experience using stimulant medication, given that 87% of the children in the ADHD group had been treated using stimulants. Child age also is positively related to medication acceptability for mothers of children with ADHD, and this has been seen as reflecting parents’ increased experience with treatments as the child grows older (Bennet, Power, Rostain, & Carr, 1996).

In contrast, ratings of acceptability for BPT appear to decrease once parents have experience using this intervention. Corkum, Rimer, and Schachar (1999) found that parents of children with ADHD, whose children had not yet received treatment for their ADHD symptoms, rated both BPT and a parent-support group as more acceptable treatments for ADHD than medication (Corkum et al., 1999). However, the acceptability of BPT decreased among the parents who participated in parent training, as well as in the group of parents who used pharmacological treatments with their child with ADHD (Corkum et al., 1999). Additionally, Bennet and colleagues (1996) found that child age was negatively related to the acceptability of counselling among fathers, but not mothers, of children with ADHD, and again attributed this relationship to increased experience
with psychosocial interventions. In summary, parents who have more experience using behavioral treatments for their child's ADHD endorse lower acceptability for this treatment than parents who have less experience with these interventions. Conversely, parents with experience using stimulant medication to treat their child's ADHD, report greater acceptability for medication than parents who do not have this treatment experience.

One reason that treatment experience may moderate treatment acceptability is the insight this experience provides parents of children with ADHD into the benefits and negative aspects of treatment (Gage & Wilson, 2000). More specifically, parents' concerns about the risks of negative side effects of stimulant medication may be reduced after treating their child with medication and even minimal experience using stimulants may serve to reassure parents that it is a safe treatment (Johnston & Fine, 1993). Additionally, parents are more likely to be aware of the demandingness of behavioral interventions after having participated in a BPT course. Thus, treatment experience may act as a moderator in two ways. First, parents' concerns about the risks of medication may be propitiated after having treated their child with medication. Second, parents are likely to have a greater understanding of the high level of effort and involvement required in BPT once they have had some experience attempting to learn and implement behavior management techniques.

Experience parenting a child with ADHD may be an important moderator of ratings of treatment acceptability (e.g., Bennet, Rostain, & Carr, 1996; Gage & Wilson, 2000). One possible reason that parenting a child with ADHD may moderate treatment acceptability is that parents of children with ADHD are more knowledgeable about the
impairments and risks of this disorder. McNeal et al. (2000) found that concern about the risks of untreated ADHD were correlated with perceived benefits of stimulant medication, a possible proxy for treatment acceptability, among mothers of sons with ADHD. In addition, knowledge of ADHD is positively related to acceptability for medication and combined interventions (although not for BPT), for both mothers of children with and without ADHD (Liu et al., 1991) as well as for teachers (Vereb & DiPerna, 2004). It is possible that parents of nonproblem children endorse lower acceptability for stimulant medication compared to parents of children with ADHD because they are unaware of the significant risks and impairments associated with ADHD. One study found that among members of the general public, over 60% of respondents viewed ADHD as not serious or only somewhat serious and 32.8% of respondents viewed it likely to improve on its own, in contrast only 16.4% of respondents viewed depression as not serious or only somewhat serious and 17.4% viewed it as likely to improve on its own (Pescosolido, Jensen, Martin, Perry, Olafsdottir, & Fettes, 2008). Overall, knowledge of the risks and impairments associated with ADHD appear to be linked to perceptions of treatment acceptability, at least for treatments that include stimulant medication.

Experience with childhood ADHD appears to moderate ratings of treatment acceptability through experience with medication and greater awareness of the severity of the disorder; however, little research has directly tested these associations. Parents of children with ADHD likely to have greater knowledge of ADHD compared to parents of nonproblem children. Parents who are more knowledgeable about ADHD may be more likely to recognize the severity and impairments associated with this disorder compared
to parents who are less familiar with ADHD. This may cause parents of children with ADHD to endorse greater treatment acceptability, particularly for medication, compared to parents of nonproblem children. Second, many parents of children with ADHD have used both BPT and stimulant medication to treat their child’s symptoms and may have greater awareness of the benefits and demands of these two treatments compared to parents who do not have such first hand experience. My study examines the potential moderating influence of experience using stimulant medication to treat child ADHD symptoms, by comparing treatment acceptability between mothers of children with ADHD who have experience using stimulant medication with mothers of children with ADHD who have not used this treatment. Second, my study investigates the contribution of awareness of the severity of ADHD to treatment acceptability ratings by comparing the treatment attitudes of mothers of children with ADHD with mothers of typically developing children.

**Treatment Acceptability and Treatment Initiation and Adherence**

Ratings of treatment acceptability, at least for stimulant medication for ADHD, are positively related to compliance with initial treatment recommendations (Krain et al., 2005). Corkum et al. (1999) found that parents with higher ratings of acceptability for medication as a treatment for ADHD or knowledge of ADHD were more likely to enrol in both medication and BPT treatments compared to parents with lower acceptability ratings for stimulant medication. In contrast, ratings of acceptability for behavioral treatments do not predict treatment enrolment (Bennet et al., 1996; Corkum et al., 1999; Krain et al., 2005). However, the lack of a significant association between the acceptability of BPT and short-term treatment pursuit or initiation may be the result of a
ceiling effect in the acceptability ratings for behavioral interventions (Krain et al., 2005). Adjusting measures of treatment acceptability to increase the variability in acceptability ratings for BPT is likely to increase their utility in predicting treatment pursuit. Neither ratings of acceptability for medication and BPT treatments have been predictive of longer-term compliance with treatment recommendations (Johnston & Fine, 1993; Reimers et al., 1992; Rostain et al., 1993). However, longer-term ADHD treatment adherence is likely the result of multiple factors beyond the acceptability of a treatment.

The general pattern of preference for behavioral treatments over pharmacological treatments for ADHD, particularly among parents with limited treatment experience, is not reflected in parents’ patterns of treatment use, and rates of participation do not differ reliably between the two treatments. One study found that although parents reported greater acceptability for BPT compared to medication, only 64% of parents assigned to BPT attended at least one session, compared to 84% of parents assigned to the medication group who began this treatment (Corkum et al., 1999). Similarly, another study found that only 63% of parents assigned to an intensive behavioral intervention that included BPT participated, compared to 78% of parents assigned to pharmacological treatment (primarily stimulant medication) (MTA Cooperative Group, 1999b). Additionally, the availability of supplemental BPT does not influence the rate of attrition from medication treatment in randomized control trials (see Schachar & Tannock, 1993 for a review; also MTA Cooperative Group, 1999b). Some studies have found that when parents select the treatment, drop out rates range between 40% to 50% for both BPT and medication treatments, and do not differ significantly among medication only, combined BPT and medication, or BPT (Firestone et al., 1986; Firestone & Witt, 1982). However,
when parents agree to be randomly assigned to treatments, attendance is poorer for behavioral treatments alone and the behavioral treatment component of combined interventions, compared to medication and the medication component of combined interventions (MTA Cooperative Group, 1999b). Research has found that among community samples of children with hyperactive and disruptive behaviors, 33% to 38% of parents do not attend even a single BPT session when assigned to this treatment (Barkley et al., 2000; Friars & Mellor, 2007). Furthermore, less than half of all parents attended even 50% of the BPT sessions (Barkley et al., 2000; Friars & Mellor, 2007). Thus, in spite of their somewhat greater acceptability, parents of children with ADHD do not participate with any greater frequency in behavioral treatments than they do in medication treatments. In summary, treatment acceptability has demonstrated utility in predicting treatment initiation or pursuit, for medication, but is less predictive of BPT use. However, this may be partially explained by limitations in how we typically measure acceptability. In particular, the commonly used rating scale measures sometimes appear to suffer from ceiling effects and their closed-ended nature reduces the information derived regarding the attitudes or beliefs that underlie parents’ acceptability ratings. Thus, I argue that alternate measures of treatment acceptability are needed which may reveal greater differentiation in the acceptability of treatments for ADHD, and may, ultimately, demonstrate utility in predicting actual treatment use of BPT. Finally, it is possible that the failure of treatment acceptability as measured in previous studies to fully predict actual treatment behaviours may be related to the descriptions of the treatments provided in these studies. The next sections of the dissertation turn to this issue.
Perception of the Demandingness of BPT and Acceptability

Evidence reviewed thus far indicates a discrepancy between the generally high acceptability of BPT, coupled with lower rates of treatment effectiveness and usage. Why might this be? It is possible that although parents report greater acceptability for BPT than stimulant medication, many families find that this treatment is too demanding of their resources to implement effectively, and decide not to pursue the treatment. Given the chronicity and cross-situationality of ADHD symptoms, in order to be maximally effective, behavioral treatments must be lengthy, intensive, implemented precisely, and used throughout a child’s environment, and must be adapted as the child grows older (AAP subcommittee on ADHD, 2001; Frazier & Merrell, 1997; Pelham & Fabiano, 2008). This intensive nature of behavioral treatments, including BPT, produces a high level of caregiver burden (Whalen & Henker, 1991) and requires that families create new routines that must be adhered to rigorously. As such, it may be difficult for parents to implement these interventions consistently and over a long period of time (Frazier & Merrell, 1997). Additionally, participation in behavioral treatment can be expensive, and families may require ongoing contact with professionals in order to maintain and adjust treatment over time for maximum effectiveness (Pelham & Fabiano, 2008; Pelham & Gnagy, 1999).

Given the demandingness of behavioral treatments, it may not be realistic to expect parents to be successful in using these interventions with the intensity required to see significant improvements in child ADHD symptoms (Pelham & Fabiano, 2008). Indeed, only a minority of families rely solely on behavioral interventions to manage their child’s ADHD symptoms. A recent study by Johnston and colleagues (2008) found
that only 22% of children with ADHD were treated using parent-administered behavioral treatments alone. One study reported that 10.8% of children with ADHD in the U.S. use non-pharmacological treatments alone, which included, but were not limited to behavioral treatments (Robison et al., 2004). The intensive behavioral treatments that have demonstrated comparable efficacy to pharmacological interventions rely on trained staff members, often supervised by psychologists, to administer the intervention to children (Pelham & Fabiano, 2008). If parents are going to undertake and effectively implement behavioral treatments for ADHD, they must be well-schooled in the demandingness of such treatments, and have sufficient time available to monitor their child and apply behavioral techniques. To leave parents with the impression that behavioral treatments will not involve substantial long-term changes to parents’ ways of interacting with their children and to families’ lifestyles is a great disservice and is likely to set parents up for failure when implementing such treatments.

Factors in addition to the demandingness of behavioral treatments have been proposed as contributors to the poor uptake of these treatments. Research has shown that objective obstacles, such as low family income or demanding work schedules, are important influences on participation in parent training among parents of children with behavior problems such as oppositional defiant disorder. Restricted access to transportation and difficulties scheduling appointments interfere with parents’ ability to access mental health services for their children (Reid et al., 2006). Firestone and Witt (1982) found that among the 24% of parents of children with ADHD who refused BPT, the majority stated that they did not have sufficient time to participate in the treatment. Other studies report similar findings: parents’ work schedules, access to transportation,
childcare demands and elevated parental life stressors are associated with reduced attendance at BPT sessions (Orrell-Valente et al., 1999; Prinz & Miller, 1994) and premature termination of BPT (Friars & Mellor, 2007; Van den Hoofdakker et al., 2007). Parents who terminate BPT early have been found to have lower family incomes, be younger and have younger children, and are more likely to have symptoms of depression or acting out behaviors themselves (Firestone & Witt, 1982; Peters et al., 2005). In addition, greater SES disadvantage, parent psychopathology, life stress, and severity of child dysfunction have been found to predict less improvement in child behavior problems among parents participating in BPT even after controlling for treatment attendance (Kazdin & Wassell, 1999). Thus, it appears that the contributions of life stressors and low SES to poorer child treatment response are not mediated by treatment attendance alone, and these family characteristics may be acting through other mechanisms associated with poor treatment response such as reduced participation during sessions or difficulty implementing the treatments at home.

Furthermore, the rate of attendance at BPT is not substantially improved when such obstacles are removed. Participation in a BPT group remained at 53% when parents were provided with transportation and child care, and were give $15 per session for their participation (Orrell-Valente et al., 1999). Although objective obstacles are important in relation to treatment attendance, the findings of Orrell-Valente and colleagues (1999) indicate that problems with attendance and treatment participation cannot be fully explained by the presence or absence of these obstacles, indicating that other factors also make an important contribution to treatment participation.
In summary, the presence of objective obstacles to attending BPT, such as low SES, demanding work schedules, or childcare burdens, reduces treatment attendance and predicts premature termination; and among parents who do attend treatment regularly but report higher levels of these obstacles, it is suggested that these obstacles continue to interfere with treatment implementation given that children in these families show less improvement in response to treatment. However, at least one study has found removal or amelioration of objective obstacles does not substantially improve rates of participation. Therefore, although treatment obstacles may partially explain the discrepancy between high levels of acceptability for BPT and lower actual enrolment and participation, the gap does not appear to be entirely accounted for by families’ experiences of objective obstacles to accessing treatment. Parents’ thoughts and attitudes regarding treatment of their child’s mental health disorder are also likely to make an important contribution to treatment participation.

Parents’ cognitions about therapy have been found to predict their participation in child therapy and BPT, beyond the influence of SES and other objective obstacles. Parents who held more accurate expectations about the level of parental involvement, the importance of attending regularly, and the demands of therapy, attended more appointments than parents who held less accurate beliefs (Shuman & Shapiro, 2002). Additionally, parental expectancies for parental involvement and child improvement were negatively related to parents’ perception of the barriers they encountered when accessing or implementing treatment after controlling for SES and other objective obstacles (Nock & Kazdin, 2001). In summary, parents who hold more accurate or realistic expectations about the demands of BPT and the level of parental involvement required before
begging this treatment have higher rates of participation, independent of other obstacles to participation.

Parental perception of factors that interfere with attending and implementing treatments, referred to as barriers to participation, represents another aspect of parental cognitions regarding treatment participation. Barriers to participation in treatment have been assessed along four dimensions: obstacles that interfere with using a treatment; treatment demands; relevance of the treatment to the child's problem; and parents' relationship with the therapist (Kazdin, 2000; Kazdin, Holland, & Crowley, 1997). Barriers to treatment uniquely predict premature termination of BPT and negatively predict therapeutic change beyond the influence of family SES, parental age, severity of child behavior problems, parent psychopathology, and parental treatment expectancies (Kazdin et al., 1997; Kazdin, 2000; Kazdin & Wassell, 1999; Nock & Kazdin, 2001). Additionally, the relationship between barriers and therapeutic change is not mediated by treatment attendance (Kazdin & Wassell, 1999), indicating that barriers may undermine parents' participation in BPT sessions or interfere with their implementation of behavior management techniques at home. The perception of treatment demands during therapy presents an interesting contrast with pre-treatment expectations of demandingness and parental involvement (Kazdin & Wassell, 1990). Parents who recognize the demanding nature of BPT at the outset of treatment have better attendance than parents with less accurate pre-treatment expectations. However, parents who come to find the treatment highly demanding, while participating in BPT, are more likely to terminate prematurely compared to parents who report lower treatment demands during treatment. These findings highlight the important influence that timing has on how the perception of
treatment demands influences treatment participation and suggest that parents who recognize the demands before implementation of BPT are more likely to attend treatment regularly and to benefit from the treatment.

Perceived barriers to treatment have been related to parent reported treatment acceptability for BPT. Parents who perceived many barriers to accessing BPT, viewed this treatment as far less acceptable compared to families participating in the same treatment who perceived fewer barriers (Kazdin, 2000). This relationship was present even after controlling for SES and parent psychopathology (Kazdin, 2000). Another study found that parents rated behavioral treatments that were high in demandingness as less acceptable compared to treatments that required less time and effort to implement (Reimers et al., 1992). Overall, perceiving a treatment as difficult to access and demanding to implement is associated with lower acceptability.

The changes in parental acceptability for BPT after implementing this intervention, discussed in the previous section, may reflect increased parental awareness of the effort and the demands of implementing behavior management strategies. Gage and Wilson (2000) state that parents of children with ADHD may be more aware of the demandingness of BPT after using these interventions and this awareness may alter their relative acceptability of behavioral and medication treatments for ADHD. The only study to date to compare parents' perceptions of the demands of behavioral, pharmacological, and combined treatments used the MTA sample and found that parents did not differ in their reports of demandingness of the treatments (Pelham et al., 2006). However, the measure of demandingness used in this study consisted of only two items: one asking about the demands of the assessment and testing components of the study (which were
identical across all three treatment conditions) and a second item asking about the
demands of the treatment itself. Thus, this study is far from conclusive and further
research is needed. To sum up, it is possible that as parents experience the high level of
parental involvement required by behavioral treatments, and grow more aware of the
demands of these treatments, they find them less acceptable.

One reason that parents may be endorsing greater acceptability for BPT is that
they underestimate the demandingness of this treatment. Most treatment acceptability
studies comparing stimulant medication and BPT for ADHD collect ratings from parents
using brief written or videotaped treatment descriptions to inform parents about these
interventions (e.g. Gage, 2002; Gage & Wilson, 2000; Johnston et al., 2008; Krain et al.,
2005). The greater treatment acceptability for BPT over stimulant therapy for ADHD
may be due to insufficient information about the demandingness of this treatment
presented in the short descriptions. The treatment descriptions from three recent studies
examining parents' acceptability ratings for BPT and stimulant medication are
summarized in the following paragraph.

In their recent study comparing treatment acceptability for BPT and stimulant
medication for child ADHD, Johnston et al. (2008) described BPT as involving
individual or group sessions with a professional to learn behavior management strategies,
such as consistently reinforcing positive child behaviors and ignoring or using negative
consequences for noncompliant or disobedient child behaviors. In their studies of parents’
ratings of treatment acceptability, Gage (2002) and Krain et al. (2005) described BPT as
involving learning new parenting concepts or strategies in weekly sessions with a
psychologist or other professional, and practicing this skill in session with their child.
When describing parents' involvement outside of weekly sessions with the therapist, Gage states: “Parents would usually be asked to spend approximately 30 minutes per week completing homework assignments.” He also stated that practicing the new parenting skills at home is “encouraged to maximize success”. Krain and colleagues’ description states that parents will learn to set up a reward system that allows the child to earn points for good behavior at home and at school, and learn how to use time out to correct misbehavior. However, Krain and colleagues do not describe how a point system or time out is implemented or the importance of using these skills consistently. Johnston and colleagues (2008) do not state that the skills learned must be used at home; however, this can be inferred from the examples they provide. In addition, the authors provide some information about the demandingness of these treatments, and state that using the behavior management techniques can be time consuming and other children in the family may need to be included in the strategies (Johnston et al., 2008). Both Krain and colleagues and Gage describe the duration of treatment as 8 to 12 sessions and Johnston and colleagues stated that treatment duration ranges from 8 to 20 sessions. Although Johnston and colleagues provide slightly more information regarding level of home practice required, none of these three descriptions provide sufficient information to convey the demandingness of BPT and it is likely that parents reading the descriptions underestimated this demandingness when making treatment acceptability ratings.

In summary, studies that have collected acceptability ratings for BPT and stimulant medication for ADHD may not have provided raters with sufficient information to recognize the demandingness of BPT and the level of parental involvement this treatment requires. Parents who read the brief treatment descriptions provided with these
studies may not recognize the difficulties they are likely to have implementing this intensive and complex treatment at home. Parental ratings of treatment acceptability for BPT may be lower, albeit more accurate, among parents who are provided with information about the demandingness of this treatment compared to parents who receive only minimal information about these difficulties. As described previously, as currently assessed, ratings of acceptability for BPT fail to predict pursuit of the treatment. Parents may be uniformly endorsing high acceptability for BPT because they underestimate the demandingness of this treatment, and this inaccuracy may limit the ability of acceptability ratings to predict treatment uptake. We know that having more accurate pre-treatment expectations regarding parental involvement predicts better treatment participation. It is possible that ratings of treatment acceptability may become a more useful predictor of treatment pursuit and use if parents are better informed about the demands BPT of before making their treatment acceptability ratings.

**Perceived Risks of Stimulant Medication and Treatment Acceptability**

Perception of the risks of side effects of stimulant medication is a second factor that may play an important role in shaping parental acceptability for ADHD treatments. Side effects, also referred to as treatment-emergent adverse events, are defined as unwanted outcomes or reactions resulting from an intervention (Jordan, Tunnicliffe, & Sykes, 2002). I will use the term side effects in my study because this term remains the most commonly used in the literature examining treatment risks. In general, people are less tolerant of risks for children compared to adults. Both parents and adults without children show higher levels of concern about health risks and greater information seeking when the target of a health risk message is a child rather than an adult (Ferguson &
Valenti, 1999). Berry (2004) found that both parents and non parents were less satisfied, perceived side effects to be more severe, more likely to occur, and risk to health to be higher, and said that they would be less likely to give the medication when they were asked to imagine that the recipient of a hypothetical medication was their child compared to themselves. This risk aversion may cause individuals to be highly sensitive to information about the risks of side effects of stimulant medication for treatment of childhood ADHD.

**Side Effects of Stimulant Medication for ADHD.** Several dose-related and easily quantifiable side effects of treatment using methylphenidate have been reported, such as increases in heart rate and blood pressure (see Rapport & Moffitt, 2002 for a review). Other short-term side effects of methylphenidate include insomnia, reduced appetite, and stomach aches (Gillberg et al., 1997; Rapport & Moffitt, 2002). One study found that 22.3% of children treated with stimulants were likely to develop at least one side effect at some point during the 6-year interval they were followed (Barbaresi, Katusic, Colligan, Weaver, Leibson, & Jacobsen, 2006). These short-term side effects of methylphenidate are typically transient and resolved by adjusting the dose of the medication or taking breaks from the medication, for example during summer and other school-holidays (Rapport & Moffitt, 2002). Rapport and Moffitt (2002) state that the transient and dose-dependent side effects of stimulant therapy “can be considered minor from a clinical perspective considering the breadth and level of improvement in behavioral and cognitive functioning observed in most children” (p. 1127). In sum, although numerous short-term side effects are associated with stimulant medication, these appear to be clinically minor and can often be resolved by adjusting dose.
One area of concern is the possibility of long-term growth suppression as a result of stimulant therapy. Some research has not found evidence of deficits in growth associated with long-term stimulant treatment up to 5 years (Satterfield, Cantwell, Schell, & Blaschke, 1979; Sund & Zeiner, 2002; Zeiner, 1995). Although height and weight gain data from the 36-month follow-up of the MTA study suggest that there is significant growth suppression in the initial phases of stimulant treatment, these effects appear to decrease as medication is continued (Swanson et al., 2007). The authors have speculated that stimulant medication is associated with decreases in growth rates after initiation of treatment. This decrease in rate appears to reach an asymptote within 3 years and children do not appear to show any rebound increase in growth rate. Children treated continuously with medication for longer than 3 years showed deficits in height and weight that were on average 2.0 cm and an average of 2.7 kg, respectively (Swanson et al., 2007).

Nonetheless, the findings related to stimulant treatment and possible deficits in height and weight gain remain somewhat unclear and further long-term research is needed to fully understand this relationship.

In extremely rare cases, stimulant treatment has been associated with sudden death from adverse cardiac events. However, no clear evidence exists as to whether stimulants were the cause of the cardiac event and many of these deaths occurred in individuals who had significant pre-existing cardiac abnormalities (Smith, 2005), or where the drug was intentionally misused or taken in combination with other drugs (Wolraich, 2006). Overall, the sudden death rate for children treated with stimulants is well within that of the general population (Wolraich, 2006). Although concerns about sudden death from stimulants have been raised by drug regulatory bodies in both Canada
and the U.S., no conclusive evidence indicates that stimulant use is associated with increased risk of sudden death in individuals without pre-existing cardiac conditions (Plizka, 2007; Smith, 2005; Wolraich, 2006).

Parents also have concerns about the risks of stimulant medication that are not supported by research. For example, one study found that 55% of parents reported that they would be hesitant to use stimulants to treat their child based on information they have received from the lay press (DosReis et al., 2003). Loney, Kramer, and Salisbury (2002) argue that misinformation about ADHD has been more widely disseminated than actual research findings. Wolraich (2006) notes that much of the publicity regarding cardiac deaths associated with stimulant use disseminated inaccurate information, thereby fuelling public concerns that are not based on scientific data and strengthening the move to discourage parents from using medication to treat child ADHD.

The use of stimulant medication to treat ADHD has increased since the 1980’s (Olofson et al., 2003) perhaps due to growing awareness about the disorder. However, greater use of stimulant therapy may lead some parents to be concerned that stimulants are over prescribed and overused. DosReis and colleagues (2003) found that 32% of parents reported that they believe too many children are medicated for ADHD. In contrast, research has found that many children with ADHD do not receive treatment and stimulant medication appears to be under prescribed (Jensen et al., 1999; Szatmari et al., 1989a). Additionally, parents and some clinicians worry that stimulant treatment will activate an underlying tic condition; however, this has not been the case and stimulant treatment does not cause an increase in tic severity (Gadow, Sverd, Sprafkin, Nolan, & Grossman, 1999; Gillberg et al., 1997). Other areas of concern expressed by parents are
that exposure to stimulants will sensitize children to the effects of other stimulant drugs, that children may develop a physiological tolerance to stimulant medication, or that children will come to believe that it is acceptable to use illegal stimulant drugs. In contrast to these popular fears, research has found that when baseline severity of ADHD symptoms is controlled, children treated with stimulant medication are at decreased risk for substance abuse problems in adolescence (Biederman, Wilens, Mick, Spencer, & Faraone, 1999; Katusic, Barbaresi, Colligan, Weaver, Leibson, & Jacobsen, 2005; see Wilens et al., 2002 for a review). Children with ADHD who are never treated with stimulant medication are more likely to use illegal drugs (Biederman et al., 1999; Loney et al., 2002) and are more likely to smoke cigarettes (Biederman et al., 1999; Whalen, Jamner, Henker, Gehricke, & King, 2003) compared to children with ADHD treated with stimulant medication. However, concern about substance abuse and stimulant medication continues, and at least one other study has been unable to confirm that stimulant treatment protects against future risk of substance use disorders (e.g. Molina et al., 2007). A limitation of this study is that it did not control for severity of ADHD symptoms or the presence of comorbid conduct disorder when investigating the contributions of medication to risk of substance abuse problems. The severity of ADHD symptoms and conduct problems may be important moderators in the relationship between stimulant treatment and substance use among adolescents and adults with ADHD. While considerable research has been conducted in this area, further research that carefully controls for severity of ADHD and comorbid difficulties is needed to fully understand possible links between stimulant treatment and later substance use.
Finally, some parents may have moral or ethical objections to using medication to modify children’s behavior, for example the belief that stimulant medications are a form of thought control and that their use removes children’s autonomy (Perring, 1997). In summary, although several side effects have been empirically demonstrated to result from stimulant treatment for ADHD, parents are likely to express concern about additional adverse events, not established as side effects of stimulant therapy, as a result of misinformation in the popular media.

Given that research regarding the risks of stimulant medication continues to change, and that parents are often accessing this information through secondary sources such as ADHD newsletters or the popular media, it is difficult for parents to make informed decisions about the risks and benefits of stimulant treatment for ADHD. While stimulants are associated with numerous side effects, parents may have difficulty accessing accurate and current information about the severity of these side effects and the likelihood of their child experiencing them. This difficulty is further compounded by the surfeit of information discussing risks of stimulants that have not been supported by research. As a result, many parents may overestimate their child’s risk of experiencing side effects of stimulant medication.

**Side Effect Perception and Treatment Acceptability.** The perception of stronger side effects of either behavioral or pharmacological treatments is associated with decreased treatment acceptability ratings (Kazdin, 1981). McNeal et al. (2000) suggest that when substantial side effects are present, mothers’ perceptions of the benefits of stimulant medication may be overshadowed by concern about the risks. College students who read an all-positive testimonial about the effects of stimulant therapy in treating
ADHD symptoms reported greater belief in treatment efficacy compared to students who read scientific information that discussed both the risks and benefits of stimulant therapy (Borgschatz, Frankenberger, & Eder, 1999). Information regarding risks of medication seems to have greater influence than information regarding the benefits of medication on patients’ intention to use that medication (Berry, Michas, & Bersellini, 2002). Similarly, at least one study has found that parents’ relatively negative attitudes towards pharmacological treatments were not based on evidence of limited efficacy of these treatments, but rather on concerns about side effects or stigma associated with medication (Krain et al., 2005). One reason that acceptability for stimulant medication for ADHD is often lower than acceptability for behavioral treatments may be concern about the side effects of medication.

When discussing treatment risks with health care consumers, several elements of risk communication have been identified (Bogardus, Holmboe, & Jekel, 1999). Physicians need to inform patients of possible side effects and their severity, if the side effects are transient or permanent, when the side effects are likely to occur, the probability of experiencing side effects, and assess the patient’s subjective evaluation of the negative impact of the side effects (Bogardus et al., 1999). One study found that side effect severity and the probability of experiencing side effects were greater influences than the actual number of side effects on individual’s perceived risk to their health from the medication, and severity and probability of side effects were negatively associated with the intention to pursue treatment recommendations (Berry et al., 2002). The number of side effects, controllability of side effects, benefits of medication, and disease severity were not associated with the intention to pursue treatment recommendations or with
perceived risk to one’s health (Berry et al., 2002). For my study, I chose to focus on how information about the probability of experiencing side effects of stimulant medication is related to treatment acceptability.

Parents who receive verbal statements about the probability of side effects when reading treatment information in acceptability studies are likely to overestimate the likelihood of these side effects occurring. The likelihood of experiencing a side effect of a medication is considered a single event probability and refers to the probability of a specific event occurring or not occurring (Gigerenzer & Edwards, 2006). Information regarding the probability of experiencing side effects of a treatment may be the most difficult element of a treatment to communicate in an understandable way to patients (Bogardus et al., 1999). Patients tend to systematically overestimate the likelihood of experiencing side effects and this pessimistic bias is greatest among individuals who are more skeptical of physicians’ recommendations (Gurmankin, Baron, & Armstrong, 2004; Knapp, Berry, & Raynor, 2001). Researchers have recommended using quantitative terms, such as frequencies, to describe the probability of experiencing side effects because there are no objective anchors for verbal probability descriptors, such as rare or common (Bergenstrom & Sherr, 2003; Bogardus et al., 1999). Individuals vary greatly in their interpretation of verbal probability terms and less variability is present in their interpretation of numerical terms (Berry, Raynor, & Knapp 2003; Gurmankin et al., 2004). Furthermore, single event probabilities are easiest to understand if they are expressed as frequencies rather than percentages (Bergenstrom & Sherr, 2003; Gigerenzer & Edwards, 2006). It is easier for patients to understand that 3 out of 10 people experience side effects rather than expressing this as a percentage and stating that
the probability of experiencing side effects is 30%. This body of research highlights that a large gap exists between a physician's intended message and how that message is understood and interpreted by patients when talking about treatment risks (Gurmankin et al., 2004). However, by making small modifications in how information is presented, patients may be able to understand probability information with greater accuracy (Gigerenzer & Edwards, 2006) and be less likely to overestimate the likelihood of experiencing side effects (Knapp et al., 2001).

I would like to revisit the previous examples of treatment descriptions from recent treatment acceptability studies and this time focus on how parents are provided with information about the child’s likelihood of experiencing side effects from stimulant medication. Gage (2002), Krain and colleagues (2005), and Johnston and colleagues (2008) all described the benefits of stimulant medication in improving inattentive and hyperactive/impulsive symptoms of ADHD and the duration of these effects. Both Gage and Krain and colleagues state that children may need to take medication at least twice per day and Johnston and colleagues describe doses as being once to three times per day. Johnston et al., Gage, and Krain et al. all list several side effects of stimulant medication, such as difficulty sleeping, headaches, and nausea. Gage and Krain et al. also list decreased weight and height as side effects of medication. Gage additionally lists emotional disturbances as side effects and the possibility that medication may activate an underlying tic condition. The descriptions from these three studies vary in how they describe the likelihood of experiencing side effects, but all use verbal descriptors of probability rather than frequency statements. Gage describes side effects as “relatively uncommon.” Johnston and colleagues’ description states: “For some children, the
medication may have unpleasant side effects” and describe side effects as being minor and transient. Krain and colleagues state: “Medication is usually very safe, although a small percentage of children may experience significant side effects....” All three groups of authors state that a physician will monitor the child to watch for side effects and adjust the dosage. Given that adults are more concerned about placing their child at risk than themselves (e.g. Berry, 2004), display a pessimistic bias towards the risk of experiencing treatment side effects (Gurmankin et al., 2004; Knapp et al., 2001), and that the use of verbal descriptors of probability is associated with an overestimation of the probability of experiencing side effects (e.g. Knapp et al., 2001), it is likely that parents who read the descriptions in these studies overestimated the risk of their child experiencing side effects of medication. This overestimation of risk likely contributed to the lower treatment acceptability ratings for stimulant medication compared to BPT.

Enhancing the Accuracy of Treatment Descriptions in Acceptability Research

To summarize, the reasons for the overall finding of greater treatment acceptability for BPT compared to stimulant medication, in the face of equivalent or greater efficacy and usage of medication, may be twofold. First, parents may have underestimated the demandingness of BPT when presented with brief treatment descriptions in previous studies and may be unaware of the consistent and considerable effort and lifestyle changes required of such treatments. This lack of awareness of the demandingness of BPT may lead parents to rate it as more acceptable than if they held more accurate expectations. Second, the use of verbal probability descriptors to describe the frequency of side effects of stimulant medication may contribute to the low acceptability ratings for stimulant medication for ADHD. Parental acceptability ratings
for this treatment may reflect an overestimation of the likelihood of side effects consistent with the pessimistic bias found in other research.

My study examined how information presented to mothers of sons with and without ADHD about the demands of BPT and the probability of experiencing side effects of stimulant medication is related to treatment acceptability ratings. I chose to collect treatment acceptability ratings only from mothers at this time, because mothers tend to be children’s primary caregiver and recent studies have found that in 87% to 98% of families, mothers are the primary responders to treatment acceptability questionnaires (Krain et al., 2005; Johnston et al., 2008). The feasibility of manipulating information about the demands of BPT and the probability of side effects of stimulant medication was based on studies showing that acceptability ratings for both of these treatments are responsive to the type of information presented in treatment descriptions and are not solely dependent on pre-existing beliefs or expectations (Gage, 2002). For example, Gage found that mothers and fathers of nonproblem children who viewed a video tape of a psychologist presenting standard treatment descriptions, rated behavioral treatments as more acceptable than interventions that combined medication and behavioral treatments, but parents who viewed a video of the psychologist presenting the treatment description along with a rationale for each treatment, did not differ in their ratings of acceptability between behavioral and combined treatments. Additionally, subjects who read numerical probability statements about the likelihood of experiencing side effects rated a medication as having lower risk to their health and endorsed greater likelihood of complying with treatment recommendations compared to subjects who read verbal probability descriptors (Berry et al., 2003). Thus, it is reasonable to expect that
manipulating the information provided to parents regarding treatment options may alter the pattern of treatment acceptability ratings for BPT and stimulant medication.

**Proposed Hypotheses**

I compared the acceptability ratings of mothers of sons with ADHD to mothers of sons without ADHD because I predicted that experience parenting a child with ADHD would be an important moderator of treatment acceptability. I anticipated replicating previous findings that mothers in the ADHD group would rate stimulant medication as more acceptable compared to mothers of sons without ADHD, who would not have experience with stimulant medication. I compared ratings of acceptability for BPT between mothers of sons with ADHD and mothers of nonproblem sons but did not make specific predictions about the influence of parenting a child with ADHD on acceptability for BPT.

I anticipated that ratings of treatment acceptability among mothers in the ADHD group were likely to be related to experience using stimulant medication to treat their child’s ADHD symptoms. Due to the inherent difficulty in assessing the level of experience with behavioral treatments and ensuring that mothers’ experience with the demandingness of BPT was comparable, I did not make specific predictions about the relation of experience using BPT to ratings of treatment acceptability. However, I gathered information regarding previous experience with behavioral treatments and examined, in an exploratory manner, the relation of this experience to treatment acceptability.

In addition to interactions with experience with ADHD, I anticipated replicating previous main effects of greater treatment acceptability for BPT compared to stimulant
medication among mothers in both the ADHD and nonproblem groups who read classic
descriptions of BPT and medication (Classic Description group), similar to those used in
previous treatment acceptability studies. I anticipated that mothers who read descriptions
conveying the demandingness of BPT and classic descriptions of stimulant medication
(Demandingness group), and mothers who read numerical probability information
regarding the probability of experiencing side effects of stimulant medication and classic
descriptions of BPT (Numeric group) would differ from each other and mothers in the
Classic group in their pattern of treatment acceptability ratings for BPT and medication.
More specifically, mothers in the Demandingness group were expected to rate the
acceptability of BPT lower than mothers in the Classic and Numeric groups, both of who
read the classic descriptions of BPT. Furthermore, I hypothesized that mothers in the
Numeric group would rate stimulant medication as more acceptable compared to mothers
in the Classic and Demandingness description groups, who read the Classic descriptions
of medication.

As an alternate and exploratory measure of treatment acceptability, I also asked
mothers which treatment they would recommend (BPT vs. stimulant medication), if they
were advising the mother of a child recently diagnosed with ADHD. Mothers were asked
to provide reasons for their treatment choice. Similar to treatment acceptability ratings, I
anticipated that experience parenting a child with ADHD was likely to moderate
treatment choice. Thus, mothers of sons with ADHD may differ in the frequency with
which they recommend BPT over stimulant medication compared to mothers of
nonproblem sons. I also anticipated main effects such that mothers reading Classic
descriptions of BPT and medication would be more likely to recommend BPT than
stimulant medication. I anticipated that a larger proportion of mothers who read the Demandingness and Numeric treatment descriptions would report that they would recommend stimulant medication compared to mothers reading Classic Descriptions.
Method

Participants

Mothers of sons with ADHD and mothers of nonproblem sons aged 5-12 years participated in an Internet-based study examining acceptability for ADHD treatments. Mothers were recruited using advertisements in community newspapers throughout British Columbia and Yukon, postings in community centres, and using the Johnston Lab’s registry of past participants who are willing to participate in future studies. The initial wave of recruitment advertisements focused on the nonproblem group and sought mothers of boys aged 5-12 to participate in an Internet study about parents’ treatment choices for childhood disorders. Subsequent newspaper advertisements and community centre postings were aimed at mothers of boys with ADHD aged 5-12 and invited them to participate in an Internet study regarding parents’ treatment choices for ADHD. I decided to use different wording in the two ads, in order to reduce the likelihood of mothers of nonproblem children deciding not to participate because they felt they knew too little about ADHD.

Procedure for Screening Participants

To be eligible for participation, mothers were required to have a son between 5 and 12 years of age and to have spoken English for at least 3 years. I chose to recruit mothers of sons aged 5 to 12 because ADHD presents more often in boys and it is during the elementary school years that parents are most often making initial treatment decisions regarding their child’s ADHD (American Psychiatric Association, 2000). Mothers who reported their sons were diagnosed with developmental or cognitive difficulties severe enough to warrant specialized educational programming (e.g., a full-time teacher’s aide
or specialized classroom) were excluded. Mothers were additionally asked if their son had any emotional or behavioral disorders, but only mothers of nonproblem sons were excluded based on this criteria.

Mothers were screened for eligibility to participate in the ADHD group using their report that a qualified professional had diagnosed their sons' ADHD and maternal and teacher ratings on the ADHD-IV Rating Scale (DuPaul, Power, Anastopoulos, & Reid, 1998). The ADHD-IV is a parent- or teacher-report questionnaire measure of child behavior composed of the DSM-IV diagnostic criteria for ADHD (American Psychiatric Association, 2000). Respondents use a Likert-type scale (0 = Not at all to 3 = Very much) to rate how frequently the child displays each ADHD symptom. Respondents were considered to endorse a symptom if they rated the boy as displaying the symptomatic behavior “Pretty much” or “Very much” of the time (ratings of 2 or 3). The ADHD-IV has been shown to reliably identify children who have been diagnosed with ADHD compared to clinical control samples (DuPaul et al., 1998). Ratings on the ADHD-IV demonstrated good internal consistency for both parent and teacher reports for both the Inattention, Cronbach’s $\alpha = .75$ and $\alpha = .89$ (for parents and teachers respectively), and Hyperactive-Impulsivity subscales, $\alpha = .87$ and $\alpha = .92$ using the sample included in this study (parents and teachers respectively). Parent ratings on the Inattention and Hyperactive-Impulsivity subscales of the ADHD-IV have demonstrated good criterion validity when correlated with the Hyperactivity Index of the Conners Parent Rating Scale $-48$, $r = .61$ for Inattention and $r = .81$ for Hyperactivity-Impulsivity (DuPaul et al., 1998). Teacher’s scores have demonstrated similar criterion validity with the Conners Teacher Rating Scale-39 with $r = .76$ for both the Inattention and Hyperactivity-
Impulsivity subscales (DuPaul et al., 1998). I used the ADHD-IV to confirm existing diagnoses of ADHD in children, as such, these ratings are considered to be as effective as structured clinical interviews in diagnosing ADHD (Pelham, Fabiano, & Massetti, 2005).

Mothers in the ADHD group were asked during the telephone screen if I could contact their son’s teacher to obtain ratings of the son’s ADHD symptoms in the classroom. Mothers who gave their verbal consent for this contact were mailed a paper consent form to sign and return. Once these consent forms were returned, ADHD-IV ratings scales were sent to the child’s teacher. Both mothers and teachers were instructed to complete the ADHD-IV thinking of the child’s behavior when he was not receiving medication to treat his ADHD symptoms.

Of the 71 mothers in the ADHD group who submitted data online, three mothers provided teacher ratings of the child that had been collected in the past year. Forty-nine mothers consented to me contacting their sons’ teachers and 48 of the teachers returned the ADHD-IV rating forms. Mothers who did not consent to me contacting their son’s teacher were asked for the name of another adult I could contact for a rating of the child. Sixteen mothers provided the name of another adult. Three mothers declined to have us contact anyone about their child, five mothers did not return consent forms, and four other adults failed to return questionnaires. In total, teacher or other adult ratings were available for 60 of the 71 children in the ADHD group.

Mothers were included in the ADHD group if they or the other adult reported the child as having at least six symptoms on the inattentive and/or hyperactive-impulsive subscales. Mothers were eligible to participate if their sons had any of the three ADHD subtypes: predominantly inattentive, predominantly hyperactive/impulsive, or combined.
Both BPT and methylphenidate are used as treatments for all subtypes of ADHD, and there is no evidence of differential effectiveness of these treatments across subtypes (Barkley, 2006; Gorman, Klorman, Thatcher, & Borgstedt, 2006).

In addition to the ADHD-IV, teachers/other adults were asked additional questions regarding how long they had known the child, if they knew whether or not the child was talking medication for ADHD, and if the child was medicated, how often they had seen the child off of medication. When disparities occurred in whether mothers’ and teachers’ ratings both met diagnostic criteria, these questions were helpful in interpreting the differences. Thirteen mother and teacher/other adult pairs differed in whether their ratings classified the child as having ADHD. In 10 of these cases, the teacher had never seen the child off medication. Given the assurance that the child had been diagnosed with ADHD by a clinician and because the purpose of this study was to examine mother’s cognitions about the treatment of ADHD, rather than child behavior or child characteristics, mothers who sons met criteria on the maternal ratings of ADHD, but not teacher ratings were retained in the sample.

In total, 225 mothers contacted the lab to learn about participating in the study. Of this number, 24 mothers were not enrolled in the study. Of the 24, four mothers of nonproblem sons and three mothers of sons with ADHD declined to enrol after hearing a description of the study. Nine mothers in the nonproblem group did not meet the initial screening criteria with regard to access to the Internet (1 mother), being the child’s legal guardian (1 mother), English proficiency (1 mother), or absence of serious developmental, cognitive or behavioral problems in their son (6 mothers). Eight mothers
of boys with ADHD were not enrolled because their sons did not meet the study’s criteria for ADHD.

In total, 113 mothers of nonproblem boys and 88 mothers of boys with ADHD enrolled in the study. However, six mothers enrolled in the nonproblem group and three mothers enrolled in the ADHD group could not be sent the study materials via the email address they provided during their initial telephone contact and did not respond to attempts to reach them via telephone. Two additional mothers in the ADHD group officially withdrew after enrolling. All mothers who did not submit their data within 2 weeks of their initial telephone contact with the lab were provided with at least two reminder emails encouraging them to submit their data and resending the website information. Data were returned from 82 mothers in the nonproblem group and 71 mothers in the ADHD group.

To further ensure that mothers in the nonproblem group were parenting a child without clinical behavioral or emotional problems, data were screened for the presence of clinical levels of child emotional and behavioral problems using maternal ratings on the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001) and the Oppositional Defiant Disorder-Rating Scale (ODD-RS; Hommersen, Scoular, Ohan, & Johnston, 2006). Given that I had asked about the presence of emotional and behavioral difficulties over the telephone during enrolment, I expected only a few mothers would be excluded after this screening.

The CBCL is a commonly used 113-item parent-report measure of child emotional and behavioral difficulties. Items describe child behavior, and parents are asked to rate on a 3-point scale how characteristic the described behavior is of their child
over the past 6 months (0 = Not at all true to 3 = Very true or Often true). The CBCL has demonstrated good internal consistency for both the broadband Internalizing and Externalizing problem subscales, with Cronbach’s $\alpha$’s of .90 and .94 respectively, and good test retest reliability over an 8 day period of $r = .91$ for the Internalizing and $r = .92$ for the Externalizing subscales (Achenbach & Rescorla, 2001). Data from two mothers in the nonproblem group were excluded because their sons had T-scores greater than 70 on the Internalizing problems subscale of the CBCL.

The ODD-RS is an 8-item scale composed of DSM-IV criteria for Oppositional Defiant Disorder (Hommersen et al., 2006). Mothers respond using a 4-point scale (0 = Not at all to 3 = Very much) indicating how frequently the child displays each symptom. Respondents were considered to endorse a symptom if they rated the boy as displaying the symptomatic behavior “Pretty much” or “Very much” of the time (ratings of 2 or 3). The ODD-RS demonstrated good internal consistency with both the ADHD group, Cronbach’s $\alpha = .91$ and nonproblem group, $\alpha = .78$ of this study. I excluded data from seven mothers in the nonproblem group who endorsed their sons as having four or more symptoms on the ODD-RS. In summary, after applying all screening criteria, data were collected from 71 mothers in the ADHD group and 73 mothers in the nonproblem group. Please refer to the Results section of this paper for a more detailed description and comparison of these two groups.

**Procedure for Assessing Treatment Acceptability**

This research was approved by the University's ethical review committee. Mothers initially contacted the lab by telephone to enquire about participating in the study, and myself, or a volunteer research assistant, described the study. If mothers were
interested, we administered the brief screening criteria, with the exception of the CBCL and ODD-RS, to determine if mothers were eligible to participate in either the ADHD or the nonproblem group. Because of the length of these questionnaires, mothers completed the CBCL and ODD-RS along with the other measures over the Internet and their data were screened after collection to see if any sons needed to be excluded.

Mothers and sons who met criteria for inclusion in the study after telephone screening were sent an email providing them with a participant number, website address to access the study materials via the Internet, and passcode to access the website. Mothers provided verbal consent to receive this information via email and if necessary, reminder emails.

Conducting my study over the Internet had several advantages. First, because mothers may have felt that their treatment acceptability ratings reflected on them as a parent in some way, I wanted to minimize the likelihood that mothers would respond in a socially desirable manner. One previous study found that participants asked to complete closed-ended computer administered questionnaires responded in a less socially desirable manner compared to participants completing a paper and pencil version of this questionnaire (Kiesler & Sproull, 1986). In contrast to this earlier study, more recent research, comparing self-administered Internet, touch-tone telephone, and paper and pencil surveys, found comparable responses patterns of disclosure among the three modes (Knapp & Kirk, 2003). The authors attribute their findings to the careful protection of participant anonymity in all three response modes and the high level of familiarity their sample of undergraduate students had with the technologies being used (Knapp & Kirk, 2003). Thus, by collecting data electronically, I did not expect mothers to display more of
a socially desirable response bias and it was possible that mothers might even show less
of this bias than they would when responding to paper and pencil questionnaires.

Second, electronic questionnaires are returned more promptly to the researcher and
have fewer incomplete responses compared to paper and pencil questionnaires (Kiesler &
Sproull, 1986). Furthermore, I could control the order that participants viewed pages,
thereby preventing mothers from returning only partially completed questionnaires
(Braithwaite, Emery, de Lusignan, & Sutton, 2003). I designed my website so that
mothers had the option of logging out of the survey and taking a break if they needed or
were interrupted. Additionally, by collecting data over the Internet, I was able to recruit
mothers from communities throughout British Columbia and Yukon.

It is unlikely that potential sampling bias was introduced by restricting my
participants to those with Internet access. In 2005, 63.3% of adults in British Columbia
had access to the Internet from home and 69.3% of adults in British Columbia used the
Internet from any place including home, work, or a public library (Statistics Canada,
2006). Furthermore, 80% of families with children under the age of 18 accessed the
Internet from home, work, libraries, or other locations in 2001 (Statistics Canada, 2002).

To ensure that my study protocol was as user-friendly as possible, I included a
visual marker that tracked participants’ progress through the measures and displayed the
remaining sections to be completed. Because of the variation in participants’ computer
systems and the speed of their Internet connections, I followed Braithwaite and
colleagues (2003) recommendation of not using complex visual graphics to ensure that
the images can be viewed on a range of screen settings and can be downloaded
expeditiously. Prior to posting for data collection, the website was tested using a range of
browsers with both the Windows XP and Macintosh OS X operating systems. Mothers were invited to contact the lab via telephone or email if they encountered difficulty accessing the website. Five mothers reported difficulty accessing the pages, but the problems were resolved.

All identifying participant information and family information was collected over the telephone. Participants were identified using only their assigned subject number on the Internet based measures and questionnaires. No identifying information was collected via the Internet. The electronic copy of the file linking participant names and participant numbers was password protected and a printed copy of this document was stored in a secure filing cabinet. The initial website page provided the information required by the University's ethical review committee's standards for obtaining consent for questionnaire-based studies. This information included, but was not limited to: the purpose of the study, the time required to complete the study, measures to protect mothers' confidentiality, and a statement that if the questionnaires are completed it will be assumed that consent has been given. Consistent with the University of British Columbia's legal policy on click-through agreements, mothers were required to login into the study by clicking a button with the words “I agree” above which was written the words: “By clicking ‘I agree ’ below, I acknowledge that I have read the conditions of the study described above and am willing to participate in the study.” After completing the Internet measure, mothers were mailed a cheque for $15 as an honorarium for their participation. To ensure voluntary participation, mothers were told that they would still receive the honorarium if they provided written notice of their withdrawal from the study.
Two mothers in the ADHD group contacted the lab via email to withdraw from the study and were paid $15.

After reading the initial consent and introductory pages instructing them how to use the website, mothers read a brief description of ADHD and a scenario about a boy with ADHD engaging in behaviors that are characteristic of ADHD. Mothers then read descriptions of the use of stimulant therapy and BPT as treatments for this disorder. After reading the two treatment descriptions, mothers completed a questionnaire measure of treatment acceptability for each treatment. The final treatment acceptability measure asked mothers which of the two treatments they would recommend and why, if they were advising the mother of the boy described in the scenario.

All information presented to mothers was written using language that could be understood by individuals with a Grade 8 reading level, as assessed using the Flesch-Kincaid measure of grade level. I calculated the Flesch-Kincaid grade level using Microsoft Office Word software (2004 for Mac, version 11). The Flesch-Kincaid formula assesses grade level by examining the average number of words per sentence and the number of syllables per word (Badarudeen & Sabharwal, 2008). Although an admittedly rough indicator of reading level, the Flesch-Kincaid grade level score has been used in previous research examining readability of written medical information provided to patients (e.g., Badarudeen & Sabharwal, 2008; Cooley, Moriarty, Berger, Selm-Orr, Corr, & Short, 1995; Cotugna, Vickery, & Carpenter-Haefele, 2005).

Once the final treatment acceptability measure was completed, mothers provided brief information about their family and their experience using pharmacological and behavioral treatments, completed the CBCL and the ODD-RS described in the screening
section, a brief questionnaire of symptoms of depression, and a questionnaire measure of impression management. These measures were used to compare mothers in the ADHD and nonproblem groups for differences in demographic variables, such as socioeconomic status (SES), maternal and child age, marital status, and other maternal characteristics that may be related to treatment acceptability ratings.

**Measures**

**Treatment Acceptability Measure.** The treatment acceptability assessment measure presented via the Internet was designed to evaluate how experience with ADHD was related to acceptability and whether information about the demands of BPT and the probability of experiencing side effects associated with stimulant medication affected maternal ratings of treatment acceptability. As noted previously, all mothers read a brief description of the impairments and behaviors associated with ADHD. They then read a short scenario describing a boy who had been recently diagnosed with ADHD. The scenario described a 7-year-old boy engaging in behaviors that are characteristic of inattentive and hyperactive/impulsive symptoms of ADHD. A 7-year-old boy was chosen, because this is an age when many parents may be making their initial decisions about ADHD treatment (American Psychiatric Association, 2000). In the scenario, the boy was described as engaging in three symptoms of inattention and three symptoms of hyperactivity/impulsivity, with two negative outcomes described as a result of each symptom cluster. Although a minimum of six symptoms on either symptom cluster is required for a diagnosis of ADHD, I limited the number of symptoms to three in order to enhance readability and to avoid portraying a severely impaired child. A very short description of the family was included in the scenario, stating that both parents work
outside the home and there was one younger sibling aged 5. These demographic features were chosen as being representative of many two-parent families in Canada. In 2001, the modal number of children per Canadian family was two (Statistics Canada, 2004). In B.C. in 1999, 70% of mothers, whose youngest child was under 6 years old, worked outside the home (Government of British Columbia, 2000) and in 1996 in nearly half of all Canadian families with children under 18, both parents worked full-time (Vanier Institute of the Family, 1997). Please refer to Appendix A for a copy of this scenario.

After reading the child behavior scenario, mothers read descriptions of short-acting stimulants and BPT as treatments for ADHD. The presentation of treatment descriptions was counterbalanced across mothers. Because parents have reported greater acceptability for treatments that use positive strategies compared to those that use reductive strategies (Reimers et al., 1992), the description of BPT included equal amounts of training using positive strategies (i.e., rewards, praise) to increase positive behaviors and reductive strategies (i.e., response cost, time out) to decrease negative behaviors. To ensure both the medication and BPT descriptions were commensurate in their emphasis on increasing positive child behavior and decreasing negative behaviors, the description of stimulant therapy described how stimulants increase children’s positive behavior (e.g., sustained attention) and reduce negative behaviors (e.g., lessening impulsivity). Mothers were randomly assigned, in equal proportions for both the ADHD and nonproblem groups, to one of three treatment description conditions.

Mothers assigned to the first group, named the Classic Description group, read descriptions of stimulant medication and BPT that depicted the treatment rationale, implementation of the treatment, and anticipated benefits and risks. These descriptions of
BPT and stimulant medication were adapted from those used in previous studies examining acceptability for BPT and stimulant medication as treatments for ADHD (e.g., Gage, 2002; Johnston et al., 2008; Krain et al., 2005) and contained similar information to that presented in these three studies. Furthermore, information describing the probability of experiencing stimulant side effects in the Classic Description group was selected from the side effects listed in the Ritalin information for prescribing practitioners on Novartis Canada's website (Novartis Canada, 2006). I selected side effects from the central and peripheral nervous system, gastrointestinal system, and cardiovascular system that are estimated to occur commonly, rarely, and very rarely, for a total of six side effects. In the Classic Description, the frequency of side effects was described using these verbal probability descriptors.

Mothers assigned to the second group, the Demandingness group, read the same description of medication presented to mothers in the Classic Description group; however, they were provided with a description of BPT that provided more detail about the demands of implementing this treatment. I communicated the demands of BPT by elaborating on information already provided in the Classic Description of this treatment. For example, the Classic Description stated: “Using the techniques can be time consuming.” Whereas, the Demandingness BPT description stated: “Parents must spend a large part of their time monitoring their child so that they can respond to his behavior right away.” As second example, the Classic Description included general information about using reinforcement to increase positive child behavior and the Demandingness description contained additional information about implementing reinforcement, such as that parents need to be prepared to give rewards immediately after and every time the
child exhibits the behavior, and that this can involve much more planning than is customary for most parents.

Mothers assigned to the third group, the Numeric Probability group, read a description of BPT that was the same as the Classic Description group; however, the description of medication that these mothers read included numerical frequency statements about the probability of experiencing the side effects listed in the description of medication. Information regarding the percent of children experiencing a side effect, as well as the comparable verbal probability descriptor, was obtained from information posted on the Novartis Canada website (Novartis Canada, 2006). The percentages of children experiencing medication side effects as posted on the website were presented as frequency statements in the Numeric Probability group (e.g., 10% of children was presented as ‘For every 10 children...1 will experience....’ and 0.01% was presented as ‘For every 10,000 children...1 will experience....’). Because information about the probability of experiencing side effects may indirectly affect ratings of treatment acceptability for BPT, the information presented about BPT in this group was the same as in the Classic Description group to allow for comparison. Please refer to Appendix A for copies of all treatment descriptions.

To ensure that the Classic Descriptions of BPT and stimulant medication, the Demandingness description of BPT, and the Numeric Probability description of medication were realistic portrayals of these treatments, I consulted with a group of experts consisting of researchers, clinicians, and upper-level graduate students knowledgeable about ADHD and its treatment. This consultation process regarding the realism of my scenarios was important to ensure that possible differences in treatment
acceptability or treatment recommendation, could not be attributed to overly positive or negative portrayals of BPT or medication in any of the treatment descriptions. Because I wanted to examine the influence of varying information regarding the demands of BPT and the probability of experiencing side effects of medication on treatment attitudes, it was imperative the descriptions of BPT and medication be comparable in all other elements. I asked the experts to evaluate the realism and accuracy of my treatment descriptions. Each expert was sent a pair of descriptions including both BPT and stimulant medication.

Seventeen experts reviewed the Classic BPT and stimulant medication descriptions and 15 experts reviewed the Enhanced descriptions consisting of the Demandingness BPT description and the Numeric Probability medication description. The experts were asked to rate their familiarity with BPT and stimulant medication as treatments for ADHD using a Likert-type (1 = “Not very familiar” to 5 = “Very familiar”) and to use a similar scale to evaluate the likelihood that mothers would understand the descriptions (1 = “Not very likely to understand” to 5 = “Very likely to understand”), the realism of the descriptions (1 = “Not very realistic” to 5 = “Very realistic”), and the accuracy of the descriptions (1 = “Not very accurate” to 5 = “Very accurate”). Please refer to the Appendix A for a copy of the consultation questions.

Table 1 displays the mean values for the consultation questions. The groups of experts reading the Classic and Enhanced descriptions of BPT and medication reported high mean levels of familiarity with both of these treatments and raters reading the different descriptions did not differ in their familiarity with either BPT, \( t(30) = 0.91, p = .37 \), or medication, \( t(30) = 1.11, p = .27 \). Among the experts reading the Classic
Descriptions, mean ratings for familiarity with BPT and medication were identical.

Among the experts reading the Enhanced treatment descriptions, mean ratings for familiarity of BPT were significantly higher compared to familiarity with medication, \( t(14) = 3.14, p = .01 \), but both treatments had acceptably high mean ratings of familiarity.

**Table 1**

**Experts' Ratings of Treatment Descriptions**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Classic Group</th>
<th>Enhanced Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Familiarity with BPT</td>
<td>4.35 (0.86)</td>
<td>4.60 (0.63)</td>
</tr>
<tr>
<td>Familiarity with Medication</td>
<td>4.35 (0.93)</td>
<td>4.00 (0.85)</td>
</tr>
<tr>
<td>BPT – Understanding</td>
<td>4.18 (0.64)</td>
<td>4.23 (0.73)</td>
</tr>
<tr>
<td>BPT – Realism</td>
<td>4.17 (0.63)</td>
<td>4.20 (0.86)</td>
</tr>
<tr>
<td>BPT – Accuracy of Demands</td>
<td>3.94 (0.97)</td>
<td>4.40 (0.50)</td>
</tr>
<tr>
<td>Medication – Understanding</td>
<td>4.00 (0.79)</td>
<td>4.34 (0.61)</td>
</tr>
<tr>
<td>Medication – Realism</td>
<td>3.68 (1.21)</td>
<td>3.97 (0.81)</td>
</tr>
<tr>
<td>Medication – Accuracy of Risks</td>
<td>4.12 (0.72)</td>
<td>4.27 (0.96)</td>
</tr>
</tbody>
</table>

For questions asking about the descriptions of BPT, ratings were all high and experts reading the Classic and Enhanced descriptions did not differ in their ratings of the ease of understanding the BPT description \( t(30) = 0.24, p = .82 \), how realistic the BPT descriptions seemed, \( t(30) = 0.10, p = .93 \), or how accurately the descriptions portrayed the demands of the treatment, \( t(30) = 1.64, p = .11 \). Similarly, the descriptions of stimulant medication ratings were all high, and experts in both the Classic and Enhanced
groups did not differ in their ratings of the likelihood of mothers understanding the medication description, \( t(30) = 1.43, p = .15 \), how realistic the descriptions seemed, \( t(30) = 0.79, p = .45 \), or how accurately the descriptions portrayed the risks of the treatment \( t(30) = 0.47, p = .64 \). The consultation results confirm that the Enhanced descriptions of BPT and medication were comparable to the Classic descriptions, and that differences in treatment acceptability or treatment recommendations cannot be attributed to differences in readability or how realistically and accurately the treatments are portrayed.

**Treatment Evaluation Inventory – Short Form. (TEI – SF; Kelley, Heffer, Gresham & Elliot, 1989).** Maternal ratings of acceptability for BPT and stimulant medication were collected using a modified version of the TEI-SF. The TEI-SF has been widely used by researchers examining the acceptability of behavioral interventions among parents of children with behavior problems (Finn & Sladeczeck, 2001). It is a nine-item self-report questionnaire assessing treatment acceptability and discomfort with a treatment, and is based on Kazdin’s (1980) 15-item Treatment Evaluation Inventory (TEI). Respondents use a 5-point scale to indicate their agreement with each item (0 = Strongly disagree to 5 = Strongly agree). Ratings are summed to produce an overall score, with higher scores representing greater treatment acceptability. The TEI-SF has demonstrated good internal consistency, Cronbach’s \( \alpha \) is .85, and is comparable to the longer TEI in detecting differences in acceptability ratings among behavioral treatments (Kelly, Heffer, Gresham, & Elliot, 1989).

Because the TEI-SF primarily has been used to assess acceptability for behavioral treatments, it does not contain items specifically targeting concern about side effects of
medication. As a result, I added two items from the original TEI (Kazdin, 1980) that ask about concern regarding treatment risks and one item asking about the difficulty of treatment implementation, to increase that the sensitivity of the measure to the influence of information regarding demandingness and side effects. I also eliminated two items from the TEI-SF asking whether the parent would be comfortable using the treatment without the child’s consent and if the parent believes it is acceptable to use the treatment with individuals who have no choice, because of poor loadings of these items on to the original factor structure (Kelly et al., 1989) and because the issue of consent to treatment was not a component of my treatment descriptions. To assist with reading comprehension and to remind mothers which treatment they should be thinking of when they made their ratings, the words “this treatment” as used in the original TEI-SF were replaced with “behavioral parent training” or “stimulant medication” depending on which treatment the mother was asked to evaluate. I also changed the wording of item 6 from “I believe the child will experience discomfort during this treatment” to “I believe that Matthew is likely to experience unpleasant side effects from [behavioral parent training/stimulant medication].” Ratings were averaged across the 10 items to produce a mean Treatment Acceptability score. The version of the TEI-SF that I used demonstrated good internal consistency with this study’s sample, Cronbach’s $\alpha = .80$ for BPT and $\alpha = .86$ for medication. Please refer to Appendix A for copies of the TEI-SF for BPT and stimulant medication.

**Treatment Recommendation Measure.** The final Internet-based measure asked mothers to offer a recommendation for treatment to the mother of Matthew, the boy described in the scenario, and to provide the rationale underlying their recommendation.
This measure was included as a supplementary measure of treatment acceptability in an attempt to expand how treatment acceptability is conceptualized and to avoid the limitations noted in previous uses of the TEI. It was possible that mothers of nonproblem sons may have had difficulty imagining themselves using BPT or stimulants as treatments for ADHD and it may have been easier for them to report treatment acceptability when they imagine advising a parent of a child with ADHD. Alternately, mothers of children with and without ADHD may have felt that their treatment acceptability ratings somehow reflected on their abilities as a parent, a factor that I anticipated to be less influential when making recommendations to another parent. For example, research has found that mothers are more willing to refer a friend to mental health services for help with their child, than they are to self-refer for help with their own child (Raviv, Raviv, Edelstein-Dolev, & Silberstein, 2003). Kiesler and Sproull (1986) found that participants who were asked to complete open-ended questions on computer-administered surveys provided lengthy and less socially desirable responses compared to participants completing paper and pencil questions. I speculated that by asking mothers what they thought another mother should do, and having them provide this information online, mothers would be less likely to self-censor their responses. I hoped that the results of this measure provide me with greater insight into the reasons for their treatment preferences beyond what could be assessed by scale measures of treatment acceptability.

Mothers were instructed to click an option button that allows only one response to be selected (i.e., radio button) to indicate that they would recommend either BPT or medication as a treatment for Matthew if they were advising his mother. Mothers were told that although combined treatments may seem like the best choice, for the purposes of
this study, they must choose between medication and BPT. After selecting a treatment, mothers had to fill in a dialogue box below the statement: “I chose this treatment because…” and a dialogue box below the statement: “I did not choose the other treatment because…” These two dialogue boxes were set as a required field (35 characters each) to ensure that mothers provided at least a minimal response. The instructions told mothers not to worry about spelling, grammar, or punctuation, and that they could use point form for their responses. Mothers were provided with an additional dialogue box below the statement “Other comments….” This dialogue box was not set as a required field, but was included so that mothers had the opportunity to state that they would prefer a combined treatment or offer any other general remarks.

**Coding of Maternal Recommendations.** The reasons that mothers provided for their treatment recommendation were coded by myself (coder A) and two volunteer research assistants (coders B and C), one of whom (coder C) was blind to the group status of the mothers (ADHD versus nonproblem). All coders were blind to the mother’s description group. Reasons for choosing one treatment, provided in the first dialogue box, and the reasons for not choosing the other treatment, provided in the second dialogue box, were coded using a manualized coding system. To ensure reliability, all responses were double coded by pairs of independent coders, who did not know which of the two other coders they were paired with. Forty-seven percent of mothers were coded by the pair of coders A and B, 25% of mothers were coded by A and C, and 28% of mothers were coded by B and C. The three coders met weekly for 8 weeks to review coded data, to discuss any uncertainties with coding rationales, and to check reliability.
Reasons for choosing a treatment were coded as reflecting the presence of the following positive treatment qualities: effectiveness on symptoms of ADHD which could reflect either immediate or long-term improvement in symptoms; learning important parenting skills or the child learning important self-management skills; improvement in peer relationships, self-esteem and/or school functioning; and naturalness, reflecting reasons that characterized the treatment as “non-invasive”. Reasons were also coded for the absence of negative qualities: absence of side effects or risks, absence of demandingness, and absence of interfering with or harming family relationships. Responses for choosing a treatment could also reflect philosophical or moralistic reasons. This last category included such reasons as choosing BPT because the respondent viewed it is a parent’s duty to be more involved with their child or it being important to try non-pharmacological interventions before using medication. Coders scored these eight types of reasons as being either present or absent in mothers’ responses to why they chose BPT or medication. The presence of each type of rationale was summed across mothers and frequencies were compared between the two treatment choices.

Reasons for not choosing the other treatment (provided in the second dialogue box) were coded as reflecting the following negative qualities: harming family and other relationships, risk of side effects, un-naturalness, and demandingness. The responses were also coded as reflecting the absence of the following positive qualities: less effective for ADHD symptoms which could reflect an absence of improvement in symptoms of inattention and hyperactivity/impulsivity or the treatment failing to address the cause of the problem, absence of learning important parenting skills or the child learning self-management skills, and failing to improve peer relationships, self-esteem
and/or school functioning. Reasons for not choosing a treatment were also coded for philosophical or moralistic reasoning, which ranged from rather moderate views, for example wanting to try nonpharmacological treatments before medication, to more extreme views, such as using stimulant medication as a treatment for ADHD was tantamount to giving a child cocaine or illegal amphetamines. Mothers’ responses for why they did not choose BPT or medication were coded for the presence or absence of these eight rationales. The presence of each type of rationale was summed across mothers and frequencies were compared between the two treatment choices.

Information provided in the “Other Comments” dialogue box was not coded, because not all mothers chose to complete this box. However, coders were encouraged to read the other comments to assist in coding the rationales provided in question one or two.

Reliability was calculated using intraclass correlations (ICCs) comparing a pair of coders on each of the coding dimensions. ICCs reflect true inter-subject variance as a proportion of the total variance, where total variance is equal to true variance plus variance attributable to inter-rater error (Shrout & Fleiss, 1979). ICCs may range between 0 (all variance can be attributed to inter-rater error) and 1 (no variance attributable to inter-rater error). Shrout and Fleiss (1979) suggested .75 as the minimum acceptable error, while others have stated that ICCs ranging from .50 to .80 reflect a moderate level of agreement and >.80 a high level of agreement (Landis & Koch, 1977). For effectiveness on ADHD symptoms ICC = .78 and for learning important skills ICC = .75. For improving social and/or school functioning ICC = .85, for naturalness the ICC = .83, for the absence of risks of medication ICC = .87, for absence of demandingness ICC =
.92, and for philosophical reasons ICC = .86. An ICC could not be calculated for absence of interfering with family relationships because only two mothers endorsed this reason. Reasons for not choosing a treatment also demonstrated good reliability between coders. For treatments harming family relationships ICC = .85, for risks of medication ICC = .95, for unnaturalness ICC = .92, and for too demanding ICC = .90. Similarly, for less effective than other treatment ICC = .85, absence of learning important skills ICC = .70, failure to improve social and/or school functioning ICC = .66, and for philosophical reasons not to choose a treatment ICC = .87.

**General Family and Treatment History Information.** Mothers were asked for general descriptive information about their family such as maternal age, child age, marital status, variables contributing to family SES, ethnicity, and acculturation. I measured ethnicity by asking mothers to fill in a blank with the word that best described their ethnicity. These labels were then grouped by combining geographically or conceptually similar labels. Acculturation was assessed by asking mothers to rate how much they identify with being Canadian, where 1 = Not at all and 10 = Completely. Because research has suggested that mothers' previous knowledge and experience with treatments for ADHD may be related to their ratings of treatment acceptability (e.g., Johnston & Fine, 1993; Liu et al., 1991), mothers in the ADHD group were asked if their child is currently taking medication for ADHD and to rate the effectiveness of medication on a 7-point scale (1 = Not at All Effective to 7 = Very Effective). Mothers in both the nonproblem and ADHD groups were asked if they are currently using five specific behavior management techniques with their sons (i.e., praise, extra privileges, loss of privileges, time out, and star charts), and to rate the effectiveness of these techniques
using the same 7-point scale. Please refer to the Results section of this paper for a more
detailed description and comparison of the use of medication and behavioral treatments
among groups of mothers and treatment description groups.

**Brief Symptom Inventory (BSI; Derogatis, 1993).** Previous research has
concluded that there is evidence for family associations between ADHD and depression
(Faraone & Biederman, 1997). Mothers who are high in depression may be more
sensitive to the demandingsness of behavioral treatments because of the hopelessness and
pessimism associated with depression (McDermut, Haaga, & Bilek, 1997) and may
therefore report greater acceptability for medication treatments. The BSI was used to
determine whether differences were present between the mothers of boys with ADHD
and mothers of nonproblem children in symptoms of depression. Only the 6-item
depression subscale was used for this study. Mothers rate the distress each symptom
causes them on a 5-point scale ranging (0 = Not at all to 4 = Extremely). The depression
subscale demonstrated good internal consistency with Cronbach’s $\alpha = .91$ for mothers in
the ADHD group in this study and $\alpha = .82$ for mothers in the nonproblem group. The
Depression subscale has also demonstrated good test-retest reliability of $r = .84$ across a
2-week interval (Derogatis, 1993). The depression subscale has demonstrated good
convergent validity with self-reported depression symptoms on the MMPI (Derogatis,
1993).

**Paulhus Deception Scales (PDS; Paulhus, 2002).** It is possible that some
mothers may believe that by endorsing BPT over medication they are presenting
themselves as a more dedicated and/or more involved parent. More specifically, greater
acceptability ratings for BPT may be, at least partially, the result of a socially desirable
response bias. The PDS was used to measure mothers’ tendencies to report information in a socially desirable manner. The PDS is a 40-item self-report questionnaire consisting of two subscales: Self-discrepancy Enhancement (20 items) and Impression Management (20 items). Mothers respond to items using a 5-point rating scale (1 = Not true to 5 = Very true). Only the Impression Management subscale was used for this study. The Impression Management subscale assesses the tendency to exaggerate one’s socially desirable behaviors and minimize socially undesirable behaviors when communicating with others. The Impression Management subscale has demonstrated good psychometric properties, with an internal consistency of Cronbach’s $\alpha$ of .84 when used with the general population (Paulhus, 2002). With the sample used in my study, the Impression Management subscale demonstrated good internal consistency for the ADHD group, Cronbach’s $\alpha = .87$, but only modest internal consistency for mothers in the nonproblem group, $\alpha = .69$. 

Results

Participants included 71 mothers of boys with ADHD and 71 mothers of nonproblem boys. Although 73 mothers met the research criteria for participation in the nonproblem group, I excluded the data from the mothers of the two youngest boys to create equal-sized groups that were as similar as possible in child age. The analyses for this study are conducted using the sample of 71 mothers of nonproblem boys and 71 mothers of boys with ADHD. However, only 68 of the 71 mothers in the ADHD group submitted the full demographic and treatment experience information.

The 71 mothers in the nonproblem group and the 68 mothers in the ADHD group who submitted demographic information did not differ in age, \( t(137) = 0.81, p = .42 \); the age of their "reference" child (identified as either their child diagnosed with ADHD, or for mothers of nonproblem boys and mothers of more than one son with ADHD, the oldest child between the ages of 5 and 12 years), \( t(129.07) = 1.42, p = .16 \); number of other children, \( t = (137) = 0.80, p = .43 \); or family socioeconomic status assessed using the Hollingshead Four-Factor Index of Social Status (Hollingshead, 1975), \( t (137) = 0.63, p = .53 \). Mothers in the ADHD and nonproblem groups did not differ in marital status, \( \chi^2(3) = 1.54, p = .67 \); ethnicity, \( \chi^2(6) = 5.12, p = .53 \); or maternal level of education, \( \chi^2(4) = 2.45, p = .65 \). Furthermore, mothers in the ADHD and nonproblem groups did not differ in their ratings of identifying as Canadian, \( t(137) = 0.49, p = .62 \). Descriptive statistics for all demographic variables are reported in Table 2.

Of the 71 mothers in the ADHD group, 44 mothers had sons with the combined subtype of ADHD, 22 mothers had sons with the inattentive subtype, and 5 mothers had sons with the hyperactive/impulsive ADHD subtype. There was no difference in the
<table>
<thead>
<tr>
<th>Variable</th>
<th>ADHD (n = 68)</th>
<th>Nonproblem (n = 71)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Maternal Age</td>
<td>40.10</td>
<td>(6.05)</td>
</tr>
<tr>
<td>Child Age in Months</td>
<td>112.64</td>
<td>(21.33)</td>
</tr>
<tr>
<td>Number of other children</td>
<td>1.20</td>
<td>(1.10)</td>
</tr>
<tr>
<td>Socioeconomic status&lt;sup&gt;a&lt;/sup&gt;</td>
<td>35.84</td>
<td>(11.20)</td>
</tr>
<tr>
<td>Acculturation&lt;sup&gt;b&lt;/sup&gt;</td>
<td>9.15</td>
<td>(1.93)</td>
</tr>
<tr>
<td>Marital Status (percent)</td>
<td></td>
<td></td>
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<tr>
<td>Married or Common Law</td>
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<tr>
<td>Divorced or Separated</td>
<td>13.23</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>1.48</td>
<td></td>
</tr>
<tr>
<td>Widowed</td>
<td>13.23</td>
<td></td>
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<tr>
<td>Ethnicity (percent)</td>
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<td></td>
</tr>
<tr>
<td>Caucasian-Canadian</td>
<td>83.07</td>
<td></td>
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<tr>
<td>Other Caucasian</td>
<td>9.23</td>
<td></td>
</tr>
<tr>
<td>Aboriginal</td>
<td>3.08</td>
<td></td>
</tr>
<tr>
<td>South Asian/Mixed</td>
<td>1.54</td>
<td></td>
</tr>
<tr>
<td>East Asian</td>
<td>3.08</td>
<td></td>
</tr>
<tr>
<td>Maternal Education (percent)</td>
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<td></td>
</tr>
<tr>
<td>Graduate/Professional Deg.</td>
<td>8.82</td>
<td></td>
</tr>
<tr>
<td>Standard University/College</td>
<td>22.06</td>
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<tr>
<td>Partial University/College</td>
<td>47.06</td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td>14.70</td>
<td></td>
</tr>
<tr>
<td>Partial High School</td>
<td>7.36</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Calculated according to the Hollingshead Four Factor Index. <sup>b</sup> Measured by asking mothers to rate the extent they identified as Canadian (1 = not at all, 10 = completely).
distribution of ADHD subtypes across mothers assigned to the different treatment
description groups, $\chi^2(4)= 4.10, p = .39$.

**Data Cleaning and Preliminary Analyses**

The Type-I error rate for each family of tests was set at .05 for all analyses. I
defined a family of tests as one ANOVA, MANOVA, or $2 \times 2 \times 3$ Loglinear analysis
model. Prior to analysis, all demographic and dependent variables were inspected for
univariate outliers and missing data. No outliers were found in any of the variables. Aside
from the three mothers in the ADHD group who failed to complete the demographic
information questionnaire, there were very little missing data across all the variables, and
the few missing values appeared to be randomly distributed among the mothers and the
variables.

Variable distribution shape and range were inspected separately for the 71
mothers in the ADHD group and the 71 mothers in the Nonproblem group if normality of
the distribution was an assumption of the proposed statistical analyses. Mothers’ ratings
on the TEI for BPT and for stimulant medication were normally distributed and showed
no restrictions in range. Mothers’ ratings of depression on the BSI demonstrated adequate
range (0-3.16 where 4 is the maximum possible value), but were positively skewed for
both the ADHD (1.24) and Nonproblem (1.72) groups. However, this finding of
skewness was not unexpected given our nonclinical sample of mothers and was not so
severe as to warrant logarithmic transformation of the variable (Tabachnick & Fidell,
2001). Maternal ratings on the Impression Management on the PDS were normally
distributed with no restrictions in range for either the ADHD and Nonproblem groups.
Treatment Experience

Mothers were asked to rate using a Likert-type scale (1 = Never to 5 = Most of the time) how often they used the following behavior management strategies: star charts, time out, rewards or additional privileges, praise, and loss of privileges. All of the 68 mothers in the ADHD group with demographic and treatment information and the 71 mothers in the non-problem group, endorsed using at least one form of behavior management strategy regularly with their child. To look for a possible difference in the pattern of strategies between groups, a 2 X 3 between-subjects MANOVA was used with the five behavior management strategies as the dependent variables. Independent variables were group (ADHD and nonproblem) and description condition (Classic, Demandingness, and Numeric). Pillai’s trace indicated no significant main effects or interactions of any of the variables on the combined dependent variables. Thus, mothers in the ADHD and nonproblem groups did not differ in the frequency of their overall pattern of reported use of behavior management strategies.

Mothers also rated the effectiveness of the behavioral strategies that they used (1 = Not at All Effective to 7 = Very effective). A univariate 2 X 3 ANOVA, with group of mothers (ADHD and nonproblem) and description group (Classic, Demandingness, and Numeric) as variables was used to compare maternal ratings of the effectiveness of behavioral strategies. Mothers in the nonproblem group endorsed significantly greater mean ratings of effectiveness of behavioral strategies (M = 5.87, SD = 1.06) compared to mothers in the ADHD group (M = 4.79, SD = 1.51), F (1, 128) = 24.46, p < .001, partial $\eta^2 = 0.16$. This finding is not surprising, given the likelihood that mothers in the ADHD
group would have been using behavioral strategies to manage more severe child behavior problems compared to mothers in the nonproblem group.

Bivariate correlations were used to investigate if differences between the ADHD and nonproblem groups in ratings of effectiveness were related to treatment acceptability ratings for BPT. Ratings of effectiveness of behavior management and ratings on the TEI for BPT were not significantly correlated, $r(137) = 0.14, p = .09$, and therefore, effectiveness was not controlled in the analyses of treatment acceptability ratings.

Among mothers in the ADHD group, 71% were currently treating their child’s ADHD symptoms with stimulant medication and 15% had tried medication in the past, but were no longer using it. The majority of mothers in each description group were currently using stimulant medication to treat their child’s ADHD and there was no difference in the frequency of medication use across the different ADHD subtypes, $\chi^2(2) = 4.67, p = .10$ or the description groups, $\chi^2(2) = 0.54, p = .76$. Similarly, the frequency of mothers who had discontinued treatment with stimulant medication was evenly distributed across treatment description groups, $\chi^2(2) = 1.56, p = .47$ and ADHD subtype $\chi^2(2) = 0.16, p = .92$. Table 3 displays the frequencies of treatment use and discontinuation among the three treatment description groups.

I used an independent samples t-test to compare the 61 mothers in the ADHD group who were either currently using medication or who had used medication in the past on symptoms of child ADHD with the 10 mothers in the ADHD group who had never used medication with their child. I compared the two groups on child age at diagnosis, family SES score, maternal rating as identifying with being Canadian, maternal age, and ratings of effectiveness for behavior therapy. Mothers in the ADHD group who had never
treated their child with medication, reported significantly lower mean symptoms of child hyperactivity/ impulsivity on the ADHD-IV rating scale ($M = 15.90, SD = 6.15$) compared to mothers in the ADHD group who had used medication with their child ($M = 19.77, SD = 5.50$), $t(69) = 2.03, p = .04, d = 0.69$. Given the large difference in sample size between the groups, I examined the effect sizes between the groups for other possible effects that were not statistically significant. Mothers who had never medicated their child reported lower symptoms of child inattention ($M = 19.80, SD = 3.67$) compared to mothers who had used medication with their child ($M = 21.15, SD = 3.68$), reflecting a non-significant ($p = .29$) medium sized effect ($d = .38$) according to Cohen’s (1988) conventions. For all other effect sizes in group means for family characteristics or perceived effectiveness of BPT, $d < 0.19$.

**Table 3**

**Experience Using Medication to Treat Child’s ADHD**

<table>
<thead>
<tr>
<th>Description</th>
<th>Currently Using</th>
<th>Discontinued</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>Medication</td>
<td>Medication</td>
</tr>
<tr>
<td>Classic</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>$(n = 24)$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demandingness</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>$(n = 23)$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Numeric</td>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td>$(n = 24)$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I used a oneway ANOVA to compare mean ratings of the effectiveness of medication in treating ADHD symptoms among mothers in the three description groups.
Mothers rated the effectiveness of medication using the same 7-point scale they used to rate the effectiveness of behavioral interventions (1 = Not at all to 7 = Very effective). Mothers in the Classic ($M = 5.73$, $SD = 0.88$), Demandingness ($M = 5.53$, $SD = 1.12$), and Numeric ($M = 6.14$, $SD = 1.29$) description groups did not differ in their mean ratings of effectiveness of stimulant medication in treating ADHD symptoms, $F (1, 43) = 1.20$, $p = .31$, partial $\eta^2 = 0.05$.

Treatment Acceptability Ratings, Experience with ADHD, and Treatment Information

Experience with ADHD and treatment description in relation to treatment acceptability ratings. Mean levels of treatment acceptability ratings on the TEI were compared using a 3 X 2 X 2 analysis of variance (ANOVA) with treatment description group (Classic, Demandingness and Numeric Descriptions) and mother group (ADHD group versus nonproblem group) as the between-subjects variables and type of treatment (BPT versus stimulant medication) as the within-subjects variable.

The assumption of homogeneity of variance when tested using Box’s M test was not met ($p = 0.02$). However, Box’s M is considered an overly conservative test of homogeneity of variance (Tabachnick & Fidell, 2001), so this assumption was further tested using the $F_{max}$ ratio. Tabachnick and Fidell (2001) state that when sample sizes are within a ratio of 4 to 1 for the largest to smallest cell size, an $F_{max}$ as large as 10 is acceptable. Cell sample sizes for this ANOVA model ranged from 23-25 and the corresponding $F_{max}$ of 5.57 indicated that the ANOVA is likely to be robust to the violation of this assumption. As a result, I have not adjusted the degrees of freedom for the test of the $F$-statistic.
The ANOVA detected a significant interaction between type of treatment and group of mothers, $F(1, 136) = 20.43, p < .001$, partial $\eta^2 = .19$. Analysis of the interaction comparing treatment acceptability ratings for the two treatments for mothers in the nonproblem and ADHD groups revealed that, consistent with my hypothesis, mothers in the nonproblem group reported greater treatment acceptability for BPT compared to stimulant medication, $F(1, 136) = 51.05, p < .001$, partial $\eta^2 = .27$. Mothers in the ADHD group did not differ significantly in their ratings of acceptability for these two treatments, $F(1, 136) = 0.57, p = .45$, partial $\eta^2 < .01$. Alternately, when analyzing the simple main effects to compare the two groups of mothers on their ratings of acceptability for each treatment, mean acceptability ratings for BPT did not differ between mothers in the ADHD group and mothers in the nonproblem group, $F(1, 136) = 0.72, p = .40$, partial $\eta^2 < .01$. However, mothers in the ADHD group endorsed greater acceptability for medication compared to mothers in the nonproblem group, $F(1, 136) = 28.82, p < .001$, partial $\eta^2 = .18$. Thus, the difference in treatment acceptability ratings is consistent with my hypothesis that mothers of children with ADHD would rate this treatment as more acceptable compared to mothers of nonproblem children who did not have experience with ADHD or with using stimulant medication.

No significant main effect (partial $\eta^2 = .02$) or interactions (partial $\eta^2$'s $< .01$), were present for type of description. Thus, contrary to my hypotheses, mothers in the Classic, Demandingness, and Numeric treatment description groups did not differ in their mean treatment acceptability ratings for BPT and medication. Table 4 displays the mean values for treatment acceptability between groups of mothers and description conditions.
Table 4

Mean Treatment Acceptability Ratings for Group of Mothers and Treatment Information Group.

<table>
<thead>
<tr>
<th>Group</th>
<th>Description</th>
<th>TEI for BPT (^a)</th>
<th>TEI for Medication (^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>ADHD</td>
<td>Classic</td>
<td>3.70 (0.52)</td>
<td>3.48 (0.60)</td>
</tr>
<tr>
<td></td>
<td>n = 24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demandingness</td>
<td>3.44 (0.61)</td>
<td>3.40 (0.70)</td>
<td>1.80-4.80</td>
</tr>
<tr>
<td></td>
<td>n = 24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Numeric</td>
<td>3.54 (0.70)</td>
<td>3.56 (0.68)</td>
<td>2.10-4.50</td>
</tr>
<tr>
<td></td>
<td>n = 23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3.56 (0.62)</td>
<td>3.47 (0.65)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonproblem</td>
<td>Classic</td>
<td>3.76 (0.46)</td>
<td>2.86 (0.60)</td>
</tr>
<tr>
<td></td>
<td>n = 23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demandingness</td>
<td>3.60 (0.69)</td>
<td>2.83 (0.90)</td>
<td>1.20-4.60</td>
</tr>
<tr>
<td></td>
<td>n = 23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Numeric</td>
<td>3.56 (0.49)</td>
<td>2.93 (0.38)</td>
<td>2.30-4.30</td>
</tr>
<tr>
<td></td>
<td>n = 25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3.64 (0.55)</td>
<td>2.87 (0.64)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 71</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Treatment Evaluation Inventory for Behavioral Parent Training. \(^b\) Treatment Evaluation Inventory for Medication.
To further investigate the contribution of experience using stimulant medication to ratings of treatment acceptability among mothers in the ADHD group, I used a 3 X 2 ANOVA with treatment experience (currently using medication, discontinued medication, and never used medication) as the between-subjects variable and type of treatment (BPT vs. medication) as the within-subjects variable. Because of the absence of a main effect of treatment description condition, I compared mean TEI-SF ratings collapsed across treatment description group. The ANOVA detected a significant interaction between type of treatment and treatment experience group on ratings of acceptability $F(2,68) = 3.53, p = .03$, partial $\eta^2 = .09$. Analysis of the interaction at each treatment level, followed up by pairwise comparisons revealed that mothers who had never used medication endorsed greater acceptability for BPT compared to mothers who had discontinued medication ($p = .01$), with mothers currently using medication not
differing from either of the other groups in their acceptability for BPT ($p's > 0.07$).

Mothers who were currently using medication endorsed greater acceptability for this
treatment compared to mothers who had discontinued medication ($p = .01$), with mothers
who had never used medication having acceptability ratings in the middle of the other
two groups ($p's > .06$). Mean treatment acceptability ratings among the three treatment
acceptability groups are displayed in Table 5 and in Figure 2. Although these findings
illustrate the association between treatment experience and acceptability, the number of
mothers in the discontinued treatment and never used treatment groups is small. Future
research with larger samples is required.

![Figure 2](image_url)

Figure 2

Mean ratings of treatment acceptability for BPT and medication and stimulant
treatment experience.
Table 5

Ratings of Treatment Acceptability and Medication History

<table>
<thead>
<tr>
<th>Description</th>
<th>TEI-SF for BPT</th>
<th>TEI-SF for Medication</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Currently Using Medication</td>
<td>3.57&lt;sub&gt;a,b&lt;/sub&gt; (0.58)</td>
<td>3.62&lt;sub&gt;a&lt;/sub&gt; (0.61)</td>
<td>1.80-4.80</td>
</tr>
<tr>
<td>Discontinued Medication</td>
<td>3.20&lt;sub&gt;a&lt;/sub&gt; (0.72)</td>
<td>3.08&lt;sub&gt;b&lt;/sub&gt; (0.68)</td>
<td>2.10-4.40</td>
</tr>
<tr>
<td>Never Used Medication</td>
<td>3.90&lt;sub&gt;b&lt;/sub&gt; (0.47)</td>
<td>3.20&lt;sub&gt;a,b&lt;/sub&gt; (0.64)</td>
<td>2.50-4.70</td>
</tr>
</tbody>
</table>

n = 50

<sup>a, b</sup> Subscripts indicate homogenous subsets within each treatment p < .05.

Maternal Depression, Impression Management, and Treatment

Acceptability. I used a 3 X 2 ANOVA to compare maternal ratings on the Depression subscale of the BSI among the three treatment description groups (Classic, Demandingness and Numeric Descriptions) and the ADHD and nonproblem groups of mothers. The ANOVA model indicated a main effect of group for ratings of Depression, F (1, 88) = 6.31, p = .01, partial <sup>2</sup> = .07. Consistent with previous research (e.g., Faraone & Biederman, 1997), mothers in the ADHD group had higher mean Depression scores compared to mothers in the nonproblem group. Although ratings of Depression were greater for mothers in the ADHD group, the average for the group was still within the normal range. Depression ratings did not differ between the description conditions (partial <sup>2</sup> < .01), nor was there an interaction between the description and group of mothers variables (partial <sup>2</sup> = .02). Mean ratings for maternal Depression are presented in Table 6.
Pearson product-moment correlations were used to determine if group differences in maternal Depression scores were related to group differences in TEI ratings for BPT and medication. Across all mothers, Depression ratings were not correlated with TEI ratings for BPT, \( r(139) = -0.01, p = .96 \), or for medication, \( r(139) = .06, p = .45 \), and so it was not necessary to enter Depression as a covariate into the ANOVA model.

**Table 6**

**Mean Ratings of Maternal Depression and Impression Management**

<table>
<thead>
<tr>
<th>Group</th>
<th>Description</th>
<th>Depression*</th>
<th>Impression Managementb</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>Range</td>
</tr>
<tr>
<td>ADHD</td>
<td>Classic</td>
<td>0.56</td>
<td>(0.88)</td>
</tr>
<tr>
<td></td>
<td>Demandingness</td>
<td>0.80</td>
<td>(0.90)</td>
</tr>
<tr>
<td></td>
<td>Numeric</td>
<td>0.73</td>
<td>(0.78)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>0.70</td>
<td>(0.85)</td>
</tr>
<tr>
<td></td>
<td>n = 22</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 24</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 22</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonproblem</td>
<td>Classic</td>
<td>0.40</td>
<td>(0.53)</td>
</tr>
<tr>
<td></td>
<td>Demandingness</td>
<td>0.22</td>
<td>(0.36)</td>
</tr>
<tr>
<td></td>
<td>Numeric</td>
<td>0.32</td>
<td>(0.41)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>0.31</td>
<td>(0.44)</td>
</tr>
<tr>
<td></td>
<td>n = 23</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 23</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 25</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 71</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Calculated using the Depression symptoms subscale of the Brief Symptom Inventory (BSI).

b. Measured using the Impression Management subscale of the Paulhus Deception Scales (PDS).
A similar 3 X 2 ANOVA model compared ratings on the Impression Management subscale of the PDS between the description groups and the groups of mothers. The treatment description group and group of mothers variables did not interact (partial $\eta^2 < .01$), the ADHD and nonproblem groups of mothers did not differ in their ratings of Impression Management (partial $\eta^2 < .01$), nor did Impression Management differ across treatment description condition (partial $\eta^2 < .01$). Table 6 displays mean ratings of Impression Management.

Although Impression Management did not differ between treatment description groups or groups of mothers, it was possible that mothers who demonstrated a greater tendency to respond in a socially desirable manner would report greater treatment acceptability for BPT compared to medication if they perceived that this was a more socially acceptable response. However, Impression Management was not correlated with TEI ratings for BPT, $r (139) = 0.04, p = .60$, or for medication, $r (139) = -0.07, p = .38$, when combining all mothers. Therefore, it was not necessary to statistically control for influences of impression management on treatment acceptability ratings.

**Post Hoc Manipulation Checks of Treatment Descriptions**

It is possible that no effect of treatment description was detected because the Demandingness treatment description for BPT was not strongly enough worded to cause mothers in this group to perceive BPT as significantly more demanding compared to mothers reading the Classic BPT description. As a post hoc manipulation check, I used a 2 X 2 ANOVA with group of mothers (ADHD versus nonproblem) and treatment description (Classic versus Demandingness) to compare endorsement of item nine on the TEI for BPT. This item states: “I believe that there are many demands placed on parents’
time and energy when using behavioral parent training.” Neither an interaction between treatment description and group of mothers nor main effects were present (partial $\eta^2$ s < .01 for all). The absence of a main effect of treatment description on this item indicates that the two treatment descriptions may have not differed sufficiently in their communication of the demands of BPT to produce significant differences in mothers’ overall ratings of acceptability for this treatment.

Similarly, it is possible that the absence of an effect for treatment condition on ratings of the acceptability of medication may have been the result of the Numeric Probability description failing to influence the perceived risk of side effects of medication. As a post hoc manipulation check, I compared ratings on item number five of the TEI for stimulant medication using a 2 X 2 ANOVA, with treatment description (Classic versus Numeric Probability) and group of mothers as the between-subjects variables. This item states: “I believe that Matthew is likely to experience unpleasant side effects from stimulant medication.” No interaction between the two variables (partial $\eta^2$ < .01) or main effects for treatment description (partial $\eta^2$ = .01) or group of mothers (partial $\eta^2$ = .03) were found. The absence of a main effect of treatment description indicates that the communication of the risks of side effects in the Numeric description using a frequency statement likely did not differ enough in how it was perceived by readers compared to the Classic description, to produce a main effect of treatment description in the overall TEI ratings.

This lack of a difference in the perception of the demands of BPT and the probability of side effects of medication may reflect the high level of similarity between the Classic BPT and Demandingness BPT descriptions and the Classic medication and
Numeric medication descriptions. The Classic and Enhanced descriptions were both written to be as realistic as possible in the portrayal of the limitations of either treatment and to ensure that possible differences in treatment acceptability were not solely the result of portraying a treatment particularly negatively or positively in one set of treatment descriptions. Ratings by experts confirmed that both classic and enhanced descriptions were realistic and accurate. However, this relatively conservative approach to equating the descriptions appears to have come at the cost of producing reliable differences in mothers’ perception of treatment risks and demands between the Classic and Enhanced descriptions.

Comparing the Present Treatment Acceptability Findings with Previous Research

My results are consistent with previous treatment acceptability research reporting greater acceptability for BPT compared to stimulant medication among mothers of children without ADHD (e.g., Krain et al., 2005; Liu et al., 1999). However, my study did not replicate the findings of Johnston and colleagues (2008), who found that mothers of children with ADHD also endorsed greater treatment acceptability for BPT compared to medication. Similar to my study, 74% of the mothers in Johnston and colleagues’ sample were currently using medication to treat their child’s ADHD and 13% had used medication in the past and discontinued treatment. The difference in findings between my study and those of Johnston et al. (2008) may reflect my inclusion of TEI items asking about treatment effectiveness, and the risks and demands of both treatments. Johnston and colleagues measured treatment acceptability using only four items from the TEI-SF that reflected only liking and willingness to use the treatment. Therefore, I used a paired samples t-test to examine ratings of treatment acceptability in my study measured using
only the four TEI-SF items used by Johnston and colleagues. To be as similar as possible to the sample in the earlier study, I compared TEI ratings only among mothers in the ADHD group who had read the Classic descriptions of BPT and stimulant medication. Consistent with the previous findings, this analysis indicated that mothers in the ADHD group endorsed significantly greater treatment acceptability for BPT ($M = 4.12, SD = .69$) compared to stimulant medication ($M = 3.78, SD = .79$), $t(23) = -2.23, p = .04, r = 0.42$.

My inclusion of items asking of the risks, demands, and effectiveness of medication and BPT appeared to result in mothers in the ADHD group reporting a lower level of treatment acceptability for BPT, with a resulting absence of a significant difference in ratings of acceptability for BPT and medication. Thus, when TEI items measure acceptability asking only about liking of and willingness to use a treatment, mothers of children with ADHD report significantly greater acceptability for BPT compared to medication; however, when they are required to consider possible limitations of either treatment, this difference is not present.

**Treatment Recommendations and Treatment Descriptions**

Three-way loglinear analysis was used to compare the frequencies with which mothers recommended stimulant medication or BPT when they were asked to imagine they were advising a mother of a boy with ADHD. The model tested the relationship between type of description (Classic, Numeric and Demandingness), maternal group status (ADHD versus nonproblem) and treatment choice (medication or BPT).

The assumptions of loglinear analysis are that the cells are independent and all cells have expected frequencies greater than five (Howell, 2002). My data met the assumption of independence. Using the Crosstabs function in SPSS, I determined that all
cells had expected frequencies of eight or larger. Although not an assumption of loglinear analysis, my data also fulfill Tabachnick and Fidell's (2001) recommendation that the sample size be at least five times larger than the number of cells in the model.

Seventy-one mothers in the ADHD group and 70 mothers in the nonproblem group provided usable data for this analysis. One mother in the nonproblem group reported she was not willing to recommend one treatment over the other and did not submit a response. Overall, 58.16% of mothers said they would recommend BPT and 41.84% said they would recommend medication. The three-way loglinear analysis produced a model that retained the Group by Treatment choice interaction effect and none of the other interaction effects or first-order effects were significant. None of the 12 cells were outliers and the likelihood ratio for the saturated model indicated a perfect fit between the observed frequencies and the expected frequencies generated by the model. Similar to the ANOVA models described in the previous section, the group by choice interaction was the only significant contributor to the model, $\chi^2 (1) = 26.74, p < .001$. To interpret the interaction, I used a Chi-square test on the group and choice variables and found that mothers in the ADHD group recommended stimulant medication over BPT more often than mothers in the nonproblem group, $\chi^2 (1) = 25.64, p < .001$. Odds ratios indicated that mothers in the ADHD group were 6.52 times more likely to recommend stimulant medication over BPT compared to mothers in the nonproblem group.

The treatment recommendation measure also asked mothers to identify the treatment aspects that were important to them in making their recommendation and why they did not select the alternate treatment. The frequency of mothers in each treatment choice group who cited particular rationales is summarized in Table 7.
Table 7
Percentage of Mothers Providing Each Rationale for Treatment Choice and Why They did not Choose the Other Treatment

<table>
<thead>
<tr>
<th>Reason for Treatment Choice (percent)</th>
<th>Chose BPT ADHD (n = 27)</th>
<th>Chose BPT NonProb. (n = 56)</th>
<th>Chose Medication ADHD (n = 44)</th>
<th>Chose Medication NonProb. (n = 14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness on ADHD symptoms</td>
<td>25.92</td>
<td>25.00</td>
<td>81.82</td>
<td>71.43</td>
</tr>
<tr>
<td>Learning important skills</td>
<td>44.44</td>
<td>44.64</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Improves social/school functioning</td>
<td>7.41</td>
<td>10.71</td>
<td>27.27</td>
<td>28.57</td>
</tr>
<tr>
<td>Naturalness</td>
<td>14.81</td>
<td>12.50</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Absence of risks of medication</td>
<td>11.11</td>
<td>19.64</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Absence of demandingness</td>
<td>0</td>
<td>0</td>
<td>25.00ₐ</td>
<td>57.14ₐ</td>
</tr>
<tr>
<td>Doesn't interfere with family relations</td>
<td>0</td>
<td>0</td>
<td>2.27</td>
<td>0</td>
</tr>
<tr>
<td>Moral Reasoning</td>
<td>59.26</td>
<td>55.36</td>
<td>0</td>
<td>7.14</td>
</tr>
</tbody>
</table>

Reason for NOT Choosing Other Treatment

<table>
<thead>
<tr>
<th>Reason for NOT Choosing Other Treatment</th>
<th>Chose BPT ADHD (n = 27)</th>
<th>Chose BPT NonProb. (n = 56)</th>
<th>Chose Medication ADHD (n = 44)</th>
<th>Chose Medication NonProb. (n = 14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will harm family relationships</td>
<td>0</td>
<td>0</td>
<td>6.82</td>
<td>21.43</td>
</tr>
<tr>
<td>Risks of medication</td>
<td>55.55</td>
<td>39.29</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Unnatural</td>
<td>7.41</td>
<td>5.36</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Too demanding</td>
<td>0</td>
<td>0</td>
<td>54.54</td>
<td>85.71</td>
</tr>
<tr>
<td>Less effective than other treatment</td>
<td>22.22</td>
<td>26.78</td>
<td>65.91ₐ</td>
<td>28.57ₐ</td>
</tr>
<tr>
<td>Absence of learning important skills</td>
<td>3.70</td>
<td>12.50</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Failure to improve social/school functioning</td>
<td>3.70</td>
<td>0</td>
<td>5.36</td>
<td>0</td>
</tr>
<tr>
<td>Moral reasoning</td>
<td>55.55</td>
<td>53.57</td>
<td>1.78</td>
<td>14.29</td>
</tr>
</tbody>
</table>

ₐ,ₐ subscripts indicate significant difference in the proportion of mothers in the ADHD and nonproblem groups citing a rationale.
Among mothers in both the ADHD and nonproblem groups who recommended BPT, the most often cited type of rationale was philosophical or moralistic reasons, such as parents needing to make more effort with their children or spend more time with them. Chi-square tests indicated that the ADHD and nonproblem groups of mothers did not differ significantly from each other in the frequency that they cited any of the eight types of rationales for why they chose BPT (ranging from \( \chi^2(1) < 0.01, p = .96 \) for effectiveness on ADHD symptoms to \( \chi^2(1) = 1.01, p = .31 \) for absence of risks of medication). In response to the question asking why they did not choose medication, the most frequent rationale cited by mothers in the nonproblem and ADHD groups who chose BPT, were moralistic reasons. Chi-square tests indicated that mothers in the ADHD and nonproblem groups did not differ significantly from each other in the frequency that they cited the eight possible types of rationales for why they did not choose medication (ranging from \( \chi^2(1) = 0.01, p = .93 \) for moral reasoning to \( \chi^2(1) = 2.06, p = .15 \) for failure to improve social relationships). Table 7 displays the frequencies for each type of rationale for why mothers in the ADHD and nonproblem groups chose BPT and did not choose medication.

Mothers in the ADHD and nonproblem groups who chose medication most often cited its effectiveness on ADHD symptoms as the reason for their choice. Mothers who chose medication were typically referring to improvements in the child’s symptoms of inattention or hyperactivity/impulsivity. Chi-square tests indicated that mothers in the ADHD and nonproblem groups did not differ in the frequency with which they reported seven of the eight possible types of rationales for why they chose medication. However, mothers in the ADHD group were more likely to cite the absence of treatment demands as a reason for why they chose medication over BPT, \( \chi^2(1) = 4.11, p = .04 \), Odds ratio =
3.42. In response to the question asking them why they did not choose BPT, mothers in
the ADHD group most often cited BPT as less effective on ADHD symptoms compared
to medication and were significantly more likely than mothers in the nonproblem group
to cite this rationale, \( \chi^2 (1) = 6.99, p < .01 \). Odds ratios indicated that mothers in the
ADHD group were 5.32 times more likely to provide this rationale compared to mothers
in the nonproblem group. This emphasis on treatment effectiveness among mothers in the
ADHD group may reflect this group’s greater familiarity with the severity of ADHD and
its impairment in child functioning compared to mothers in the nonproblem group.
Among mothers in the nonproblem group who chose medication, the most often cited
reason for why they did not choose BPT was the demands of implementing this
treatment; however, they did not differ significantly from mothers in the ADHD group in
the frequency with which they reported this rationale \( \chi^2 (1) = 3.05, p = .08 \). Table 7
displays the frequencies for each type of rationale for why mothers in the ADHD and
nonproblem groups chose medication and did not choose BPT.

Post Hoc Comparisons of ADHD Group Mothers Choosing Medication and BPT

I conducted post hoc statistical comparisons of demographic characteristics for
mothers in the ADHD group who chose medication on the recommendation measure with
mothers in the ADHD group who chose BPT. I wished to evaluate whether mothers in
this group who chose BPT differed in terms of child, personal, or family characteristics,
compared to mothers who chose medication. Unfortunately, the number of nonproblem
mothers who chose stimulant medication was too small to allow similar set of statistical
comparisons between nonproblem mothers who chose medication and nonproblem
mothers who chose BPT. Because three mothers in the ADHD group did not provide
family demographic information, I compared information from the 43 of the 44 mothers in the ADHD group who chose medication and the 23 of the 25 mothers in the ADHD group who chose BPT. Mothers who recommended medication did not differ in the mean severity of their child’s symptoms of hyperactivity/impulsivity (Cohen’s $d = 0.26$) or inattention (Cohen’s $d = 0.05$) compared to the children of mothers recommending BPT. Mothers who chose medication did not differ from mothers choosing BPT in their mean ages (Cohen’s $d = 0.21$), in the mean age that their sons were diagnosed with ADHD (Cohen’s $d = 0.22$), or their mean ratings of effectiveness for medication (Cohen’s $d = 0.04$), and they had identical mean ratings of effectiveness for BPT. However, mothers who stated they would recommend medication were more likely to be treating their child with medication, $\chi^2 = 14.12, p < .001$, odds ratio = 7.92, compared to mothers who chose BPT. Additionally, mothers in the ADHD group who chose stimulant medication were significantly higher in SES compared to mothers who chose BPT, $t = 2.12, p = .04, d = 0.55$. Please refer to Table 8 for mean values of demographic variables, severity of ADHD symptoms and number of children treated with stimulant medication.

In sum, mothers in the ADHD group who chose medication were generally very similar to mothers in the ADHD group who chose BPT in terms of family characteristics, severity of child ADHD, or beliefs regarding the effectiveness of these treatments. However, mothers in the ADHD group who chose BPT had significantly lower family SES compared to mothers who chose medication. Not surprisingly, mothers who chose medication were also more likely to be treating their own children’s ADHD with medication compared to mothers choosing BPT. Unfortunately, the number of mothers in the nonproblem group who chose medication was too small to conduct a similar series of
comparisons to determine if demographic differences were present between nonproblem mothers choosing medication and BPT.

Table 8

Demographic Characteristics of Mothers of Children with ADHD Choosing Medication and BPT on the Recommendation Measure

<table>
<thead>
<tr>
<th></th>
<th>BPT</th>
<th>Medication</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( n = 25 )</td>
<td>( n = 43 )</td>
</tr>
<tr>
<td><strong>M</strong></td>
<td><strong>SD</strong></td>
<td><strong>M</strong></td>
</tr>
<tr>
<td>Hyperactivity/Impulsivity(^a)</td>
<td>19.04 (5.74)</td>
<td>19.34 (5.75)</td>
</tr>
<tr>
<td>Inattention(^a)</td>
<td>21.05 (3.73)</td>
<td>20.08 (3.68)</td>
</tr>
<tr>
<td>Maternal Age</td>
<td>39.24 (7.38)</td>
<td>40.60 (5.16)</td>
</tr>
<tr>
<td>Age at Diagnosis (years)</td>
<td>5.50 (1.82)</td>
<td>5.88 (1.59)</td>
</tr>
<tr>
<td>Effectiveness of Medication(^b)</td>
<td>5.82 (0.75)</td>
<td>5.77 (1.21)</td>
</tr>
<tr>
<td>Effectiveness of BPT(^b)</td>
<td>4.79 (1.76)</td>
<td>4.79 (1.32)</td>
</tr>
<tr>
<td>Family SES(^c)</td>
<td>32.16 (9.21)</td>
<td>37.99 (11.79)</td>
</tr>
<tr>
<td>Number of medicated children</td>
<td>12</td>
<td>38</td>
</tr>
</tbody>
</table>

\(^{a}\) As rated by mothers on the ADHD-IV rating scale. \(^{b}\) Rated on a Likert-type scale (1 = Not at All Effective to 7 = Very Effective). \(^{c}\) Hollingshead Combined SES Score.
Discussion

This study investigated experience parenting a child with ADHD and treatment information in relation to ratings of the acceptability of BPT and stimulant medication as treatments for ADHD. Mothers of sons with ADHD and mothers of nonproblem sons participated and treatment information about BPT and medication was varied. BPT and medication each have their own strengths and limitations and parents must evaluate these benefits and trade-offs when making treatment decisions. Mothers read either a Classic description of BPT, similar to that used in previous research, or a Demandingness description that emphasized the high level of parental involvement required to implement this treatment. The two descriptions of medication were a Classic description, again similar to those used in previous studies using verbal probability descriptors to describe the risk of side effects of medication, or a Numeric description that used numeric frequency statements to describe the risk of side effects. Mothers in the ADHD group endorsed greater acceptability of stimulant medication compared to mothers in the nonproblem group and were more likely to recommend stimulant medication on the treatment recommendation measure. Contrary to hypotheses, manipulation of information about the demandingness of BPT or the likelihood of medication side effects did not affect ratings of treatment acceptability or treatment choice on the treatment recommendation measure. Mothers who reported they would recommend stimulant medication for ADHD most often cited treatment effectiveness as the reason for their choice, whereas mothers choosing BPT most often provided moralistic or philosophical reasons for their choice. This study adds to existing literature by further clarifying how
experience with childhood ADHD moderates perceptions of BPT and stimulant medication as treatments for this disorder.

**Group of Mothers, Treatment Information and Ratings of Treatment Acceptability**

Although combined treatments may be the most effective option for ADHD, I chose to compare ratings of acceptability for BPT and stimulant medication separately, on the basis that parents who decide to use combined treatments still must research and evaluate the benefits and limitations of each treatment separately. I expected to replicate previous findings of greater treatment acceptability for BPT compared to stimulant medication among mothers of sons without ADHD. However, I also expected that experience parenting a child with ADHD would moderate ratings of treatment acceptability. In addition, I anticipated that manipulating treatment information would affect perceptions of treatment acceptability.

**Group of Mothers and Treatment Acceptability.** Mothers in the ADHD group rated medication as more acceptable, compared to mothers of nonproblem sons. Thus, the experience of parenting a child with ADHD was an important moderator of parent ratings of treatment acceptability. This relation of group to treatment acceptability may be due in part to 85% of the mothers in the ADHD group having had experience treating their child’s ADHD symptoms using medication. Previous research has reported that mothers of children with ADHD who have experience using stimulant medication to treat their child’s symptoms, rate treatments that combined medication and behavioral interventions as more acceptable than either treatment alone (Gage & Wilson, 2000; Krain et al., 2005; Liu et al., 1999), whereas mothers of nonproblem children (Gage & Wilson, 2000) and mothers of children with ADHD who have not used stimulant medication rate behavioral
treatments as more acceptable than either combined interventions or medication alone (Krain et al., 2005; Liu et al., 1999). Thus, the experience of using stimulant medication to treat their children’s ADHD may have been an important contributor to why mothers in the ADHD group in my sample endorsed greater acceptability for medication compared to mothers in the nonproblem group.

Mothers in the ADHD group may also have endorsed greater treatment acceptability for medication because they were more knowledgeable about the causes, risks and impairments of this disorder compared to mothers of nonproblem sons. Indeed, previous research shows that knowledge of the causes and treatments of ADHD is associated with greater acceptability for medication among mothers and teachers (Liu et al., 1999; Vereb & DiPerna, 2004). Consistent with previous research examining attitudes about ADHD among members of the general public (Pescosolido et al., 2008), mothers in the nonproblem group of my study may not have viewed ADHD as a serious or impairing disorder and may have overestimated the likelihood that ADHD symptoms would improve without medical treatment. Mothers of children with ADHD have had direct experience with the potential risks and impairments resulting from this disorder. They may have watched their child struggle with classroom behavior or to maintain peer relationships. Many children with ADHD suffer from poor self-esteem and increased symptoms of depression (Treuting & Hinshaw, 2001). Compared to children without ADHD, children with ADHD view their problematic behaviors as less within their control, likely to occur in many situations, and as having always been present for them (Kaidar, Wiener, & Tannock, 2003). This pattern of attributions may, in part, explain why children with ADHD are at greater risk for depression and poor self-esteem. Mothers
of children with ADHD are more likely than mothers of nonproblem children to be knowledgeable about ADHD and be familiar with the wide-ranging social and academic impairments associated with ADHD. Thus, they may feel that the potential risks of medication are warranted, given the high probability that medication will produce significant improvements in their children’s functioning.

To further understand the contribution of experience using medication to ratings of treatment acceptability within the ADHD group, I compared ratings of acceptability among mothers who were currently managing their child’s ADHD symptoms with medication, mother who had discontinued medication, and mothers who had never treated their child’s symptoms of ADHD using medication. For BPT, mothers who had never used medication endorsed significantly greater acceptability compared to mothers in the discontinued group, with mothers in the currently using group falling in the middle. This pattern of results is consistent with my findings that mothers who had never used medication had children with less severe forms of ADHD. Because of their milder symptoms of ADHD, children who had never received medication would have required less intensive behavioural management strategies compared to the children whose mothers had used medication. Thus, mothers who had never used medication likely endorsed greater acceptability for BPT compared to mothers who had tried medication because BPT strategies were perceived to be sufficient to manage their child’s ADHD symptoms.

Mothers who were currently using medication endorsed significantly greater acceptability for medication compared to mothers who had discontinued this treatment, with mothers who had never used medication falling in the middle. Mothers who were
continuing to use medication to treat their child’s ADHD likely endorsed greater acceptability for medication because they felt that the benefits of this treatment outweighed the risks of side effects. Johnston and Fine (1993) suggest that experience using stimulant medication may reassure parents about the safety of this treatment. However, it is probable that mothers who discontinued medication did so because their child experienced side effects of the medication or it was not effective in managing their child’s symptoms. This negative experience using medication is likely reflected in their low treatment acceptability ratings. Overall, mothers who had discontinued medication endorsed the lowest levels of treatment acceptability for both BPT and medication, perhaps reflecting a struggle to find a treatment that effectively managed their child’s symptoms.

I compared the 14% mothers in the ADHD group who had never treated their child’s symptoms with medication with mothers who had used medication, that is mothers who were currently managing their child with medication or who had tried medication in the past and discontinued it. I compared the never medicated and used medication groups on a number of child and family characteristics. Overall, mothers who had never used medication did not differ from mothers who had used medication on any family or maternal characteristics. However, mothers who had never used medication reported their sons as having less severe symptoms of hyperactivity/impulsivity and inattention compared to the other mothers in the ADHD group. Although the difference in symptoms of inattention between groups was moderately sized, it was not statistically significant due to the unequal distribution of mothers between the groups. Thus, the children who were either currently or who had previously treated their ADHD symptoms
using medication showed a more severe form of the disorder and were likely experiencing greater impairment from their symptoms compared to children who had never received medication. As I proposed earlier, mothers whose children are more seriously impaired by ADHD symptoms may feel that potential improvements in child functioning outweigh the risks of stimulant medication and be more likely to pursue this treatment compared to mothers of mildly impaired children.

The importance of previous experience managing childhood ADHD in relation to treatment acceptability also offers a reason for why my manipulation of treatment information may have failed to influence ratings of acceptability. One previous study (Gage, 2002) demonstrating effects of varying information regarding BPT and stimulant medication on ratings of treatment acceptability, gathered ratings from mothers and fathers of nonproblem children who had no previous experience using BPT or stimulant medication with any of their children. The influence of previous ADHD treatment experiences on ratings of treatment acceptability highlights the contribution of pre-existing cognitions and experiences to treatment attitudes. Given the difference in ratings of acceptability between the ADHD and nonproblem groups, it may have been overly optimistic to think that manipulating information that was briefly presented to mothers on one occasion would make a significant difference in mothers’ treatment attitudes and would outweigh the influence of previous treatment experience.

My finding that mothers of children with ADHD endorsed similar ratings of acceptability for medication and BPT is more congruent with mothers’ actual treatment use and differs from recent research conducted by Johnston and colleagues (2008). Johnston and colleagues reported that mothers of sons with ADHD rated BPT as more
acceptable than stimulant medication when given a choice between only the two
treatments. This difference in findings appears to be the result of my modification to the
TEI-SF to include items from Kazdin's (1980) TEI asking specifically about treatment
risks, demands, and effectiveness. When I compared ratings of treatment acceptability
using a composite of the same TEI-SF items used by Johnston and colleagues with
mothers of sons with ADHD who read Classic descriptions of both BPT and medication,
I replicated their findings that mothers of sons with ADHD endorsed significantly greater
acceptability for BPT compared to medication.

It is difficult to interpret why this change in the TEI would have produced a
different pattern of results for mothers of children with ADHD compared to the version
used Johnston and colleagues (2008). When looking at the internal consistency for the
TEI-SF for BPT and the TEI-SF for medication, examination of individual items
confirmed that the items asking about treatment risks, demands, and effectiveness were
consistent with the other items on the acceptability scale for both the medication and BPT
versions. This internal consistency indicates that the items that I added to the TEI can be
considered to measure the same construct of treatment acceptability as the items used by
Johnston and colleagues. Thus, it is unlikely that the treatment acceptability ratings I
obtained with my version of the TEI differed from those of Johnston and colleagues
because they measured different constructs. One possible explanation is that the items
that Johnston and colleagues used to measure treatment acceptability assessed only liking
and willingness to use a treatment. Whereas the extra items I included assessed the
perception of risks and demands as well as treatment effectiveness. It is possible that
when we ask mothers to consider the limitations of a treatment in their ratings of
acceptability, mothers with experience treating childhood ADHD adjust their ratings of acceptability to reflect both the positive and negative aspects of BPT, including treatment demands and a possible lack of treatment effectiveness. Although nonproblem mothers would have had experience using child behavior management strategies with their own children, it is unlikely that they would have had to apply them with the intensity and frequency required to manage child ADHD. Thus, mothers in the nonproblem group, who had no first-hand experience with the limitations of BPT as a treatment for ADHD, would be unlikely to make such an adjustment in their acceptability ratings.

The possible relation of mothers’ experiences using behavioral treatments or strategies to ratings of treatment acceptability remains somewhat unclear. All mothers in my sample endorsed using at least some form of behavior management strategies and there was no overall difference in the pattern of strategies used by mothers in the ADHD group and mothers in the nonproblem group. I imagine that mothers varied in the intensity of their use of the strategies and may have learned the strategies from a wide variety of sources, such as friends, books, or parenting classes, and I could not statistically control for this variation in the source or intensity of the behavioral strategies. However, I know that mothers in the ADHD group were managing more challenging child behavior compared to mothers in the nonproblem group as children with elevated behavioral difficulties were excluded from the nonproblem group, and 44% of the mothers in the ADHD group had children who had comorbid ODD. Given the variation in severity of child behavior problems between the two groups, I would expect that mothers in the ADHD group may have used more intensive or frequent behavior management strategies with their child compared to mothers in the nonproblem group.
Thus, mothers in the ADHD and nonproblem groups are likely to have had quite different experiences using behavioral strategies with their children.

Mothers in the nonproblem group and ADHD group also differed in how successful they found behavioral interventions for managing their child’s behavior. This is reflected in mothers in the nonproblem group rating behavioral strategies as a more effective means for managing child behavior compared to mothers in the ADHD group. In addition, mothers in the ADHD group may have found that behavioral strategies produced minimal changes in their child’s symptoms of inattention and hyperactivity. At least one study has found that while parent training is a powerful intervention for misbehavior in children with ADHD, it is likely to be much less effective with symptoms of ADHD (Pisterman et al., 1992a). Consequently, mothers in the ADHD group, in addition to having used behavioral strategies to manage more severe disruptive and oppositional child behavior compared to mothers in the nonproblem group, would have experienced the additional challenge of using BPT to manage their child’s core ADHD symptoms of inattention and hyperactivity/impulsivity. In sum, it is difficult to compare experience with behavior management strategies between mothers in the ADHD and nonproblem groups. In addition to group differences in the intensity of the behavioral strategies required to manage their child’s behavior, mothers of children with ADHD also found these strategies to be less effective in changing their child’s behavior compared to mothers in the nonproblem group.

Despite these differences in the reported effectiveness of behavioral strategies, the perceived effectiveness of BPT was not correlated with ratings of acceptability on the TEI-SF and cannot explain group differences in acceptability ratings for either BPT or
medication in my study. This finding is consistent with previous treatment acceptability research suggesting that ratings of treatment effectiveness are not clearly associated with ratings of treatment acceptability for ADHD treatments (Kazdin, 2000; Wilson & Jennings, 1996). Thus, group differences in TEI-SF ratings cannot be explained by group differences in perceived effectiveness of behavioral strategies between the ADHD and nonproblem groups.

Furthermore, group differences in treatment acceptability ratings could not be attributed to group differences in ratings of depression or impression management. Mothers in the ADHD and nonproblem groups did not differ in their ratings of Impression Management. Although mothers in the ADHD group had a higher mean depression score compared to mothers in the nonproblem group, ratings of depression could not account for group differences in treatment acceptability ratings.

Treatment Information and Ratings of Treatment Acceptability. I anticipated that by emphasizing the demandingness of BPT and the true likelihood of side effects of medication, that there would be smaller differences in acceptability ratings between BPT and medication among mothers in the Demandingness and Numeric description groups. However, this hypothesis was not supported as data analysis indicated no main effects of these treatment descriptions or interactions between treatment description and group of mothers on ratings of acceptability. Given the very small effect size for the influence of treatment information, it is unlikely that the absence of effects was due to insufficient statistical power. The absence of an effect was also not due to a restriction in range in the TEI-SF. Although Krain and colleagues (2005) reported that measures of treatment acceptability for BPT often show ceiling effects, I found that the TEI-SF for medication
and for BPT each demonstrated adequate variability. Thus, it appears that my manipulation of treatment descriptions was insufficient to alter ratings of treatment acceptability and the absence of a main effect of description cannot be attributed to lack of statistical power or insufficient variability how acceptability was measured.

Indeed, post hoc manipulation checks for both the BPT and medication descriptions offer further understanding for the failed manipulation. It seemed possible the Demandingness description and the Numeric description, because of efforts to make each realistic and accurate and equal to the classic descriptions, may have had at best subtle influences on mothers’ treatment perceptions that were not detected by the overall treatment acceptability ratings on the TEI-SF. Therefore, I compared ratings on the single items of the TEI-SF asking specifically about BPT demands and medication side effects. Even when looking at these single items, mothers in the different description groups did not differ in their ratings. The absence of differences in ratings on items specifically asking about the treatment qualities varied between the treatment descriptions, indicates that mothers failed to perceive any differences between the Classic and Enhanced treatment descriptions.

I do not believe the failure of the treatment information manipulation is because I chose to manipulate treatment qualities that are unimportant to the formation of treatment preferences. Previous research has shown that the time and energy required to implement BPT are the most commonly cited reasons for not attending BPT therapy sessions (Firestone & Witt, 1982; Orrell-Valente et al., 1999; Prinz & Miller, 1994) and that parents who hold realistic expectations about the demands of BPT before beginning treatment have higher rates of participation (Shuman & Shapiro, 2002). Similarly, across
a range of medication treatments, the perception of stronger side effects is associated with lower treatment acceptability ratings (Berry et al., 2002; Kazdin, 1981). In addition, individuals who read numeric probability statements of the risk of experiencing medication side effects rated their risk of experiencing side effects as lower compared to individuals reading verbal probability descriptions (Knapp et al., 2001). Furthermore, individuals are most likely to understand probability information if it is expressed using frequency statements (Bergenstrom & Sherr, 2003; Gigerenzer & Edwards, 2006), as in the Numeric description of stimulant medication. In sum, although manipulating treatment information failed to have an effect on ratings of treatment acceptability, I believe that I chose to manipulate treatment attributes that are salient to the formation of mothers' treatment attitudes and that I communicated this information in a clear and easy to understand manner.

One reason that manipulating treatment information may have failed to alter ratings of treatment acceptability is that the variation among the treatment descriptions was too subtle. In hindsight, it seems likely that the Classic and enhanced descriptions were too similar in content. Most of the information presented in each treatment description was kept constant between the Classic and the enhanced descriptions. Only the sections describing treatment limitations varied between descriptions. Please refer to Appendix A for full copies of each treatment description.

I adopted this relatively conservative approach to designing the pairs of treatment descriptions for several reasons. First, because I was interested in investigating the contribution of treatment risks or demands on ratings of acceptability, it was paramount to hold other information constant so that any effect of treatment description on
acceptability ratings could be attributed to these qualities. Second, I wished to ensure that the Classic treatment descriptions were comparable to those used in previous treatment acceptability studies, so I used a format similar to that used in previous studies (e.g., Gage, 2002; Johnston et al., 2008; Krain et al., 2005;) and included similar information about how the treatment works, treatment administration, benefits, and financial costs in addition to the information about treatment limitations. Third, it was essential that all versions of the treatment descriptions were as accurate and realistic as possible. I wanted to ensure that possible effects of manipulating treatment information could not be attributed to any of the treatment descriptions portraying BPT or medication in an overly positive or negative light. The high accuracy ratings for all of the treatment descriptions that I received from the professionals with whom I consulted support the realism of all treatment descriptions. On reflection, I may have been more successful in creating an effect of treatment description if I had pared down the length of the shared information between the two treatment descriptions and more strongly enhanced the differences in treatment limitations between the pairs of treatment descriptions. However, given the narrow margin between making the treatment descriptions clinically realistic and comparable to those used in previous studies, and yet distinct enough to produce differences in ratings of treatment acceptability, I felt that it was most appropriate to adopt a conservative approach, emphasizing the first two qualities at the expense of the third.

**Treatment Recommendation Measure**

The results of the treatment recommendation measure provide us with a new way of looking at treatment attitudes, and offer insight into what treatment qualities are most
important to mothers in developing treatment preferences and treatment decision-making. I assessed treatment preferences by asking mothers which treatment they would recommend if they were advising the mother of the child described in the ADHD scenario. Mothers were required to provide at least one reason for why they chose the treatment they did in the recommendation measure, and to provide at least one reason why they did not choose the other treatment. The design of the measure allowed mothers to provide as many reasons as they wished. As I stated in an earlier section, it is probable that multiple features of a treatment (including both strengths and limitations) are evaluated when developing treatment preferences. To my knowledge, only a few studies have looked at mothers’ decision making with regard to ADHD treatments (DosReis et al., 2006; Leslie et al., 2007). By asking mothers to describe why they chose or did not choose a treatment, I have begun the process of identifying what treatment qualities are most salient in forming treatment preferences. Furthermore, I wished to determine whether mothers of sons with ADHD differed in the pattern of treatment qualities they report as most important compared to mothers of nonproblem children.

Mothers of children with ADHD were over six times more likely to recommend stimulant medication over BPT compared to mothers of children without ADHD. This finding is consistent with those of DosReis et al. (2006) who reported that among their sample of African American mothers currently treating their child’s ADHD with medication, 63% reported that they would recommend medication to a family member or close friend who had a child with ADHD. Mothers in the nonproblem group were more likely to choose BPT, and offered a unique pattern of reasons for their choice compared to the mothers choosing stimulant medication. Similar to results on the TEI-SF, the type
of treatment description did not influence the treatment choice made by mothers in either
the ADHD or nonproblem groups, and instead experience with ADHD was the most
important contributor.

Although most of the mothers who chose medication were mothers in the ADHD
group, the small number of mothers in the nonproblem group who chose medication cited
similar reasons to the ADHD group for their treatment choice, reflecting that these two
groups of mothers corresponded in the treatment qualities and beliefs important to their
treatment choice. It is possible that the mothers in the nonproblem group who chose
medication were somehow more familiar or knowledgeable about ADHD compared to
the majority of mothers in the nonproblem group. For example, a few of these mothers
reported that they were teachers and they had observed the benefits of medication with
students in their classroom. In addition, two nonproblem mothers who chose medication
reported that a family member was diagnosed with ADHD (i.e., child’s father or child’s
older brother). Both mothers in the ADHD and nonproblem groups who recommended
stimulant medication, most frequently cited medication’s effectiveness on reducing
symptoms of ADHD as their reason for choosing this treatment. Other research has found
that effectiveness may be medication’s predominant positive quality for many mothers.
DosReis and colleagues (2006) reported that when asked about the positive aspects of
stimulant medication for ADHD, 88% of African American mothers reported the
effectiveness of medication on improving ADHD symptoms. The second most frequently
provided rationale by mothers in the ADHD group and third most frequently provided
rationale by mothers in the nonproblem group for why they chose stimulant medication,
was the improvements in school and social functioning associated with this treatment.
Mothers reported that they believed stimulant medication produces improvements in the self-esteem of children with ADHD, that the child would receive more positive attention from teachers at school and/or would have better peer relationships. The third most often cited reason for choosing medication among mothers in the ADHD group and second most often cited reason among mothers in the nonproblem group was the absence of the demands of this treatment compared to BPT. In particular, many mothers commented that medication is much easier to administer in a consistent manner compared to BPT and that medication can be used in settings where the parent is absent.

These findings indicate that when thinking about treatment choices, mothers who chose stimulant medication most often reported that the demands of treatment administration and improvements in child symptoms of inattention, hyperactivity/impulsivity or improvement in social functioning, were most important to their treatment choice. Overall, looking at the pattern of rationales provided by mothers choosing medication, it appears that improvements in child functioning and family quality of life, through reduced treatment demands, were the most important factors when considering treatment choice. As mentioned previously, for mothers of children with ADHD, this may stem from their first hand experience with the impairments in child functioning caused by ADHD and challenges of parenting a child with this disorder. It is difficult to see why these qualities were most important to the 14 nonproblem mothers choosing medication. I can speculate that some of these mothers may have been more familiar with ADHD through either their professions (i.e., some mothers mentioned being classroom teachers and having observed the effectiveness of medication with students in their classroom) or social relationships.
The most often provided reason by mothers in the ADHD group and second most often provided reason by mothers in the nonproblem group for why they did not choose BPT was because they believed it to be less effective in managing symptoms of inattention or hyperactivity/impulsivity compared to stimulant medication. For mothers in the ADHD group, this is consistent with their lower ratings for the effectiveness of BPT compared to mothers in the nonproblem group. The second most often provided reason by mothers in the ADHD group and first most often provided reason by nonproblem mothers for why they did not choose BPT was because of the demands of this treatment. This finding is consistent with my hypothesis, and with previous research identifying treatment demands as an important factor in parents’ decisions not to use behavioral treatments (e.g., Firestone & Witt, 1982). The third most often cited reason among both mothers in the ADHD and nonproblem groups for why they did not choose BPT, was the belief that this treatment would harm family relationships. For example, mothers reported that BPT may increase conflict between parents who differ in their views of how best to manage child behavior. Alternately, siblings may feel that they are being treated unfairly if the same system of rewards was not used with all children. Potential increases in family and sibling conflict is an important consideration, given that research has found greater sibling conflict in families where at least one child has ADHD, compared to families of nonproblem children (Mikami & Pfiffner, 2008). Overall, mothers in the ADHD and nonproblem groups who chose medication reported rationales for why they did not choose BPT that were consistent with the reasons they provided for why they chose medication, emphasizing improvements in child functioning and
fostering a positive family climate by reducing treatment demands and avoiding increasing strain between family members.

In contrast, both mothers in the ADHD and nonproblem groups who stated they would recommend BPT, most often cited philosophical or moralistic reasons for why they would recommend BPT. These reasons varied widely among mothers, but usually conveyed information and controversies portrayed in the media. For example, many mothers reported that it is only ever appropriate to use medication once all possible behavioral treatment options had been exhausted. However, other reasons in this category reflected the belief that parents are responsible for their child's ADHD symptoms or that the use of BPT reflected an appropriate level of commitment to raising one's child and parents who choose to treat their child with medication are opting for an easy way out.

The second type of reason most often cited by both mothers in the nonproblem and ADHD groups for why they chose BPT, emphasized the importance of parents improving their parenting skills or children learning self-management skills that would allow them to cope throughout their lives. These reasons tended to reflect beliefs that parents of children with ADHD lack appropriate parenting skills, or that children needed support in learning important life lessons about rewards and consequences. This is consistent with research reporting that parents who attribute child behavior problems to a lack of parenting skills are more likely to attend BPT compared to parents who attribute the behavior problems to innate characteristics of the child (Miller & Prinz, 2003; Orrell-Valente et al., 1999; Peters et al., 2005). The third most often cited group of reasons for choosing BPT, by both mothers in the nonproblem and ADHD groups, related to effectiveness in improving symptoms of ADHD. However, these reasons most often
reflected the belief that the improvements seen with BPT in child ADHD symptoms are lifelong and will persist once the treatment is no longer active. This rationale was reported, even though both the treatment descriptions for medication and BPT stated that improvements seen with either treatment remain only as long as parents continue to use the treatment. Overall, mothers choosing BPT placed greatest importance on more general or moral beliefs and longer-term effects of treatment, rather than immediate improvements in ADHD symptoms.

Similarly, both mothers in the ADHD and nonproblem group who chose BPT most frequently provided general or moral types of reasons for why they did not choose medication. For example, several mothers stated that treating symptoms of ADHD with medication teaches children to use drugs to solve their problems and places the child at greater risk of drug addiction in the future. Many mothers cited the belief that too many children are unnecessarily medicated for ADHD. Others reported that using medication to manage ADHD symptoms was equivalent to providing a child with illegal stimulant drugs. Mothers in the ADHD group reported concern about the risks of medication as the reason for not choosing this treatment, with the same frequency that they reported philosophical reasons, and this was the second most often cited reason by mothers in the nonproblem group. Mothers’ concerns about risks often reflected the belief that too little is known about the long-term effects of medication on children’s growth and development. Finally, the third most often provided rationale by mothers in the nonproblem and ADHD groups was that medication is less effective in treating symptoms of ADHD because BPT offers long-term improvements in symptoms of ADHD whereas the effects of medication are short-term and any improvements in symptoms will be
dispelled once the medication is stopped. Consistent with the pattern of rationales provided for why they chose BPT, mothers most often cited philosophical reasons and concern about longer-term treatment risks and outcomes as the most important reasons why they did not choose to recommend medication.

In contrast to mothers choosing medication, whose rationales for their treatment choice tended to emphasize improvements in child and family functioning, mothers who chose BPT tended to emphasize the importance of more moralistic beliefs and the parent and child learning new skills. Although we did not ask mothers about their beliefs regarding the causes of ADHD, the pattern of rationales reported by mothers for why they chose BPT seemed to reflect a belief that ADHD symptoms may in part be due to a lack of parenting skills or perhaps a lack of child effort.

Although many mothers in the ADHD group preferred medication in the recommendation measure, a large proportion stated that they would recommend BPT over medication. I conducted a series of post hoc comparisons to determine if there were any family, child, or other demographic characteristics that distinguished mothers in the ADHD group who chose medication from those who chose BPT. Mothers choosing medication and BPT did not differ in mean age, the mean severity of their child’s ADHD symptoms, or the mean age that their child was diagnosed with ADHD. They also did not differ in their mean ratings of effectiveness for medication and BPT. However, sons of mothers recommending medication were over seven times more likely to be taking medication for their symptoms of ADHD compared to sons of mothers choosing BPT. This finding supports the treatment recommendation measure as a measure of treatment
attitudes that is consistent with mothers’ attitudes as reported on the TEI-SF and representative of mothers’ of children with ADHD actual treatment choices.

Interestingly, mothers who chose medication had significantly higher family socioeconomic status compared to mothers who chose BPT. This finding is consistent with research reporting that among Canadian children with ADHD, children from lower income families are less likely to receive medication compared to children from higher income families (Brownell & Yogendran, 2001). This difference in treatment rates may be the result of economic differences in access to services, but may also reflect income-based differences in knowledge and attitudes regarding ADHD. Mothers in my sample who chose BPT most often reported rationales that corresponded to information in the lay media rather than empirical research examining the treatment of ADHD. Other research has found that people with higher levels of income are more likely to endorse ADHD as a genuine disease compared to lower income individuals (McLeod, Fettes, Jensen, Pescosolido, & Martin, 2007). At least one study has found that caucasian and upper-middle class participants obtain most of their information about ADHD from books and the Internet, whereas minority and lower income families are more likely to gather information from other family members, teachers, or medical personnel (Leslie et al., 2007). This difference in the source of information may result in higher-SES mothers holding different treatment attitudes compared to lower-SES mothers and may explain why mothers of sons with ADHD who chose medication had a higher mean socioeconomic status compared to mothers in the ADHD group who chose BPT.

When you consider that the majority of mothers who chose stimulant medication over BPT in the treatment recommendation measure were mothers in the ADHD group,
the findings of the treatment recommendation measure suggest that different treatment attributes and values are important to mothers of children with ADHD compared to mothers of nonproblem children. Because the majority of mothers in the ADHD group in my sample had experience using stimulant medication to treat ADHD, I cannot determine if this difference in treatment attitudes between mothers of children with ADHD and mothers of nonproblem sons reflects the influence of experience with the impairments associated with childhood ADHD, experience using stimulant medication to treat child ADHD, or a combination of both factors. It is also possible that being concerned about improvement in ADHD symptoms and a desire to use the most effective treatment, while avoiding treatment demands, causes mothers to choose medication over BPT.

Implications of the Treatment Recommendation Measure

The findings of the treatment recommendation measure, in particular the reasons mothers provided for their treatment choice, further our understanding of how treatment attitudes and acceptability relate to treatment preferences. By identifying the cognitions regarding BPT and stimulant medication that are important to mothers’ treatment choices, the results of this measure provide the basis for the development of further research into parental treatment decision making processes. The types of rationales reported by mothers illustrated that both positive and negative treatment qualities are important contributors to treatment preferences. The information provided by mothers also demonstrates the importance of more general values in the development of treatment preferences, such as wanting to use medication only as a last resort or the belief that parents who use medication to treat childhood ADHD are irresponsible.
The findings of the treatment recommendation measure also highlight important differences in treatment attitudes between mothers of sons with ADHD and mothers of nonproblem sons and capture some of the censure directed at parents of children with ADHD who choose to treat their child with stimulant medication. Over half of the mothers who recommended BPT cited moral reasons for not choosing to use medication. While some of these rationales were moderate in their view, others were more extreme and cited beliefs that treating symptoms of ADHD with medication is irresponsible or harmful to children. The prevalence of negative attitudes towards parents who treat their child's ADHD using stimulant medication is concerning. The social and family networks of parents of children with ADHD have been found to play a strong role in the treatment decision making of parents of children with ADHD (Leslie et al., 2007). Receiving strong negative opinions or contradictory advice from social networks has been found to limit pursuit of treatment (Leslie et al., 2007). Thus, parents of children with ADHD are likely to consult with family members or friends whose children do not have ADHD, and may receive negative or inaccurate information about stimulant medication that is likely to discourage parents from consulting with a physician or pursuing treatment regarding their child's ADHD symptoms. The findings of the recommendation measure highlight that continued efforts to increase societal awareness about impairments and risks associated with childhood ADHD and a balanced view of the risks and benefits of using medication to mitigate these, should lead to increased support for families of children with the disorder.

With the majority of mothers in the ADHD group stating that they would recommend stimulant medication, the pattern of treatment preferences on the
recommendation measure corresponds to mothers' use of treatments for their sons' ADHD symptoms. As stated earlier, although ratings of treatment acceptability for stimulant medication are associated with pursuit of medication treatments (Krain et al., 2005); acceptability ratings for BPT have typically been a poor predictor of actual treatment use and have limited clinical utility (Bennet et al., 1996; Corkum et al., 1999; Krain et al., 2005). It is possible that measures such as the treatment recommendation measure may have greater clinical utility in predicting actual treatment use compared to traditional questionnaire measures of treatment acceptability. Furthermore, I found that by modifying the TEI-SF to include items that required mothers to reflect on both positive and negative treatment qualities, the pattern of acceptability ratings found in my study bears closer resemblance to mothers' actual treatment use compared to the pattern of acceptability ratings reported by Johnston and colleagues (2008). Similar to my study, the majority of mothers in Johnston and colleagues' sample were treating their child's ADHD using stimulant medication; however, they reported significantly greater acceptability for BPT compared to stimulant medication, indicating that the pattern of acceptability ratings reported on their version of the TEI bore little resemblance to mothers' actual treatment use. In contrast, mothers of children with ADHD in my sample, reported similar levels of acceptability for BPT and medication. This absence of significantly greater acceptability for BPT with my version of the TEI finding is more consistent with mothers' actual treatment use (i.e., most mothers were using both treatments).

An important difference between my study and that of Johnston and colleagues (2008) is that their measure of treatment acceptability asked mothers to report only their
liking of and willingness to use a treatment. Asking individuals about their liking of a treatment may not be sufficient information to predict their treatment decision making behavior. By asking mothers to describe the reasons why they chose a particular treatment and why they did not choose the other treatment, the treatment recommendation measure requires even greater consideration of the strengths and limitations of treatments. Prompting parents to reflect on, evaluate, and describe the specific strengths and limitations of either treatment, may lead them to report treatment attitudes that are more consistent with their values and resources. Thus, it is possible that a treatment recommendation measure may be a more accurate predictor of actual treatment pursuit than measures of treatment acceptability asking only about positive treatment qualities.

**Treatment Recommendation Measure and Manipulation of Treatment Information**

The rationales provided in the treatment recommendation measure may help to clarify why my manipulation of treatment information failed to influence ratings of treatment acceptability for either treatment as well as treatment preferences on the recommendation. Mothers’ rationales illustrated that the demands of BPT and the risks of stimulant medication are highly salient treatment qualities that contribute to the formation of treatment preferences. Thus, it is unlikely that my manipulation of treatment information failed to influence ratings of treatment acceptability because the variables I chose to manipulate were qualities that were unimportant to mothers’ ratings of treatment acceptability. However, the treatment recommendation measure revealed that more general beliefs or attitudes are also important contributors to mothers’ treatment preferences. It is unlikely that any manipulation of specific treatment characteristics
would produce a change in attitudes that are based on these more general beliefs. The contribution of general treatment attitudes may partially explain why varying the description of specific treatment demands and the probability of experiencing side effects failed to influence treatment acceptability ratings on the TEI-SF or treatment choices in the recommendation measure.

**Clinical Implications**

Modifying the TEI-SF to ask mothers to reflect on both positive and negative treatment qualities and treatment effectiveness produced a pattern of acceptability ratings among mothers in the ADHD group that was more closely related to their actual treatment use compared to measures of treatment acceptability used in previous research that asked only about positive treatment qualities. Similarly, mothers in the ADHD group’s treatment choice on the recommendation measure corresponded to their actual treatment use. By asking mothers to provide the reasons for their treatment choice and reasons why they did not choose the other treatment, this measure required mothers to consider treatment benefits and limitations. These findings indicate that measures of treatment acceptability that require mothers to reflect on treatment benefits, limitations, and effectiveness may demonstrate greater clinical utility in predicting treatment initiation compared to measures of treatment attitudes that ask only about liking or willingness to use a particular treatment. In addition, simply asking parents which treatment they would recommend to a peer provides a measure of treatment preferences that appears consistent with parents’ treatment choices. Clinicians may be able to better predict parents’ pursuit of treatment recommendations if they enquire about parents’ perceptions of the benefits and limitations of both BPT and medication. Furthermore, the
results of the recommendation measure highlight the importance of more general moralistic or philosophical attitudes to treatment preferences for BPT. When communicating treatment information to parents, clinicians will need to consider that many parents and the other sources of information the parents consult with, such as friends or family members, are likely to hold philosophical beliefs in favor of BPT. Presenting parents with brief information regarding the benefits and limitations of medication and BPT may have little effect on the treatment preferences of parents who hold strong philosophical beliefs.

**Implications for Future Research**

When treatment acceptability and preferences are measured by asking mothers to consider both the benefits and limitations of a treatment, mothers of boys with ADHD do not differ in their ratings of acceptability for BPT and medication, and endorse greater acceptability for medication compared to mothers of nonproblem sons. Although previous research has found that treatment information is a key aspect of the development of treatment preferences (Wills & Holmes-Rovner, 2006) and attitudes (Berry et al., 2002; Berry et al, 2003; Gage, 2002; Knapp et al., 2001), subtle manipulation of how treatment limitations were communicated in my study did not change overall ratings of treatment acceptability, or mothers' choice of what treatment they would recommend if they were advising another parent. Furthermore, manipulation of information regarding the risks of medication or the demands of BPT did not alter the perception of risks and limitations specific to these treatments.

It may be too difficult to alter treatment perceptions and acceptability by presenting written information to mothers for a brief period of time. The average length
of time it took mothers to complete the website was 22 minutes and 19 seconds. It may have been overly optimistic to believe that mothers who were exposed to treatment information for only a few minutes would have experienced measurable changes in their treatment attitudes. Gage (2002) demonstrated a main effect of treatment information condition for BPT and medication as treatments for ADHD. However, he used videos to present either treatment descriptions of BPT and medication or descriptions of each treatment, plus a rationale for the treatment. Although the Classic descriptions in my study contained similar information to that in Gage’s scripts for his treatment descriptions, varying treatment information in written format may be insufficient to influence treatment attitudes. I speculate that presenting this information via video or using in vivo discussions where a clinician presents information to mothers has a stronger influence on parents’ attitudes than information presented in written text. I would imagine if we were able to ask mothers about their treatment attitudes after they watched a video or were told about a treatment, we would detect noticeable changes in treatment attitudes among mothers.

The treatment recommendation measure also highlights the contribution of more general beliefs to treatment decision making. The presence of these pre-existing attitudes may explain why my manipulation of treatment information failed to produce a similar pattern of results as those reported by Gage (2002) and Berry and colleagues (e.g., Berry et al., 2002; Berry et al., 2003; Knapp et al., 2001). As mentioned earlier, Gage gathered ratings from mothers and fathers of nonproblem children who were only eligible to participate if they had no previous experience with BPT or stimulant medication as treatments for ADHD. By using treatment-naïve parents, Gage (2002) likely reduced
some of the pre-existing attitudes regarding treatment of ADHD among his participants. However, given the presence of beliefs and attitudes regarding the treatment of ADHD reported by mothers in the nonproblem group in the treatment recommendation measure, that often reflected information portrayed in the lay media, it is likely that Gage’s participants would have still held some pre-existing beliefs regarding ADHD.

Berry and colleagues (e.g., Berry et al., 2002; Berry et al., 2003; Knapp et al., 2001) demonstrated reliable effects on participants’ perceived risk of side effects by varying information about the probability of experiencing side effects of medication using written treatment descriptions. However, a critical difference between Berry and colleagues’ treatment descriptions and my descriptions for stimulant medication was that Berry et al. described a fictitious medication. By using a fictitious medication, Berry and colleagues’ participants would not have had experience using the medication or previous exposure to any information about the medication. The frequency with which mothers in my sample, and in at least one other study (DosReis et al., 2006), cited concerns about risks of stimulant medication that were not described in the treatment summaries (e.g., increased risk of substance abuse) but are consistent with information presented in the lay media, indicates that mothers in my sample held pre-established cognitions about treatments for ADHD. In addition, experience with ADHD was an important moderator of treatment acceptability and treatment preferences. Therefore, the absence of previous experience with the treatment described may explain why previous studies were able to detect effects of manipulating treatment information regarding the risks of side effects of medication where I was not.
The findings of my study highlight that the measurement of treatment attitudes to better reflect actual treatment use requires further development. I found that small modifications to the TEI-SF produced a pattern of results that differed from previous treatment acceptability research using comparable treatment descriptions and a similar sample of mothers. The pattern of greater treatment acceptability for medication among mothers in the ADHD group, compared to mothers in the nonproblem group is consistent with the results of the treatment recommendation measure, and both are more similar to mothers’ actual treatment use compared to the treatment acceptability ratings for medication and BPT reported by Johnston and colleagues (2008). It may be that the greater the requirement for a respondent to reflect on a treatment’s positive and negative qualities when completing a measure of treatment attitudes, the closer the resemblance between participant’s reported attitudes and their actual treatment use, at least among individuals using that treatment. Further research is needed to investigate this possible relationship as a way to enhance the measurement of treatment attitudes.

Limitations

One limitation of my study is that I did not include a fourth treatment description condition where mothers read enhanced descriptions of both BPT (i.e., Demand ingness description) and medication (i.e., Numeric description). When I designed my study I did not include a fourth condition because I believed combining the enhanced descriptions would not provide the information I was seeking regarding the influence of specific treatment information on treatment attitudes. Additionally, I was concerned that it would be too difficult to recruit enough participants within the time constraints of the project to have sufficient statistical power to evaluate four treatment description conditions. In
hindsight, given that treatment information did not influence ratings of acceptability or choice in the recommendation measure, it would have been interesting to have included a fourth condition to determine if an effect on treatment attitudes could be detected when mothers read two enhanced treatment descriptions or if the combination of the two enhanced descriptions also was insufficient to influence treatment attitudes.

Another limitation of this study is that I did not conduct diagnostic interviews to confirm children’s previous ADHD diagnoses. However, parent and teacher ratings on the ADHD-IV (DuPaul et al., 1998) are considered an evidence-based assessment method and have been shown to be as effective as structured clinical interviews in diagnosing ADHD (Pelham et al., 2005). Given that this study focused on mothers’ cognitions regarding the treatment of ADHD and not actual child characteristics, I felt that the resources necessary to conduct clinical interviews could be used more effectively in other areas of the project.

A final limitation of this study was that participants were required to have access to the Internet to be eligible to participate. Statistics Canada (2006) reported that in 2001 over 80% of parents with children under age 18 regularly accessed the Internet. Given that Internet access is more likely to have increased rather than diminished among families over the past six years, I anticipate that my requirement of Internet access would have excluded only a small proportion of mothers of sons aged 5-12 years.

Future Research

Due to my requirement that mothers in the ADHD group have a son with a previous diagnosis of ADHD, most of the mothers in this group had already implemented treatments for their son’s ADHD symptoms. Future research is needed to examine
potential differences in treatment attitudes between mothers of children with ADHD who are actively beginning the treatment decision making process, with mothers of nonproblem sons and mothers of sons with ADHD who have reached treatment decisions. Furthermore, future studies may wish to include both mothers and fathers in the sample as well as boys and girls with ADHD. In most families, mothers are the primary caregivers (Johnston et al., 2008; Krain et al., 2005), and may differ from fathers in the treatment qualities they view as most important. It is also possible that parents of boys and girls differ in their pattern of treatment acceptability ratings for BPT and medication, provide different types of rationales or differ in the frequency of specific rationales.

Given the limited attention to parents’ treatment decision making on behalf of their children, or treatment decision making in a mental health context, future research is needed to develop more articulated models of parents’ decision making process for their child’s mental health treatment. The treatment recommendation measure identifies several treatment qualities and general values that are important to the development of treatment preferences. Other recent research (e.g., DosReis et al., 2006; Leslie et al., 2007) has identified the sources of information that parents refer to when making treatment decisions. The findings of my study highlight the importance of reflecting on both positive and negative treatment attributes in the reporting of treatment attitudes that bear closer resemblance to individuals’ actual treatment choices. Future research is needed that begins the process of formulating empirical models of the contributions of treatment qualities, general beliefs, and source of information in the formation of treatment decisions among parents of children newly diagnosed with ADHD.
Conclusions

Mothers of sons with ADHD, most of whom had experience with stimulant medication, endorsed significantly greater acceptability for this treatment and were much more likely to recommend this treatment, compared to mothers of nonproblem sons. Mothers of sons with ADHD and mothers of nonproblem sons did not differ in ratings of acceptability for BPT. The information presented in brief treatment descriptions did not influence ratings of treatment acceptability for stimulant medication or BPT, nor did it influence treatment preferences on the recommendation measure.

The findings of this study demonstrate that stigma and misinformation surrounding the use of stimulant medication to treatment of ADHD continues to prevail among members of the general public, and highlight the importance for clinicians and researchers to support parents’ decision making and promote parents’ and children’s access to effective treatments that are best suited to their family’s beliefs and resources. Although BPT is an empirically supported treatment for ADHD, the demands of effectively implementing this treatment may exceed some parents’ resources. For some families, creating the expectation that they will see comparable improvements in their child’s ADHD with BPT as they would with medication may set them up to be unsuccessful. Ensuring access to appropriate treatments mitigates the risks of untreated ADHD. Compared to children who are treated using stimulant medication, children who never receive medication for their symptoms of ADHD are more likely to smoke cigarettes and use illegal drugs (Biederman et al., 1999; Loney et al., 2002; Whalen et al., 2003), and are at greater risk for substance abuse problems (Wilens et al., 2002). The symptoms and impairments associated with ADHD are chronic and may persist
throughout the lifespan (Barkley et al., 2002; Biederman et al., 1996; Manuzza et al., 1993; Weiss & Hechtmann, 1993). For this reason, treatment planning must be long-term and families need to develop a treatment strategy that they will be able to use consistently and for many years. Greater insight into how parents arrive at treatment decisions may help to facilitate communication between parents and physicians to ensure that families choose the most appropriate treatment for their child, thereby reducing the delay that children experience before receiving effective treatment and helping to prevent interruptions in treatment delivery.

This study adds to the treatment acceptability and treatment decision making literature by examining the contribution of treatment information and experience parenting a child with ADHD to ratings of acceptability for ADHD treatments and treatment preferences reported in the recommendation measure. My study offers further insight into how health care consumers evaluate treatment qualities and integrate them with their personal values to establish treatment preferences. Treatment preferences are an important element of treatment decision making (Pierce & Hicks, 2000; Wills & Holmes-Rovner, 2006). Parents' treatment decision making for child mental health issues is an emerging area of research interest that has received little research attention (Cooper-Patrick et al., 1997; Wills & Holmes-Rovner, 2006). By furthering our understanding of how mothers establish treatment preferences for child ADHD, the findings of my study provide information that can contribute to future research examining how parents' make treatment decisions regarding their child's mental health.
References


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Appendix A

ADHD Description

Case Example

Expert Consultation Questions

Treatment Evaluation Inventory – Short Form for Medication and BPT
ADHD Description

The diagnostic label Attention Deficit/Hyperactivity Disorder or ADHD, formerly known as Attention Deficit Disorder with and without hyperactivity (ADD, ADD-H), refers to a pattern of behaviour displayed by children who have difficulty sustaining their attention and concentrating or are very active and impulsive compared to other children their age. Children with ADHD may have difficulties with their attention, their impulsivity and activity levels, or with all these areas of functioning.

Children with ADHD are easily distracted, interrupt or intrude on others, or fidget with their hands and feet or squirm in their seat. They often talk excessively and blurt out answers before questions have been completed. Children with ADHD frequently do not seem to listen when spoken to directly and are often forgetful in their daily activities. They display these characteristics more often than other children their age.

Because of their symptoms, children with ADHD often have problems in their relationships with parents, siblings, or with their peers. They may have difficulties with schoolwork as well.

The following scenario describes a boy who has been diagnosed with ADHD.
Child Behaviour Scenario

Matthew is a 7-year-old boy in Grade 2 with ADHD. He has a long history of being very active compared to other kids his age. He is also easily distracted by his surroundings and has problems staying focussed on his work at school.

His parents have noticed that he frequently makes careless mistakes in his schoolwork because he fails to pay attention to details. Matthew’s teacher has contacted his parents several times to report that he frequently disrupts the class by talking excessively or by leaving his seat and wandering around the classroom. Although Matthew has always had some difficulty with school, his grades have gone down even more this past school year.

Both at home and at school, Matthew is very disorganized. Whether it’s for homework or for a game that the family wants to play together, he can’t get the materials organized and in the right place at the right time. Matthew has always been active and noisy when he is playing and his parents often have to remind him not to run in the living room or climb on the furniture. Ever since he was little, Matthew’s parents have known he likes to participate in any and all conversations and will often blurt out his opinion and not give others a chance to speak. Matthew’s parents have noticed that he has trouble waiting his turn when he plays board games or video games with other children his age. The other kids get annoyed when he grabs the dice or the controller from them. Matthew’s mother has noticed that Matthew doesn’t have as many play dates as he used to and that other kids no longer phone him.

Matthew’s parents both agree that he has been showing the behaviours described above and other similar behaviours for several years now and they are worried about how these behaviours will affect his future. Matthew’s parents are married and both work outside the home. He has one younger sibling, aged 5.
Behavioural Parent Training – Classic Description

One form of treatment for Attention-Deficit/Hyperactivity Disorder (ADHD) involves parents learning child behaviour management techniques. This treatment is often called behavioural parent training. However, it may also be called parent training, behaviour modification or parent skills training.

How it works:
Behavioural parent training seems to help children with ADHD. Behaviour management techniques increase the structure and predictability of the child’s life at home or at school. It sets clear rules for the child’s behaviour. It also offers instant positive or negative consequences for the child’s behaviour.

Administration:
In behavioural parent training, parents learn child behaviour management techniques by working with a professional who has expertise in child behaviour. Parents may work with a psychologist, social worker, or counselor. Treatment with the professional may be conducted one-to-one or with a group of parents at the same time. The treatment is usually once a week and lasts from 8-20 weeks. Parents are asked to practice their new child management techniques at home in between sessions. Parents learn how to change their child’s behaviour using positive or negative responses. Parents learn to use praise and small rewards to increase the child’s positive behaviour. For example, parents learn to give praise or small rewards when the child completes chores. Parents also learn to ignore or punish their child’s negative behaviour. For example, parents learn to use time-out or a loss of privileges, such as no T.V. for one day, when the child behaves badly. Parents are taught to remind the child about appropriate behaviour. Parents are also taught to make sure the commands they give the child are short and clear. As well, parents learn to make sure that they give positive or negative consequences right after the child does the behaviour.

Benefits:
Most children with ADHD respond well to these behaviour management techniques and their behaviour improves. When parents use these techniques, children are more likely to follow rules and instructions at home. As well, children are less likely to behave badly. This improvement may occur because children are able to spend more time focusing or working on a measure and are less likely to act in a disruptive or hyperactive manner. If the child’s parents and teacher work together to use the behaviour management techniques at school, similar improvements in the child’s behaviour at school may occur.

Limitations:
Using the techniques can be time consuming for parents. It may involve new routines. Other children in the family may need to be included in the techniques. As well, parents may see the greatest improvement in the child’s misbehaviour and following of instructions. Parents may see less improvement in the child’s ability to pay attention, hyperactivity, or impulsive behaviour.
Improvements in the child's symptoms of ADHD usually remain as long as parents keep using the behavioral techniques on a constant basis.

Costs:
The cost of treatment varies depending on the training of the therapist or counselor. Cost also varies depending on whether sessions are offered in a one-on-one or a group format with other families. Some extended health insurance plans may pay for part of this cost. Costs for one-to-one parent training sessions with a psychologist may be as high $150 for each weekly session. Participating in a group with other families, led by a social worker or family support worker is usually around $6 to $9 for each weekly session. However, some agencies may offer higher or lower rates. Parents may also need follow-up sessions. Follow-up sessions help parents maintain and adapt their behaviour management techniques as the child grows older.
Short-acting Stimulant Medication – Classic Description

Medication is widely used to treat Attention-Deficit/Hyperactivity Disorder (ADHD). The most common form medication is short-acting stimulant medication such as methylphenidate (Ritalin) or dextroamphetamine (Dexedrine).

How it works:
Although the exact mechanisms by which these medications are effective are unclear, it is believed that they influence chemicals (neurotransmitters) in the frontal regions of the brain.

Administration:
A physician prescribes stimulant medication for the child. This can be a family doctor, a psychiatrist, or a pediatrician. To check that the dose is right for the child and to watch for any side effects, the doctor will monitor the child over time and adjust the dose to maximize the benefits of the medication and minimize any side effects. Depending on the type of medication, the child will take pills 1-3 times a day. Weekly visits with the child’s family doctor, psychiatrist, or pediatrician will be necessary until the best working dose of medication is established. Once the best dose has been found, follow-up visits with the doctor will range from once every month to once every three months.

Benefits:
After taking stimulant medication, most children with ADHD are able to focus and pay attention for longer periods of time. They are more likely to remain in their seat at school and be more efficient in completing schoolwork. Children with ADHD who take stimulant medication often have better relationships with other kids, with their teachers, and with their parents compared to children who don’t take medication. This improvement probably occurs because after taking medication, children can concentrate better and have less disruptive and hyperactive behaviour.

Limitations/Side effects:
Common side effects of stimulant medication include: nausea, dizziness or increased heart rate. Typically these side effects are minor and disappear within a few weeks. A rare side effect of the medication is reduced weight gain and delays in growing. Very rare side effects of the medication include occasional depressed mood and problems with liver functioning. There is no evidence that the medication is addictive. Improvements in the child’s symptoms of ADHD usually remain as long as the child keeps taking medication.

Cost:
Cost per month in British Columbia ranges from $9 to $50 depending on the drug and the dose. Some health insurance plans may pay for part of this cost. Most children remain on medication for at least several months and sometimes for as long as several years.
Behavioural Parent Training – Demandingness Description

One form of treatment for Attention-Deficit/Hyperactivity Disorder (ADHD) involves parents learning child behaviour management techniques. This treatment is often called behavioural parent training. However, it may also be called parent training, behaviour modification or parent skills training.

How it works:
Behavioural parent training seems to help children with ADHD. Behaviour management techniques increase the structure and predictability of the child’s life at home or at school. It sets clear rules for the child’s behaviour. It also offers instant positive or negative consequences for the child’s behaviour.

Administration:
In behavioural parent training, parents learn child behaviour management techniques by working with a professional who has expertise in child behaviour. Parents may work with a psychologist, social worker, or counsellor. Treatment with the professional may be conducted one-to-one or with a group of parents at the same time. The treatment is usually once a week and lasts from 8-20 weeks. Parents are asked to practice their new child management techniques at home in between sessions. Parents learn how to change their child’s behaviour using positive or negative responses. Parents learn to use praise and small rewards to increase the child’s positive behaviour. For example, parents learn to give praise or small rewards when the child completes chores. Parents also learn to ignore or punish their child’s negative behaviour. For example, parents learn to use time-out or a loss of privileges, such as no T.V. for one day, when the child behaves badly. Parents are taught to remind the child about appropriate behaviour. Parents are also taught to make sure the commands they give the child are short and clear. As well, parents learn to make sure that they give positive or negative consequences right after the child does the behaviour.

Benefits:
Most children with ADHD respond well to these behaviour management techniques and their behaviour improves. When parents use these techniques, children are more likely to follow rules and instructions at home. As well, children are less likely to behave badly. This improvement may occur because children are able to spend more time focusing or working on a measure and are less likely to act in a disruptive or hyperactive manner. If the child’s parents and teacher work together to use the behaviour management techniques at school, similar improvements in the child’s behaviour at school may occur.

Limitations:
Using the techniques is very time consuming. It involves using consistent routines at home. In most cases, the other children in the family must be involved as well. Using the behaviour management techniques at home involves a lot more organization and planning than most parents are used to. Parents who use these techniques to treat their child’s ADHD often have to make major changes. They may have to change how they do things in their everyday life at home and when they are with their child in public.
For instance, to increase a positive child behaviour, parents need to be ready to use rewards right after the child does the behaviour. Parents must give these rewards every time the child does the behaviour. To decrease a negative behaviour, parents need to be ready to ignore or punish the behaviour right after it occurs. Parents must do this every time the child does the behaviour. This means that parents must spend a large part of their time watching their child so they can respond to each behaviour right away.

As well, parents may see the greatest improvement in the child’s misbehaviour and following of instructions. Parents may see less improvement in the child’s ability to pay attention, hyperactivity, or impulsive behaviour. Improvements in the child’s symptoms of ADHD usually remain as long as parents keep using the behavioral techniques on a constant basis.

Costs:
The cost of treatment varies depending on the training of the therapist or counselor. Cost also varies depending on whether sessions are offered in a one-on-one or a group format with other families. Some extended health insurance plans may pay for part of this cost. Costs for one-to-one parent training sessions with a psychologist may be as high $150 for each weekly session. Participating in a group with other families, led by a social worker or family support worker is usually around $6 to $9 for each weekly session. However, some agencies may offer higher or lower rates. Parents may also need follow-up sessions. Follow-up sessions help parents maintain and adapt their behaviour management techniques as the child grows older.
Short-acting Stimulant Medication – Numeric Description

Medication is widely used to treat Attention-Deficit/Hyperactivity Disorder (ADHD). The most common form medication is short-acting stimulant medication such as methylphenidate (Ritalin) or dextroamphetamine (Dexedrine).

How it works:
Although the exact mechanisms by which these medications are effective are unclear, it is believed that they influence chemicals (neurotransmitters) in the frontal regions of the brain.

Administration:
A physician prescribes stimulant medication for the child. This can be a family doctor, a psychiatrist, or a pediatrician. To check that the dose is right for the child and to watch for any side effects, the doctor will monitor the child over time and adjust the dose to maximize the benefits of the medication and minimize any side effects. Depending on the type of medication, the child will take pills 1-3 times a day. Weekly visits with the child's family doctor, psychiatrist, or pediatrician will be necessary until the best working dose of medication is established. Once the best dose has been found, follow-up visits with the doctor will range from once every month to once every three months.

Benefits:
After taking stimulant medication, most children with ADHD are able to focus and pay attention for longer periods of time. They are more likely to remain in their seat at school and be more efficient in completing schoolwork. Children with ADHD who take stimulant medication often have better relationships with other kids, with their teachers, and with their parents compared to children who don’t take medication. This improvement probably occurs because after taking medication, children can concentrate better and have less disruptive and hyperactive behaviour.

Limitations/Side effects:
For every 100 children who take stimulant medication, between 1 to 10 of them will experience the following side effects of nausea, dizziness or increased heart rate. Typically these side effects are minor and disappear within a few weeks.
For every 10,000 children who take this medication, between 1 to 10 of them will have reduced weight gain and delays in growing.
Less than 1 child out of every 10,000 who take this medication will experience the following side effects: occasional depressed mood and problems with liver functioning.
There is no evidence that the medication is addictive. Improvements in the child’s symptoms of ADHD usually remain as long as the child keeps taking medication.

Cost:
Cost per month in British Columbia ranges from $9 to $50 depending on the drug and the dose. Some health insurance plans may pay for part of this cost. Most children remain on medication for at least several months and sometimes for as long as several years.
Consultation Questions Sent to Experts Rating Treatment Descriptions

Dear Colleague,

We are keen to get your feedback on the following descriptions of stimulant medication and behavioural parent training as treatments for child ADHD. Dr. Johnston and Carla Seipp, a graduate student working in her lab, plan to use these descriptions in an upcoming study that will be Carla Seipp’s Ph.D. thesis. We would like to hear from experienced clinicians like yourself about our descriptions.

Please answer the questions below using the 5-point scale provided. On the next few pages you will read brief descriptions of behavioral parent training and stimulant medication. Each treatment description will be followed by a few questions about the description.

1. How knowledgeable do you feel you are about behavioural parent training as a treatment for childhood ADHD?

   1 2 3 4 5
   Not very knowledgeable
   Very knowledgeable

2. How much experience do you have with behavioural parent training?

   1 2 3 4 5
   Not a lot of experience
   A lot of experience

3. How often do you use or recommend behavioural parent training as a treatment for childhood ADHD?

   1 2 3 4 5
   Not very frequently
   Very frequently

4. How knowledgeable do you feel you are about stimulant medication as a treatment for childhood ADHD?

   1 2 3 4 5
   Not very knowledgeable
   Very knowledgeable
5. How much experience do you have with **stimulant medications**?

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6. How often do you use or recommend **stimulant medication** as a treatment for childhood ADHD?

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7. Does the behavioural parent training scenario describe the treatment using appropriate language and at a level which parents are likely to understand?

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8. Does the behavioural parent training scenario describe the treatment in a manner so that parents are likely to understand the treatment?

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9. How realistic is the treatment description?

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10. Does the treatment description accurately reflect how the treatment is likely to be offered to clients?

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11. Does the behavioural parent training scenario accurately describe how you use the treatment?

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<td>Very accurate</td>
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12. Does this treatment description accurately describe the demands of behavioural parent training?

1 2 3 4 5
Not very accurate Very accurate

13. Please add any other comments you may have about this description (optional):

14. Does the stimulant medication scenario describe the treatment using appropriate language and at a level which parents are likely to understand?

1 2 3 4 5
Not very likely to understand Very likely to understand

15. Does the stimulant medication scenario describe the treatment in a manner so that parents are likely to understand the treatment?

1 2 3 4 5
Not very likely to understand Very likely to understand

16. How realistic is the treatment description?

1 2 3 4 5
Not very realistic Very realistic

17. Does the treatment description accurately reflect how the treatment is likely to be described to clients?

1 2 3 4 5
Not very accurate Very accurate

18. Does the stimulant medication scenario accurately describe how you use the treatment?

1 2 3 4 5
Not very accurate Very accurate
19. Does this treatment description accurately describe the risks of stimulant medication?

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20. Please add any other comments you may have about this description (optional):

_____________________________________________________________________________
_____________________________________________________________________________
Treatment Evaluation Inventory – Short Form (TEI-SF) for BPT

Please complete the items listed below by clicking the box on the line next to each question that best indicates how you feel about the treatments described in the previous section.

Make the following ratings thinking of the use of Behavioural Parent Training as a treatment for Matthew’s symptoms of ADHD.

Scroll to the bottom of the page at any time if you would like to read the description of behavioural parent training again.

1. I find behavioural parent training to be an acceptable way of dealing with Matthew’s symptoms of ADHD.

2. I would be willing to use behavioural parent training if I were Matthew’s parent and had to improve his ADHD symptoms.

3. I like the procedures used in this treatment.

4. I believe that behavioural parent training is likely to be effective for Matthew’s symptoms of ADHD.

5. I believe that Matthew is likely to experience unpleasant side effects from behavioural parent training.

6. I believe that there are risks in using behavioural parent training.

7. Overall, I have a positive reaction to behavioural parent training as a treatment for Matthew’s ADHD symptoms.

8. I believe that behavioural parent training will be easy for Matthew’s parents to use.

9. I believe that there are a lot of demands placed on parents’ time and energy when using behavioural parent training.

10. I believe that behavioural parent training will result in permanent improvement in Matthew’s symptoms of ADHD.

Note: On the Internet questionnaire mothers responded to each question using the five-point scale shown below.

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<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
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</table>
Scoring Information for TEI-SF for Behavioral Parent Training

Items 5, 6, and 9 are reverse scored.
Sum all items.
Treatment Evaluation Inventory – Short Form (TEI-SF) for Medication

Please complete the items listed below by clicking the box on the line next to each question that best indicates how you feel about the treatments described in the previous section.

Make the following ratings thinking of the use of Stimulant Medication as a treatment for Matthew’s symptoms of ADHD.

Scroll to the bottom of the page at any time if you would like to read the description of stimulant medication again.

1. I find stimulant medication to be an acceptable way of dealing with Matthew’s symptoms of ADHD.

2. I would be willing to use stimulant medication if I were Matthew’s parent and had to improve his ADHD symptoms.

3. I like the procedures used in this treatment.

4. I believe that stimulant medication is likely to be effective for Matthew’s symptoms of ADHD.

5. I believe that Matthew is likely to experience unpleasant side effects from stimulant medication.

6. I believe that there are risks in using stimulant medication.

7. Overall, I have a positive reaction to stimulant medication as a treatment for Matthew’s ADHD symptoms.

8. I believe stimulant medication will be easy for Matthew’s parents to use.

9. I believe that there are a lot of demands placed on parents’ time and energy when using stimulant medication.

10. I believe that stimulant medication will result in permanent improvement in Matthew’s symptoms of ADHD.

Note: On the Internet-based questionnaire mothers will respond to each question using the five-point scale shown below.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</table>
Scoring Information for TEI-SF for Medication
Items 5, 6, and 9 are reverse scored.
Sum all items.
Appendix B

Coding Manual for the Treatment Recommendation Task
Acceptability of Treatments for Childhood Disorders:
TREATMENT RECOMMENDATION TASK

How to Code

For each question, begin by reading through the mother's entire response for why she chose a treatment.
- Then divide the paragraph into arguments (i.e. reasons why or why not to use a treatment).
- Code each argument separately i.e. so that there is only one reason. An argument is one that can answer the questions “I chose this treatment because…” and “I did not choose the other treatment because....”

Many sentences will contain more than one argument. Conversely, some mothers will repeat the same reason a number of times (the reason is only recorded the first time it is given).

Do not code information in the responses that summarizes family context but cannot answer the “because” questions (i.e. We tried lots of treatments with our son. Or “This is a very difficult choice.” Or “There needs to be more community services and support for families of children with ADHD from doctors and counsellors.”)

Question 1:
Arguments the first questions will generally be either the presence of a positive attribute of the treatment, the absence of a negative attribute, or more of a moral-type reason. Moral type reasons tend to be short statements that relate more to social expectations for parents or children, rather than actual symptoms of ADHD.

Do not code any negative attributes the parent gives for the chosen treatment (i.e. “I know this treatment is difficult would take a lot of time to use, but I think it is still the best.”). Only code the reasons why they like it.

If parents give arguments here why they don’t like the treatment in question 2, mark this down in the question 2 boxes.

Question 2:
The structure of the arguments for question two will generally be the reverse of the arguments for question 1 with the exception of the moral-type reason. That is, mothers are likely to say they did not choose the other treatment because of the presence of negative attributes or the absence of positive attributes. They may provide a similar moral-type reason as in question 1. Again do not code anything that is not a reason why they do not like the treatment.

Often in this question, mothers will revert to giving reasons why they like the other treatment better, code any NEW reasons for why they like the other treatment back under question 1.

Other comments...
Don't code (even if they give reasons for liking or not liking the treatments mentioned earlier), but please read them because they will help clarify mothers' arguments for the first two questions.

Possible Arguments for Question 1:

**Presence of positive**

**Effectiveness on ADHD symptoms** (anything that refers to a general improvement or a specific improvement in attention, focusing, concentrating, or organizing oneself):
- “It will work better than other treatment” (general response)
- It’s not just a short-term solution
- “It seems to be effective for my son.”
- “Helped him get his poop in a group.”
- “It will work right away.”
- It helps other treatments to work/It is necessary for other treatments to work
- “Gets at core of the problem.” (parent usually frames problem as being biological depending on the treatment they chose)
- It will work long term
- Will improve symptoms of inattention
- Will work even when parents aren’t there/Will work in all situations
- Will improve child’s behavior in all situations

**Learning important parenting or behavior management skills** (anything that refers to learning how to manage the child’s symptoms, or the child learning how to regulate himself – watch for words “learn” or “teach” in examples:
- “Parent or child learns how to deal with the problem instead of relying on medication”
- Teaches parents skills that they can use with all the children
- Improves parenting skills
- Child can learn how to manage his behavior on his own for when he is older.
- “It gets at core of the problem” (and parent is framing problem as behavioral).

**Improving social relationships and school functioning** (Code here anything that refers to a improvement in social or school functioning, that does not seem to be related to attention, behavior, or self-regulation).
- Will improve family relationships
- Child will have a better time at school
- Child will experience more positive interactions with other adults, teachers, other kids.
- Improve family climate
- Improves child-self esteem
- Child will feel better about themselves.

**Natural-ness**
- It will not change my child
- It is less invasive than chemical intervention
- Parent or child will feel good about themselves because they are responsible for (or "they own") the improvement in the child’s functioning.
- It is better to use nonpharmacological (non-drug) ways to change the child’s behavior (This is normally a moral argument, unless parent says something to emphasize “natural treatments” i.e. recommending diet or herbs as well).
- Family will feel better because they improved child’s behavior without medication and can take credit for the improvement

**Absence of negative:**

**Risks of medication**
- Absence of side effects
- Absence of risk of addiction
- Long-term treatments may have unknown risks.
- Absence of unknown risks
- Absence of risk of self-harm

**Absence of demandingness:**
- Will make life easier for everyone
- Less demanding on parent’s time etc.
- Less stressful on parents’, other children etc.
- Does not require teachers/all caregivers to agree to practice techniques (e.g. “Does not require constant surveillance/buy-in from all caregivers”)
- More fair for all the children

**Absence of interfering with Social relationships**
- Will not interfere with family relationships
- It does not interfere with being fair to other children

**Moral reasoning or more characterological beliefs:**
- General dislike of medication (no other reason given)
- General dislike of rewards/punishment (e.g. “I don’t believe in bribing kids.”)
- It's wrong to medicate children
- Children need fresh air and attention, not medication
- "It’s parent’s duty" (not to medicate their kids/to try behavioral treatments)
- Parent’s need to give their children more attention
- Medication should only be used as a last resort/Try other treatments first
- Doctor’s/Drug companies are just pushing drugs
- Too many kids are medicated
- It's like cocaine for kids
- Too easy to see medication as a band-aid solution
- Medication is just an easy fix-all/or an easy cop-out
**Question 2** (Remember if mother starts discussing reasons why she likes the treatment in question 1, check these off on the coding sheet under question 1):

**Presence of Negative:**

**Will harm family climate/relationships**
- Not fair to other children in the family
- Hard not to damage parent child relationship

**Risks of medication**
- Risk of side effects
- Risk of addiction
- Scary to medicate child
- Doctors don’t monitor carefully enough
- Risk of suicide/or causes violent behavior

**Unnatural**
- "Medication will change my child"
- Too invasive
- "Mind-altering"
- Parents should use diet or herbal remedies

**Demandingness**
- Too demanding on parents’ time etc.
- Too hard
- Very time consuming
- Hard to enforce/be consistent
- Hard to find services/long-waitlists/ hard for parent’s to get into programs.
- Too hard to use when the parent isn’t there (e.g. the teacher may not want to use behavioral techniques).

**Absence of positive:**

**Less effective than other treatment for ADHD symptoms:**
- Does not work adequately
- “It will not work right away.” “It will take too long to work”
- “Does not get at core of the problem.” “Does not address real problem” (parent usually frames problem as being behavior or biological depending on the treatment they chose)
- It will not work long term
- Will not improve symptoms of inattention
- Other treatment is more important
- Other treatment will work better
- Will not work in situations without the parent there (e.g. school, daycare)
Absence of learning skills or how to manage the problem:
- Parent’s don’t learn how to manage the child’s behavior
- Child doesn’t learn how to control himself.
- Does not improve parenting skills

Failure to improve social relationships
- Will not improve functioning in social relationships
- Other kids will dislike him
- Social relationships are too frustrating (with this treatment/without other treatment)

Moral reasoning or more characterological beliefs:
- General dislike of medication (no other reason given)
- It’s wrong to medicate children
- General dislike of rewards/punishment (e.g. “I don’t believe in bribing kids.”)
- Children need fresh air and attention, not medication
- “It’s parent’s duty” (not to medicate their kids/to try behavioral treatments)
- Parent’s need to give their children more attention
- Medication should only be used as a last resort/Try other treatments first
- Doctor’s/Drug companies are just pushing drugs
- Too many
- It’s like cocaine for kids
- Too easy to see medication as a band-aid solution
- Medication is just an easy fix-all/or an easy cop-out
Appendix C

University of British Columbia

Behavioural Research Ethics Board Certificate of Approval
CERTIFICATE OF APPROVAL - MINIMAL RISK

**PRINCIPAL INVESTIGATOR:**
Charlotte Johnston

**INSTITUTION / DEPARTMENT:**
UBC/Arts/Psychology, Department of

**UBC BREB NUMBER:**
H06-03761

**INSTITUTION(S) WHERE RESEARCH WILL BE CARRIED OUT:**

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**Other locations where the research will be conducted:**
Participants will complete this study using the Internet, either from their own home, their workplace, or another location where they are able to access the Internet.

**CO-INVESTIGATOR(S):**

Carla M. Seipp

**SPONSORING AGENCIES:**

N/A

**PROJECT TITLE:**
Acceptability of Treatments for Childhood Disorders

**CERTIFICATE EXPIRY DATE:** March 2, 2008

**DOCUMENTS INCLUDED IN THIS APPROVAL:**

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Other:

www.psych.ubc.ca/psycforms/treat/sign-in.psy This web site is being created for the purpose of this study and will not be posted until approval has been obtained from BREB. All documentation contained on this web site has been attached in the consent and questionnaire sections. Consent and data from questionnaires (with the exception of the parent and teacher versions of the ADHD-IV) will be collected via this website.

The application for ethical review and the document(s) listed above have been reviewed and the procedures were found to be acceptable on ethical grounds for research involving human subjects.

Approval is issued on behalf of the Behavioural Research Ethics Board and signed electronically by one of the following:

Dr. Peter Suedfeld, Chair
Dr. Jim Rupert, Associate Chair
Dr. Arminee Kazanjian, Associate Chair
Dr. M. Judith Lynam, Associate Chair