Applying Theory-Driven Approaches To Predicting Pediatric Mental Health Clinician Behavior In The Utilization Of Evidence-Based Practice

by

Deborah Johnson Emberly

Submitted in partial fulfilment of the requirements
for the degree of Doctor of Philosophy

at

Dalhousie University
Halifax, Nova Scotia
August 2010

DALHOUSIE UNIVERSITY

DEPARTMENT OF PSYCHOLOGY

The undersigned hereby certify that they have read and recommend to the Faculty of Graduate Studies for acceptance a thesis entitled "Applying Theory-Driven Approaches To Predicting Pediatric Mental Health Clinician Behavior In The Utilization Of Evidence-Based Practice" by Deborah Johnson Emberly in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Dated: August 17, 2010

External Examiner: _____

Research Supervisor: _____

Examining Committee: _____

_____

Departmental Representative: _____

DALHOUSIE UNIVERSITY

DATE: August 17, 2010

AUTHOR: Deborah Johnson Emberly

TITLE: Applying Theory-Driven Approaches To Predicting Pediatric Mental Health Clinician Behavior In The Utilization Of Evidence-Based Practice

DEPARTMENT OR SCHOOL: Department of Psychology

DEGREE: PhD CONVOCATION: October YEAR: 2010

DEDICATION PAGE

Well, here it is, done…To my husband, Steven, thank you for everything. You have been beside me from the beginning and have helped to intertwine our life in the midst of this educational journey. Thank you for seeing the use and worth in this endeavor and keeping us moving forward and having fun!

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

Within pediatric mental health, of the only 25% of children with emotional and behavioral disorders that receive mental health services many receive treatments and interventions that are not based upon evidence. The question remains how to support mental health clinicians to utilize the evidence we have regarding the treatment of pediatric mental health disorders. Research findings consistently demonstrate that there are a variety of successful interventions which can be effective in changing clinical behaviors. However, further research is required to develop and validate a coherent theoretical framework of health professional behavioral change to better inform the choice of interventions. This study applied theory-driven approaches to predict pediatric mental health clinician behavior in the utilization of evidence-based practice. A national web based survey of pediatric outpatient mental health clinicians (N=154) applying the Theory of Planned Behavior and Operant Learning Theory (Habit and Reinforcement) was conducted. The clinical behaviors of interest were: 1) Recommendation of medication consultation/prescription for the treatment of ADHD; 2) Recommendation of parent training regarding child behavior management; and 3) Utilization of evidence-based group therapy with the specific objective of reducing wait lists. Behavioral intention, a theoretically derived measure, was the main outcome measure. Habit uniquely accounted for 61%, 20% and 25% of the variance, respectively in the three behaviors of interest (parent management, medication, and group treatment for waitlist management). Attitude uniquely contributed a further 5% of the variance in intention in medication consultation/prescription while Reinforcement uniquely explained an additional 10% of the intention to use group treatment. Habit is the single greatest predictor of pediatric mental health clinician behavioral intention in the utilization of evidence-based practice. Habit describes why clinicians are engaging in a behavior (it is what they've always done), but the other theoretical predictors tell us something about how to change this habit.

LIST OF ABBREVIATIONS USED

α	Alpha
AAP	American Association of Pediatrics
ADHD	Attention Deficit Hyperactivity Disorder
APA	American Psychological Association
β	Standardized Beta Weight
CADDRA	Canadian ADHD Resource Alliance
CAPHC	Canadian Association of Pediatric Health Centres
CHAIN	Connect, Help, Advice and Information Network
CBT	Cognitive Behavioral Therapy
CIHR	Canadian Institutes of Health Research
CPA	Canadian Psychological Association
DBD	Disruptive Behavior Disorder
df	Degrees of Freedom
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders- 4th Edition
EBP	Evidence-Based Practice
EBPAS	Evidence-Based Practice Attitude Scale
EST	Empirically Supported Treatment
F	F-test
IIS	Internet Information Services
IWK	Izaak Walton Killam
KT	Knowledge Translation
M	Mean

N	Number of Participants
NICE	National Institute of Clinical Excellence
NS	Nova Scotia
OLT	Operant Learning Theory
p	Probability or Alpha Level
PBC	Perceived Behavioral Control
PEI	Prince Edward Island
r	Correlation Coefficient
R^2	Squared Multiple Correlation Coefficient
SD	Standard Deviation
sr^2	Squared semi-partial correlation coefficient
SSL	Secure Sockets Layer
TACT	Target, Action, Context, Time
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
UK	United Kingdom

ACKNOWLEDGEMENTS

The completion of my dissertation research would not have been possible, or nearly as successful, without the generous support of many people. The person most impacted through this period of scholarship was my husband, Steven. Thank you for rolling with the ever changing end date, as it turns out two years was a wee bit ambitious. Without your support of this work, our marriage and our life, this would not have been possible. On to the next chapter in our journey!

Thank you to the IWK Health Centre for their generous support of my graduate training. To Sue Mercer, thank you for believing in my potential and contribution to the mental health program and in turn investing in my development. The financial contribution, job security, and provision of ongoing time to complete this work was invaluable.

I would like to express my gratitude to my supervisor, Dr. Patrick McGrath. Thank you for your belief in me and your mentorship over the course of my career. Thank you for your thoughtful comments and suggestions for organization of my writing in the preparation this document. You provided just the right balance of pressure and support to help me reach my full potential and achieve excellence. It has been a pleasure.

Thank you to my committee members, Dr. Penny Corkum and Dr. Vicky Wolfe, who responded to tight timelines with care, support and good humor. Thank you for your contributions, advice and support throughout this thesis work.

My friends Jenny, Jenny, Tara, Tracy, Jackie and Meaghan, thanks for the fun ladies. I am fortunate to have such a caring and supportive network of friends. Thanks

for supporting me along the way and reminding me that I am only human. To my friend and colleague Trudi, thank you for your unwavering support and detailed and painstaking editing of this document. It is a pleasure to share the graduate experience with you.

To my family… my mum, your enthusiasm is heartening and never ending and I am so glad to have shared this process with you; Gail, thanks for being so solid and always a support…my Gran, yes the writing part does seem to take a long time, but it is done now. Everyone else…thanks for your support, interest and for putting up with me!

CHAPTER 1 Introduction

1.1 Significance of the Problem

There is a huge gap between what is known about effective mental health services and what is done in clinical practice (Perkins et al., 2007), despite significant investment in research, dissemination and advocacy about the delivery of effective and efficient patient care. Researchers often strive for years to obtain research grants to conduct meaningful, empirical research, only to find that their research is not used or that it takes many years for the discoveries to influence practice (McGrath, Lingley-Pottie, Johnson Emberly, Thurston, & McLean, 2009).

The implementation of research findings into clinical practice is often a slow and disorganized practice (AHRQ, 2001). While there are no relevant data for Canada, there have been studies conducted in comparable countries identifying this knowledge to practice gap in the provision of evidence-based health care. In the Netherlands it is estimated that 30-40% of patients are not receiving evidence-based health care (Grol, 2001). In the United States only 55% of adults received recommended processes involved in acute, chronic and preventative health care, and as many as 20-25% of patients get care that is not needed or is potentially harmful (McGlynn et al., 2003).

The knowledge to practice gap can be defined in many ways. In a review of the terminology, 29 different terms were used by 33 applied health research funding agencies (Graham, Tetroe, Robinson, Grimshaw, & the International Funders Study Research Group, 2005). Some of the more common terms applied to this process are knowledge translation, knowledge transfer, knowledge exchange, knowledge/research utilization, implementation, dissemination, and diffusion. Of all the terms, knowledge translation (KT) is the one gaining prominence in Canada (Canadian Institutes of Health Research,

CIHR). The CIHR defines knowledge translation as: "...a dynamic and iterative process that includes synthesis, dissemination, exchange and ethically-sound application of knowledge to improve the health of Canadians, provide more effective health services and products and strengthen the health care system." (http://www.cihr-irsc.gc.ca/e/29418.html). What is key in the CIHR definition is that the primary purpose of KT is to address the gap between what is known from research and the implementation of this knowledge by key stakeholders with the intention of improving health outcomes and efficiencies of the health care system (Graham et al., 2005).

Within mental health services, even well documented, evidence-based interventions have not been readily accepted as part of general practice within the public mental health system (US Public Health Service, 1999). There is an ever increasing gap between what clinical researchers know about what works and what clinicians in real world community settings know and what they do in clinical practice (Silverman, Kurtines & Hoagwood, 2004)

At any given time, 14% of children experience mental health disorders that cause significant impairment in their daily functioning, yet approximately 75% of these children do not receive specialized mental health services (Offord, Boyle, Szatmari, et al., 1987; Ringel & Strum, 2001; Waddell, McEwan, Shepher, & et. al., 2005). Those that do receive care, often receive treatments and interventions that are not based upon evidence of efficacy or effectiveness (Hoagwood & Olin, 2002). The Canadian Senate Report on the Status of Mental Health in Canada, entitled Out of the Shadows at Last (Kirby & Keon, 2006), stated that without effective knowledge translation within mental health services, "ineffective or even harmful treatments may continue, while effective,

evidence-based treatments may not be adopted by policy-makers and mental health service providers," p. 263.

Although there are many successes in finding new evidence-based practices for mental illness and addictions treatment, the dissemination and implementation of these successes into clinical practice remains a major challenge (Ringel & Strum, 2001). The sections that follow in this introduction will first define evidence-based practice and then situate it within the current state of mental health and subsequently within children's mental health. What is termed the "evidence to practice gap" will then been explored and embedded within the newly emerging field of implementation science. Next, solutions to this gap will be discussed including a review of the literature regarding clinician behavior change. Finally, the rationale, including the theoretical framework, clinical implications, and hypotheses for the current study will be presented.

1.2 What Is Evidence-Based Practice?

Evidence-based practice (EBP) is a process that involves "the conscientious, explicit, judicious use of current best evidence in making decisions about the care of individual patients" (Sackett, Rosenberg, Gray, Hanes, & Richardson, 1996). In 2005, the American Psychological Association (APA) adopted the evidence-based practice policy model outlined by Sackett et al., (1996). The wording of the policy states, "Evidence-based practice in psychology is the integration of the best available research with clinical expertise in the context of patient characteristics, culture, and preferences." (American Psychological Association, 2005). Evidence-based practice includes the utilization of both clinical practice guidelines and empirically supported treatments as part of the EBP framework.

Clinical practice guidelines are defined as "systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances" (Field & Lohr, 1990, p. 38). Guidelines are normally developed through a rigorous process by a government agency (e.g., UK's National Institute of Clinical Excellence) or a professional society (e.g., Heart and Stroke Foundation, American Psychiatric Association). Guidelines usually provide some appraisal of the quality of the evidence base, which supports the recommended practice. The goal of clinical practice guidelines are to improve patient care by providing best practice models which serve to reduce the variability in practice and make explicit both the rationale for the development of the guideline and the steps required for implementation (Bauer, 2002).

In 1995 the APA Task Force on Psychological Intervention Guidelines (Chorpita, et al., 2002), outlined a template for measuring the quality of psychosocial interventions with the goal of developing guidelines for the treatment of specific mental health disorders, later termed empirically supported treatments (ESTs). The Task Force recommended that treatments be evaluated based upon efficacy (i.e., how well a treatment works to bring about change for a specific disorder in clinical research) and effectiveness (i.e., how well this treatment works in a real world setting) (Chorpita et al., 2002). The list of ESTs collected for psychology (Chambless & Hollon, 1998; Chambless & Ollendick, 2001) bears similarity to a guideline, except that the compilation is organized based on interventions rather than clinical problems.

Within psychology empirically support treatments (EST) are often erroneously viewed as synonymous with EBP. The American Psychological Association Task Force

on Evidence-based Practice (2005) differentiated between empirically supported treatment (EST) and evidence-based practice (EBP), noting EBP to be the more comprehensive framework. Where ESTs start with a treatment and ask whether it works with a specific disorder (nomothetic approach), EBP starts with the patient and asks what research evidence incorporated with clinical expertise and patient characteristics/preferences will promote the best outcome (idiographic approach).

A shared feature of ESTs and clinical practice guidelines is that both suggest the best treatment approach for an average patient. Often this evidence has been established in university settings in which therapists are typically academics or graduate students who strictly adhere to research protocols with a highly selected population (Weisz, Donenburg, Han, & Weiss, 1995). This approach is one the greatest challenges in the use of ESTs noting that often participants in treatment studies where the evidence is created are not representative of the complex presentation of individuals in clinical practice (Hunsley, 2007). For example, most treatment studies tend to exclude participants who present with comorbidity (Westen, Novotny, & Thompson-Brenner, 2004), despite epidemiological evidence that typically finds comorbidity rates for mental health disorders that exceed 40% in both clinical and community samples (Clark, Watson, & Reynolds, 1995).

The EBP model described by (Sackett et al., 1996) and the one that has now been adopted by most health professions, relies upon an idiographic approach utilizing clinical decision making for the care of individual patients rather than the one size fits all, nomothetic approach of clinical practice guidelines and empirically supported treatments. This model incorporates a greater breadth of clinical intervention, intuition and judgment

than empirically supported treatments or guidelines alone. Where ESTs and guidelines provide a specific treatment protocol for a specific disorder, the idiographic approach of EBP incorporates the utilization of the clinician's breadth of experience and training to establish therapeutic rapport/alliance and tailor the interventions to meet the specific problems or situations that the individual client brings forward in each session. ESTs, manualized treatments, guidelines, etc., are not designed to be used in isolation from other clinical therapeutic skills. Rather, they provide a consistent and evidence-based approach to delivering treatment which when used as a part of EBP necessarily incorporates clinical judgment and patient preferences.

Spring (2007) discusses EBP as being represented by three circles, also known as the "*three legged stool*." Each circle or leg is a piece of information that needs to be considered and integrated in designing the best treatment plan for an individual patient. The circles are (1) the best available research evidence (e.g., systematic reviews, randomized controlled trials, empirically supported treatments); (2) clinical expertise (e.g., competencies needed to deliver practices, clinical initiation and clinical judgment); and (3) patient values, preferences, characteristics, and circumstances (e.g., shared decision making). Evidence-based practice, therefore, is the process of integrating the circles through a process of clinical decision-making.

Research indicates that many mental health clinicians do not hold favorable attitudes toward EBPs (Aarons, 2004). Clinicians have raised numerous concerns regarding manualization and the use of ESTs (Addis, Wade, & Hatgis, 1999). In a survey of barriers to dissemination of evidence-based practices it was noted that the use of manual-based treatments is contentious. Six themes emerged regarding clinicians'

concerns: (1) effects on the therapeutic relationship; (2) unmet client needs; (3) competence and job satisfaction; (4) treatment credibility (5) restriction of clinical innovation; and (6) feasibility of manual-based treatments (Addis, Wade, & Hatgis, 1999). Further, Borntrager, Chorpita, Higa-McMillan, & Weisz (2009) examined therapist attitudes to evidence-based treatment in two different conditions, the use of standard treatment manuals versus modular assembly of treatment procedures utilizing the same evidence-based treatment information. They found that psychologists had more positive attitudes toward the modular treatment condition, suggesting that it is not the evidence, but rather the packaging of the material that impacts upon attitudes.

Aarons (2004) developed the evidence-based practice attitude scale (EBPAS), a brief (15-item) measure of mental health provider attitudes toward the adoption of EBPs. In a survey of 322 public sector clinical service workers from 51 programs providing mental health services to children and their families in San Diego, California, four dimensions of attitudes toward adoption of EBP's were identified. These dimensions were: (1) intuitive appeal of EBP; (2) likelihood of adopting EBP given requirements to do so; (3) openness to new practices; and (4) perceived divergence of usual practice with research-based/ academically developed interventions. Results indicate that the EBPAS provides a reliable measure of clinical attitudes. While this is a relatively new measure, Aarons et al. (2010) reports granting permissions for use of the measure to over 50 US-based research and evaluation studies, and internationally, to researchers in Canada, Iran, Israel, Japan, Norway, Romania and Sweden.

Most recently, Aarons et al. (2010) has published a study examining the psychometric properties and norms of the EBPAS in a sample of 1,089 mental health

service providers from in the United States. This sample confirmed the original subscale factor structure and provided a normative sample to compare with future samples. There were also demographic characteristics of the sample that were related to the scales e.g., older service providers were more open to adopting EBPs if there were external requirements to do so; women were more open to adopting EBPs than were men (contrary to Aarons (2004) where gender differences were not found) as evidenced by higher scores on the EBPAS Total, Requirements and Appeal scales; and higher educational level was associated with both a lower likelihood of adopting EBPs given requirements to do so and a higher level given the Appeal of the EBP (Aarons et al., 2010). Professionals tend to make independent decisions about their practice and will only incorporate an EBP if it fits with their view of their own practice. Furthermore, longer on the job experience leads to less enthusiasm for EBP (Aarons et al., 2010). So more highly trained and greater experienced practitioners are less likely to implement EBP.

A survey of southern California psychologists, psychiatrists, family counselors, and social workers (Beutler, Williams, Wakefield & Entwistle, 1993) revealed that clinicians believe that research findings are, and have been, important in refining their practices. They tend, however, to obtain this research information from more popular books, practice-oriented journals, and workshops than from research journals. In their sample (Beutler et al., 1993), 80% of practitioners reportedly held a respectful view of science and reported reading scientific articles and journals regularly. However, when asked to identify these "scientific journals and articles," they listed professional newspapers *(APA Monitor, Psychiatric News,* etc., 76%), practice oriented journals

(58%), and popular books (51%) as the major sources of knowledge. Only 35% of the sample identified a conventional empirical journal among the sources of their "scientific" information. While clinicians believe that research findings are important in modifying their practices, most clinician knowledge within mental health comes from popular books and workshops rather than from academic research journals (Beutler, Williams, Wakefield, & Entwistle, 1995). The authors propose that scientists should market their findings through popular articles like books, workshops and other vehicles of communication preferred by practitioners.

Given the challenges of evaluation and implementation of ESTs in real world settings, within child clinical psychology there has been an increasing shift from efficacy research to effectiveness research (Schoenwald & Hoagwood, 2001). That is, efforts to promote more widespread use of evidence-based or empirically supported treatments have begun to focus on the issue of evaluation of ESTs within real world clinical practice, in addition to showing their efficacy within a controlled clinical setting. Efficacy research illuminates how well a specific treatment works for a specific set of individuals in a well controlled setting (i.e., the randomized controlled trial). It is arguably the first step in promoting better practice (Summerfelt & Meltzer, 1998), however, the generalizability of this research to the greater clinical population is not clear (Silverman & Kurtines, 2004). Effectiveness is defined as either how well a treatment performs in real world settings (Chambless et al., 1996; Chambless & Hollon, 1998), or the study of how efficacy- based treatments work in real world practices (Silverman et al., 2004).

There have been few studies on the effectiveness of ESTs for children. On the 1995 list of ESTs (APA Task Force on Promotion and Dissemination of Psychological

Procedures, 1995) only three child treatments were considered well established (behavior modification for enuresis and encopresis and parent training programs for children with oppositional behavior), compared to 17 adult treatments (e.g., cognitive behavior therapy for chronic pain, exposure and response prevention for obsessive compulsive disorder, interpersonal therapy for bulimia) and two applied to adults and children (behavior modification for individuals with developmental disabilities and token economies). This trend continued through both task force updates (Chambless et al., 1996, 1998; Silverman & Hinshaw). The APA Division 12 (Society for Clinical Psychology) website (http://www.div12.org/) which previously housed the listings of ESTs for both children and adults, now (June 2010) provides a linkage to the APA Division 53 (Society of Clinical Child and Adolescent Psychology), web page (http://www.clinicalchildpsychology.org/) and from there a link to evidence-based treatment for children (http://www.abct.org/sccap). This listing includes five disorders with treatments that are determined to be well established[1] (e.g., trauma focused CBT for posttraumatic stress disorder; CBT and interpersonal therapy for depression; behavioral intervention for ADHD; parent management training for DBD).

In summary, treatments and interventions being used in usual care are often not based on evidence of efficacy or effectiveness (Hoagwood & Olin, 2002). A review of efficacy-evaluated treatments, (Herschell, McNeil, & McNeil, 2004) noted the gap between what clinical researchers know about what works and what clinicians in community settings do. It was further documented that the evaluation and subsequently,

[1] ESTs are rated according to nature and quality of evidence as well established, probably efficacious, possibly efficacious, or experimental, (please see Silverman & Hinshaw (2008) for a review of the criteria).

the dissemination of ESTs has been particularly slow in the area of child mental health compared to the adult area.

1.3 Evidence To Practice Gap

Despite developments of psychological interventions for a variety of disorders and problems, research evidence suggests that these treatments are not readily available to the individuals who require them because they have not been effectively disseminated to the mental health professionals who deliver them (Barlow, Levitt, & Bufka, 1999).

Chambers (2003) discusses the dissemination and implementation of evidence in clinical practice in child and adolescent mental health. The author concluded that corrective actions to bridge the gap between evidence-based clinical care and current practice requires a framework that acknowledges the interactive processes involved in transferring specific ESTs and interventions to specific targeted audiences (e.g., families, youth, clinicians, administrators, and policy makers) within specific local settings. The interactive dimensionality of the process requires both theoretically guided principles and basic research to make progress in closing the research to practice gap (Silverman et al., 2004).

McLennan, Wathen, MacMillan, & Lavis (2006) identified a framework for classifying research-practice gaps in children's mental health service. The first gap (Type 1) is described as failing to provide an intervention that has demonstrated a positive impact. This failing to take up into practice what research has shown to be efficacious is the most obvious failure within traditional knowledge translation. We know there are a variety of factors which contribute to this knowledge translation failure, including the availability of the research evidence, clinician time to review evidence, institutional

support of evidence-based practice, individual clinician attitudes toward research evidence, limited resources to implement evidence-based practices, among others (Eccles et al., 2005). McLennan et al. (2006) suggest that this type of gap is receiving the most attention for intervention from those committed to delivering evidence informed health care.

There are a variety of strategies researchers utilize to bridge this gap which have been classified by Graham et al. (2006). These include passive diffusion activities which involve a spectrum of activities typically described as *researcher push* activities which include conference presentations, peer reviewed publications, website postings. The rationale is that individuals who might be interested in the study results will be motivated to search for them. Chambers (2003) defines diffusion in a clinical realm as the intended or unintended spread of information or treatments and as such includes organized attempts to circulate specific treatments or information into clinical settings.

Dissemination, while still relatively passive, focuses on researcher push activities and involves identifying specific target audiences for the study findings, tailoring the message about the findings to each audience and using an appropriate medium to get the message to that audience (Graham et al., 2006). Research based dissemination activities include sending cited authors copies of the paper, summary to stakeholders, educational sessions with patients, practitioners or policy makers, creating knowledge tools that incorporate the study findings that would be of use to potential adopters, engaging the media to reach the public, or the use of knowledge brokers to reach the intended audience(s) (Graham et al., 2006). Chambers (2003), within a clinical setting, similarly

refers to dissemination as the targeted distribution of a well designed set of materials, such as training protocols, manuals, etc.

A more active, although relatively rare form of knowledge translation is termed application or implementation (Graham et al., 2006). Application involves engaging in active efforts to move research into practice or policy and usually requires addressing the context/environment where research is to be applied, identifying barriers to the uptake of the research findings, adapting knowledge, tailoring messages, and interventions to promote uptake or evaluating the implementation process and outcomes. Chambers (2003) utilizes the term implementation to describe a similar application process in clinical practice and refers to the process of introducing or changing clinical practices using strategies adapted to a specific local setting. Each of these three strategies is promising for addressing the Type 1 research to practice gap.

The second type of research-practice gap (Type 2) is likely the most problematic as the cost to the client being served is the highest. This gap is the provision of an intervention which research evidence demonstrates to have harmful effects. Within children's mental health, pharmacological interventions receive intense scrutiny and are subject to warnings and recalls. For example, while prescribing clinicians can and often do use medications off label (Dell, Vaughan, & Kratochvil, 2008), black box warnings released in 2003/2004 of selective serotonin reuptake inhibitors and their relation to increased suicidal ideation resulted in a 22% decrease in prescribing behavior (Gibbons et al., 2007). However, this study also showed that there was a concomitant increase in suicide rates in both the United States (14% increase between 2003 and 2004) and the Netherlands (49% increase between 2003 and 2005). The same warning process is not

applied to psychological interventions, even though documented harms associated with psychological interventions exist. One strong example proposed by McLennan et al. (2006) is the use of prison tour programs for adolescents or the "scared straight" programs. A meta-analysis of these programs found that when used with the high-risk population of youth with conduct disorder for which the programs were designed, there was a significant increase in reoffending rates for those in the intervention group (Petrosino, Turpin-Petrosino, & Buehler, 2002). Despite this evidence, these programs continue to be offered. The authors (McLennan et al., 2006) suggest that a failure to measure potential harm results in an under representation of this type of research practice gap in the literature. A reliance on passive methods of diffusion or dissemination of evidence that interventions are harmful may not be sufficient to address this type of practice gap. More active strategies are needed to both measure harm associated with specific interventions and target professionals and policy makers with the results of the evidence to influence practice change in a more expedient and direct manner. The authors suggest that when Type 2 research to practice gaps are identified, it is generally a result of legal ramifications resulting from perceived or actual harm.

The third type of research-practice gap (Type 3) outlined by McLennan et al., (2006) is "providing interventions with no demonstrated effect." The cost of this gap is in the loss of opportunity to offer effective interventions and the use of limited resources to provide an intervention that is unlikely to help. This leads to treatment failure and impacts the client's subsequent attempts to access psychological intervention which may be helpful. The most convincing example offered by the authors is the widely used DARE substance abuse prevention program. DARE continues to be the most frequently

used substance abuse program in the United States, but a recent meta-analysis found the DARE program had no significant impact on substance abuse (West & O'Neil, 2004) An earlier meta-analysis found similar results with an overall effect size of 0.06 (Ennett, Tobler, Ringwalt, & Flewelling, 1994). Often the initial commitment and investment in a program make it difficult for clinicians, bureaucrats, funders, and other stakeholders to acknowledge the lack of evidence and change the practice even with evidence that there is no benefit. Tying continued financing of interventions to evidence of effectiveness, thereby requiring measurement of outcomes, is offered by McLennan and colleagues as one solution to this evidence practice gap.

The final evidence to practice gap identified by the authors (McLennan, et al., 2006) as the most prevalent of the research to practice gaps, was the provision of an intervention that has not been subjected to rigorous evaluation to determine if it is in fact beneficial or if the benefits outweigh any potential harmful effects (Type 4: termed "The Evaluation Gap"). The children's mental health system is an under resourced system. In the current state, the Canadian public mental health system only reaches approximately 25% of children who meet criteria for a mental health disorder and require mental health services, consequently, the system fails to meet the needs of over 75% of the children who need mental health treatment service (Ringel & Strum, 2001;Waddell et al., 2005). The capacity of this already strapped system to prioritize research and evaluation is limited. This research to practice gap can result in the provision of labor intensive and financially expensive programs with no evaluation of the effectiveness or harm/benefit analysis. The best case scenario is that the interventions are helpful; the worst is that they are harmful. Often these programs become incorporated as part of the best practice

guidelines of institutions without any evaluation, resulting in a burden of providing stronger evidence to stop a clinical practice. Some of the most widely used programs within children's mental health have no proven evidence to support their use. The authors (McLennan et al., 2006) offer several examples of this gap, including an evaluation of group based parenting programs offered in a community setting with little to no evidence accumulate of positive outcomes (McLennan & Lavis, 2006). To address this type of gap, recognition of the value and importance of evaluation is required from funding sources and policy makers. Evaluation programs need to be built into the original design of new interventions.

Within children's mental health, there is a scarcity of research examining the effectiveness of clinical interventions within real world practice. Given the limited resources within this system, evidence to practice gaps will continue without a significant policy shift in the attention paid to evaluation and understanding the evidence to practice gap.

1.4 What Can We Do About The Evidence To Practice Gap?

1.4.1. Implementation Research.

Implementation research is defined as the "scientific study of methods to promote the uptake of research findings and…to reduce inappropriate care," (Walker et al., 2003, p.3). It includes the study of barriers to and interventions that influence healthcare professionals' behavior to use research findings more effectively in their practice.

Over the past decade a considerable body of implementation research has been developed (Bero et al., 1998; Grimshaw et al., 2001; Grimshaw et al., 2002). This research demonstrates that multifaceted and complex interventions can be effective,

however it has been agreed that there is no "magic bullet" (Oxman, Thomson, Davis, & Haynes, 1995) to changing professional practice and most interventions are sensitive to the context in which they are delivered (Wensing, Van der Weijden, & Grol, 1998). In a 2002 review (Grimshaw et al., 2002), more than 235 studies of the effectiveness of guideline dissemination and implementation were identified. The strategies utilized to improve uptake and implementation were described as primarily educational in nature and included the use of printed materials, audit and feedback, reminders, and educational outreach (Grimshaw et al., 2002). The majority of interventions observed modest to moderate improvements in care, with the median absolute improvement in performance across interventions ranging from a low of 6.0% in 13 cluster randomized comparisons of multi-faceted interventions involving educational outreach to 13.1% in 14 cluster randomized comparisons of reminders. However, the authors note that few of the studies provided any theoretical or conceptual rationale for their choice of intervention. As a result, it remains difficult to assess the generalizability of these results to other clinical behaviors and settings (i.e., there is little guidance in the appropriate choice of interventions to apply to novel clinical situations that require clinician behavior change; Grimshaw et al., 2002).

In a review of the quantitative studies of adherence to mental health clinical practice guidelines, (Bauer, 2002) reports the appearance of 25 mental health guidelines developed by national professional or governmental organizations in peer reviewed journals or nationally distributed publications from 1993 through December 2000. When reviewing guidelines published on www.guidelines.gov, a public resource for evidence-based clinical practice guidelines, 17 of the 2435 guidelines published as of June 5, 2010

were directly related to child and adolescent mental health (searched by DJE for this dissertation). Studies investigating implementation of these guidelines, while increasing in recent years, necessarily lag behind the publication, review, and discussion of the guidelines themselves. Bauer (2002) also reviewed 41 studies examining adherence and implementation of mental health clinical practice guidelines. Three types of studies were identified: cross sectional; pre/post studies; and controlled trials. Only 27% of the cross sectional and pre/post studies demonstrated adequate implementation and adherence to guidelines. This was improved to 67% in the controlled trials, leading Bauer to conclude that guidelines can be successfully implemented in clinical practice, but that, in general, planned interventions are not part of the process of implementation and therefore, guidelines tend not to be implemented. It is also possible, however that there was a selection bias in the controlled trials, where clinicians who were more likely to implement guidelines agreed to participate in the randomized controlled trials.

Successful interventions tend to be multifaceted, intensive and typically require the addition of resources over the long term (Grimshaw et al., 2002). However, in the most comprehensive review of implementation strategies, Grimshaw et al. (2002) failed to find a relationship between the number of component interventions and the size of the effect of multifaceted interventions. Both of these reviews (Bauer 2002; Grimshaw et al., 2002) failed to establish a clear consensus as to what strategies are most effective to increase uptake of guidelines under specific circumstances.

Research findings consistently demonstrate that there are a variety of successful interventions which can be effective in changing a variety of clinical behaviors. In a review paper of the interventions utilized to promote the implementation of research

findings into clinical practice, Bero et al. (1998) conclude that the most frequent method of knowledge translation, the passive dissemination of information (e.g., peer reviewed publications, scientific conferences) are generally ineffective, and at best result in small changes in practice. While there are a variety of possibly effective strategies for the dissemination of research findings (e.g., educational outreach visits, combined approaches, such as audit and feedback and reminders), each of these strategies involves some sort of active, intensive effort to alter clinical practice (Bero et al. 1998).

Bero et al. (1998) suggest that the choice of intervention should be guided by the evidence on the effectiveness of the dissemination and implementation strategy, the characteristics of the message, the recognition of the external barriers to change, and the targeted audience for the dissemination of the information.

While a small to moderate effect size has been demonstrated both within and between methods, there is no clear pattern of results favoring one method over another (Grimshaw et al., 2002; Bauer, 2002, Bero et al., 1998). There remains little information to guide the choice, or optimize the components, of implementing these interventions in practice. The lack of guidance regarding the selection of intervention methods can result in multiple and repeated efforts to find the "right" intervention for a particular clinical behavior in a specific setting, using valuable resources. With guidance to identify the right intervention for the right behavior in the right setting, the most appropriate intervention could be identified the first (or second) time thereby saving time and financial resources.

Eccles et al. (2006) argue that it is necessary to identify the "active ingredients" in professional behavior change, in order to minimize the multiple and costly "real world"

implementation trials that need to be conducted to find the most effective intervention. They suggest that interventions could be effective for two reasons: (1) they contain components that are effective in overcoming the specific barriers encountered in relation to a certain practice (or to a specific setting) or (2) they contain components that are always effective in changing clinical behavior.

Walker et al. (2003) suggest that further research is required in order to develop and validate a coherent theoretical framework of health professional and organizational behavior and behavioral change to better inform the choice of interventions utilized to change clinical practice in research and service settings.

1.4.2 Theory & Clinician Behavior Change.

There is increasing recognition that interventions to change behavior should draw on theories of behavior and behavior change in their development (Michie, Johnston, Francis, Hardeman, & Eccles, 2008). Michie et al. (2008) outline three main reasons for advocating the use of theory in designing interventions. First, interventions are likely to be more effective if they target causal determinants of behavior and behavior change. Necessarily, this requires understanding of the causal determinants (i.e., theoretical mechanisms of change). Second, theory can be tested and developed by evaluations of interventions only if those interventions and evaluations are theoretically informed. Third, theory-based interventions facilitate an understanding of what works and therefore are a basis for developing better theory across different contexts, populations, and behaviors.

Theory can be defined as "a coherent and non-contradictory set of statements, concepts, or ideas that organizes, predicts, and explains phenomena, events, behaviors,

etc…(Eccles, Grimshaw, Walker, Johnston, & Pitts, 2005).” Without a theory it can be unclear why an intervention did not work or unclear whether it will generalize when an intervention is effective. Theories describe the causal mechanisms involved in behavior change and encourage the progression of knowledge.

Many disciplines posit theories that *describe* behavior and behavior change. There are relatively few, however, that *explain* behavior change. Descriptive theories can be helpful, however, they fail to explain what determines change and they may identify determinants that are not amenable to change (e.g., age, intelligence, gender; Eccles, et al., 2005).

Ferlie and Shortell (2001) have outlined four levels at which interventions to improve the quality of health care might operate: (1) the individual health professional; (2) health care groups or teams; (3) organizations providing health care; and (4) the larger health care system. Different theories might be relevant to interventions at different levels, for example theories of individual behavior are more relevant to interventions directed at individuals and teams, whereas theories of organizational change may be more relevant to interventions directed at health care organizations or the governmental health care system as a whole.

Eccles et al. (2005) outline two ways in which theories can be useful in designing and understanding the impact of implementation interventions when looking at individual or team based behaviors, one building on the next. Firstly, develop an understanding of the theory based factors underlying professional behavior in order to identify what sorts of processes should be targeted by interventions (“process modeling”). Secondly, develop

and test interventions knowing what theoretical constructs are being targeted and design interventions to enhance the processes supporting change, ("intervention modeling").

Clinician behavior, while embedded in a larger organizational and systemic context, is ultimately, at a given point in time, based upon individual decision making. Clinical practice is a form of human behavior and can be described in terms of general theories relating to human behavior. This conceptualization offers the basis for the development of a generalizable model (Eccles, Grimshaw, Walker, Johnston, & Pitts, 2007) in understanding clinician behavior and behavior change.

Viewed as an individual human behavior, the problem of understanding why mental health professionals do or do not implement evidence-based practice is similar to the findings of why individuals do or do not implement healthy lifestyle choices. The latter area has been extensively investigated regarding a variety of lifestyle activities (e.g., smoking cessation, exercise) and the applicability of psychological theories has been demonstrated (see Conner & Sparks, 1996 for a review of the Theory of Planned Behavior and health behaviors). It is proposed that the utilization of a theory driven approach to understanding clinician behavior change will provide a foundation for the development of consistent methodology in the development and selection of predictive models for clinician and organizational behavioral change (Walker et al., 2003). Turning to the theoretical literature regarding individual health behavior change provides a strong and well validated starting point for the development of the literature regarding health practitioner behavior change related to the implementation of evidence-based practice.

There is a large body of literature examining theoretical applications to changing patient behavior however; the literature examining change in clinician behavior is limited

(Perkins et al., 2007). Well-studied psychological theories related to changing individuals' behavior include (1) motivational theories such as social cognitive theory (Bandura, 1977), the Theory of Reasoned Action (Azjen & Fishbein, 1980), the Theory of Planned Behavior (Azjen, 1991); (2) action oriented theories, such as operant learning theory, examining rewards and consequences; and (3) transtheoretical models, such as the Stages of Change model to address an individual's readiness to change (Prochaska & DiClemente, 1983).

In a recent review of the application of theory-driven approaches to understanding and modifying mental health clinicians' behavior (Perkins et al., 2007), two well studied models, the (TPB) and the Theory of Reasoned Action (TRA) were examined in applications to clinician behavior change. Nineteen reports outlining 20 studies investigating the use of TRA or TPB were examined for this review (Perkins et al., 2007). The results of the limited studies indicated that overall TRA and TPB are applicable models for understanding clinicians' behavior. Only two of the studies examined mental health clinician behavior.

In the first study, Meissen and colleagues (1991) used TRA to assess the intentions of clinical psychology or social work graduate students to refer patients to self-help groups, finding that attitudes toward self help groups was the greatest predictor of intention. The other study was a dissertation using TPB to examine how social workers use the DSM-IV for client assessment treatment (Klaybor, 1999). This study found that attitudes toward increased credibility and competence and self-efficacy in the use of the DSM-IV were the greatest predictors of intention.

1.5 Summary

The utilization of evidence-based practice leads to more efficient and effective provision of mental health care. Theoretical guidance is required to support an understanding of the barriers and facilitators to mental health clinician behavioral change in the utilization of evidence in their practice. Individual, group, and organizational factors influence the utilization of evidence in practice. It is not clear which of the above noted theories would best predict mental health clinician behavior in the utilization of evidence-based practice. Theoretical understanding and application of the interplay of these factors and theoretical underpinnings in influencing clinician behavior and behavior change is essential to appreciate the clinical significance of the uptake and utilization of evidence-based practice.

1.6 Theoretical Framework for the Proposed Study

When working to change individual behavior, relevant theories can be drawn from health psychology and may be categorized into motivational theories, which explain how individuals come to wish /intend/decide to change behavior, and action theories, which explain how individuals move from intention to actual behavior change (Eccles et al., 2005). Within the literature of patient and individual lifestyle change, there are a variety of theoretical orientations each tapping different aspects of what is perceived to impact upon behavioral change. These factors include, among others, motivation of the individual toward behavioral change, rewards and consequences associated with behavioral change, and readiness or preparation for change.

The theories included in the proposed study were chosen based upon the theories used by Walker and colleagues (2003) in a broad based study of the prediction of

physician intention to change clinical practice. The theories were chosen for three reasons:

(1) They have all been rigorously evaluated in other settings, such as lifestyle change.

(2) They all explain behavior in terms of factors that are amenable to change, (e.g., beliefs, attitudes, self-confidence and actual or perceived external constraints). Psychological theories that include factors that are relatively stable (e.g., intelligence or personality characteristics) were deliberately excluded.

(3) They all assume that individuals working within the health system do not always have complete control over their actions. The theories permit examination of an individual's perception of external factors such as patient preferences or organizational barriers or facilitators.

1.6.1 Motivational Theory: Theory of Planned Behavior.

The Theory of Reasoned Action (TRA; (Azjen & Fishbein, 1980) based upon social cognitive theory (Bandura, 1977), proposed that the attitude toward a behavior and the subjective norm related to the behavior impact upon behavioral intention. The Theory of Planned Behavior (TPB; Azjen, 1991) is an extension of the TRA and incorporates individuals' self-efficacy or confidence in their ability to follow through with their intentions, also known as perceived behavior control (which may be influenced by characteristics of the individual or the environment) (See Figure 1.) Self-efficacy has been identified to be one of the most important constructs in empirical studies examining behavioral change (Wallston, 1992). However, barriers external to and perhaps as yet

unidentified by the individual, can impact upon their intentions to act despite their level of perceived confidence.

The Theory of Planned Behavior (TPB) is built on the proposition that an individual's behavior can be largely predicted by the person's intention to perform the behavior (i.e., their behavioral intentions). In the TPB, the three core predictors: attitudes, subjective norms, and perceived behavioral control, are the primary determinants of behavioral intention that is predictive of behavior. In this model, while constructs such as personality and demographic variables may influence behavior they do so through their influence on the three core predictors. The utility of the predictive pattern in informing interventions for influencing behavior change is the premise within the TPB that the relative importance of the constructs can differ among persons or in populations. For some individuals, normative influences may be the primary determinant of behavioral intentions to perform behavior while for others, attitude toward the behavior may be of primary importance. Identification of the primary determinant of behavioral intention can assist with developing interventions targeted at this determinant to influence behavioral change.

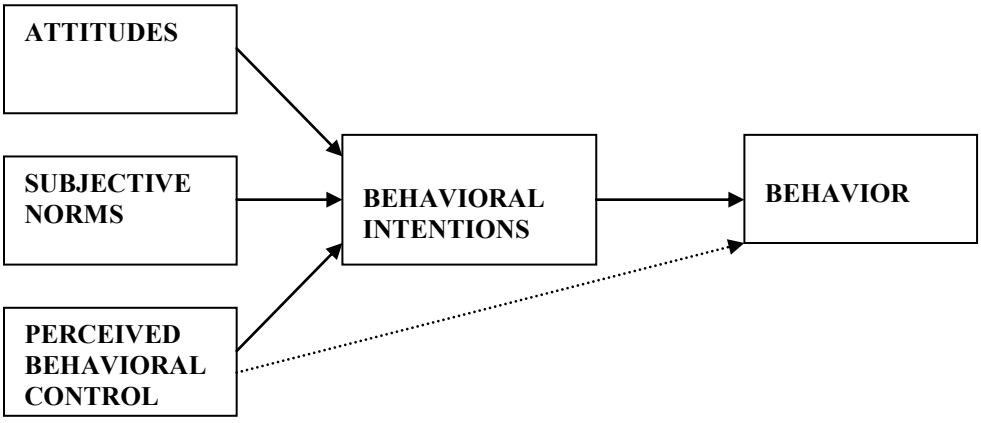

Figure 1: The Theory of Planned Behavior (Azjen, 1991)

The variable names within this model reflect psychological constructs and as such have specific meaning within the theory (Azjen, 1991). The following are brief explanations of these specific meanings within this theory as applied to the current research objectives.

- Behavior: Interventions are designed to change the behavior of clinicians. The target behavior must be clearly defined in terms of its target, action, context, and time (TACT; Azjen, 1991). The more specific the behavior the more targeted the intervention can be.
- Intention: Behavioral intention is used as a proximal measure of behavior, although there is not a perfect relationship between what we plan to do and what we do in practice. Within this model, behavioral intention can be used to determine the effectiveness of implementation interventions even if there is not an objective measure of actual behavior available (Azjen, 1991).
- Attitudes: In the TPB attitudes are assumed to have two components that work together: (1) beliefs about the consequences of the behavior; and (2) the corresponding positive or negative judgments about each of these features of the behavior (Azjen, 1991).
- Subjective norms: These are a person's own estimate of the social pressure to perform or not perform the target behavior. Subjective norms come from how other people would like the person to behave and the possible

positive or negative evaluation from others about the behavior (Azjen, 1991).

- Perceived Behavioral Control: This is the extent to which the person feels confident in their ability to perform a behavior (Azjen, 1991) (cf. Self efficacy; (Bandura, 1977), conceptually similar to PBC, as both assess people's beliefs about their capability of performing a behaviour, but operationalized differently, i.e., self efficacy is generally assessed by listing potential obstacles and individuals rate their ability to overcome these obstacles, were PBC is generally assessed through asking people about how much the behaviour is under their control (Azjen, http://www.people.umass.edu/aizen/faq.html). It is determined by control beliefs about situational and internal factors that can facilitate or inhibit the performance of behavior.

1.6.2 Action Oriented: Operant Learning Theory.

Action oriented theories may include motivational elements, but postulate that other factors, such as organizational barriers or facilitators, are necessary to predict behavior. Operant Learning Theory (OLT) proposes that behaviors that have positive consequences will be performed more often while those with negative consequences will become less frequent (Blackman, 1974). Walker et al. (2003) included two constructs derived from operant learning theory in their study of behavioral change, anticipated consequences of behavior and evidence of habitual behaviors.

Reinforcement is a key component to OLT, where behaviors that are reinforced with positive or negative outcomes are either more or less likely to be performed,

respectively. This is partially equivalent to the concept of incentives in Bandura's (1977) social cognitive theory, (i.e., negative reinforcement while acknowledged, was viewed to be less effective than positive reinforcement). An incentive is a perceived positive consequence of a behavior. It can take a variety of forms, from material incentives (e.g., financial rewards), through social incentives (e.g., maintaining a positive relationship) to personal incentives (e.g., achieving a desired goal). Behaviors that have positive consequences for the individual (such as financial incentives) are likely to be repeated, whereas those that have unpleasant consequences (such as professional sanctions) will become less frequent (Blackman, 1974). The principle that positive consequences promote repetition of behavior is well established and has been widely and successfully used to understand behavior and behavioral change (Walker et al., 2003). Behaviors that are rewarded are repeated and may become habitual in nature. Anticipated consequences, therefore, can be a useful predictor of behavioral intention.

The frequency of past behavior can be a powerful predictor of future behavior (Ouellette & Wood, 1998). Based upon results of a meta-analysis of 64 independent studies Ouellette & Wood (1998) found that past behavior was a significant predictor of future behavior, independent of intentions. In 19 of 22 studies reviewed, past behavior was a significant predictor of intentions, suggesting that past behavior directly predicts intentions. With repeated performance, behavior becomes routine or automatic and it can be enacted with minimal conscious control. Characteristics of automaticity include, (Ouellette & Wood, 1998): decisions are quick; behaviors are performed outside of awareness, require minimal attention and are efficient, (i.e., they can occur in parallel with other activities). With repeated performance in the same situation, behaviors

habituate. Habit is therefore defined as the tendency to repeat past behavior in a stable context, because the same contingencies are in place (Ouellette & Wood, 1998). When a strong habit develops, behavior comes under the control of stimulus cues and the presence of these cues triggers the automatic response sequence, bypassing cognitive processes, such as attitudes and intentions.

When modeling the joint effects of past behavior and intention on future behavior, the authors (Ouellette & Wood, 1998) concluded that past behavior is a better predictor of future behavior than intentions when considering well practiced behaviors in a constant and stable context (e.g., class attendance or dental hygiene). However, for behaviors that occur infrequently and in dynamic contexts (e.g., blood donation, voting), the effects of past behavior in predicting future behavior were mediated by conscious intentions and other cognitive factors, such as attitudes, subjective norms and perceived behavioral control, such that past behavior has an effect on future behavior through its contribution to intentions (Ouellette & Wood, 1998).

1.7 Clinical Implications: Selection Of Clinical Behaviors To Study

As outlined in the previous section, the association between psychological factors and behavior or behavioral intention is dependent upon the type of behavior investigated, (e.g., common and stable versus infrequent and unstable). In a review of tests of behavior theories, (Weinstein, 2007) argues that there are significant biases in the inference of causality from cross-sectional health behavior data and that these problems are increased depending upon the type of behavior investigated (i.e., the correlation between behavioral beliefs and actual behavior are influenced by a perception-behavior link). Typically, studies of health behavior use cross-sectional data to link cognitive factors/constructs to

specific behaviors (or intention to perform specific behaviors), and from these analyses causal interpretations are drawn. Weinstein argues that this methodology creates a perception-behavior bias which is not adequately controlled for in statistical analysis, thereby inflating the perception-behavior link which is often reported as a causal pathway. For example, people who say that a behavior is desirable, effective, beneficial and easy to implement, generally have already been performing that behavior and intend to continue. Similarly, those that say a behavior is undesirable, ineffective, not beneficial and difficult to do, have not been performing the behavior and do not intend to start. It is not possible to determine if the perception influenced the behavior or if the behavior influenced the perception. The author (Weinstein, 2007) draws upon theories of cognitive dissonance, e.g., people want to believe that their decisions are appropriate and informed and as such, if their behavior is incongruent with their beliefs, they will adjust their beliefs to be in line with their current behavior. For example, when individuals drop out of smoking cessation programs they reduce their reported perceptions of the dangers and risks of smoking, (Boney-McCoy, Gibbons, Reis, Gerard, Luus, Wald et al., 1992).

Weinstein (2007) provides a review of types of behaviors that are more likely than others to be susceptible to this perception-behavior bias within the cross-sectional research design. Behaviors that are *most likely* to be susceptible to this bias refer to situations where the correlation is most likely to be inflated by the perception-behavior link, which occurs when examining the continuation of an already occurring behavior (e.g., within a pediatric mental health outpatient setting; the ongoing management of ADHD; or as a health behavior, seat belt use, dental hygiene). Bias is *likely* to occur when the behavior being examined is intermittent, such as examining the readoption of a

behavior or a behavior that occurs infrequently (e.g., within a pediatric mental health outpatient setting; psychoeducational testing; or as a health behavior, annual influenza vaccination). Behaviors that are *least likely* to be susceptible to the perception-behavior bias are prospective studies that are looking at changes in levels or intensity of behaviors or the adoption of new behavior (e.g., in a pediatric mental health outpatient setting; use of a new test, referral to a new service; or as a health behavior; availability of a new vaccination, such as H1N1). These behaviors are novel and as such have limited behavioral experience to influence perceptions. As a result, any associations between perceptions and behavior are more likely to flow in only one direction, i.e,. perception to behavior.

Two behaviors were chosen for examination in the current study. One behavior reflects a common behavior that most outpatient mental health clinicians face on a daily basis (the management of ADHD via recommendation of medication consultation/ prescription and parent management training) and therefore most susceptible to the perception-behavior bias described by Weinstein (2007). For example, if a clinician is already recommending medication and parent management training for the treatment of ADHD, it is difficult to determine if the associations found among the predictor variables (TPB and OLT constructs) and behavioral intention are a result of behavior influencing perceptions or perceptions influencing behavior.

The second behavior, could be considered a new or at least infrequent behavior (referral to evidence-based group therapy when clinically appropriate to reduce wait lists), and therefore least likely to bias. While the use of group therapy is not a new behavior, the application of this method to managing wait lists is potentially new or at

least infrequent in daily practice. The use of group therapy specifically for wait list management was recently recommended as a strategy by Kirby & Keon (2006), so clinicians may not have strong behavioral experience with this specific use of group therapy to influence their perceptions. Therefore, it is more likely that perceptions are influencing behavior, rather than behavior influencing perception and the perception-behavior bias is lessened.

Behavior #1: When a child or youth presents for treatment following diagnosis of ADHD what is the intention of mental health clinicians to: a) Recommend medication consultation/ prescription; b) Recommend parent management training?

Rationale for Choice of Behavior #1

Child disruptive behavior disorders (DBD), which include Attention Deficit Hyperactivity Disorder (ADHD) and Oppositional Defiant Disorder (ODD), are the most common childhood behavioral complaints presenting to pediatricians (Rushton, Fant, & Clark, 2004) and to mental health service providers (Nova Scotia Department of Health, 2005; National Institutes of Mental Health, 2010 http://www.nimh.nih.gov/health/topics/attention-deficit-hyperactivity-disorder-adhd/index.shtml). There is significant evidence in the literature from controlled clinical trials supporting guidelines for the treatment of ADHD. The evidence strongly supports the use of stimulant medications for treating the core symptoms of children with ADHD (e.g., inattention, impulsivity, and restlessness), and to a lesser degree, for improving functioning (Brown et al., 2005). Behavior therapy alone has only limited effect on symptoms or functioning of children with ADHD, although combining behavior therapy,

specifically parent management training, with medication seems to improve functioning and may decrease the amount of (stimulant) medication needed (Rushton et al., 2004).

Evidence-based practice and the use and implementation of clinical practice guidelines aim to reduce inappropriate variations in practice and to promote the delivery of evidence-based health care. While there is strong support for evidence-based treatment of DBDs, especially ADHD and readily accessible clinical practice guidelines (e.g., American Psychological Association; American Academy of Child and Adolescent Psychiatry, Canadian Medical Association) there is little research investigating the utilization of these guidelines with clinicians who directly assess and treat children with DBDs and even less research regarding adherence of clinicians to these treatment guidelines. Where research has occurred, it has been located in primary care medical practice, and not in pediatric mental health. Rushton et al. (2004) surveyed 1374 primary care family physicians and pediatricians in regard to adherence to assessment and treatment practices of ADHD from the American Academy of Pediatrics (AAP). Over 90% of pediatricians were familiar with the guidelines, with 78% reporting incorporating the AAP guidelines into practice. Only 58% of the family physicians were aware of the guidelines and only 39% reported incorporating the guidelines in their practice. However, when adherence to multiple components of the guidelines was analyzed together, only 25% of clinicians reported routine use of all four of the diagnostic components surveyed. Actual adherence is likely to be lower than self-report of adherence (Rushton et al., 2004).

Of the 41 studies identified in the most comprehensive review of adherence to mental health guidelines (Bauer, 2002), none addressed adherence to pediatric mental

health guidelines, and most focused entirely on adult and geriatric populations. Similarly, in the most comprehensive review of application of theory to clinician behavior change in regard to the implementation of evidence-based practice (Perkins et al., 2007) only 2 of the 19 studies identified examined mental health practices and neither were targeted toward pediatric mental health. This review only examined studies applying either the TPB or TRA to clinician behavior change, therefore not capturing other examinations of adherence to guidelines. There is a gap in the literature investigating implementation and adherence to evidence-based practice within pediatric mental health. Further, within the existing literature the focus of investigation has been on primary care physicians, failing to incorporate others who are involved in the direct treatment of children and adolescents within specialized mental health treatment programs (e.g., psychologists, social workers, and psychiatrists).

Behavior #2: The intention of mental health clinicians to refer children and youth who need access to mental health services to standardized, evidence-based group therapies when clinically appropriate to reduce wait times.

Rationale for Choice of Behavior #2

It is conservatively estimated from epidemiological studies that approximately 14% of children and youth in Canada are living with mental illness, translating to a total of 800,000 of Canadian children aged 4 to 17 years who live with anxiety, depression, attention deficit, addiction and other disorders (Waddell et al., 2002; Waddell et al., 2005; Offord et al., 1987; Kirby & Keon, 2006). Canadian health service utilization studies show that approximately 80% of children and youth with mental health problems do not receive timely specialist care (Offord et al., 1987; Waddell et al., 2005). Furthermore,

families typically wait for extended periods of time to access treatment, with varying length of wait times ranging from eight weeks to eighteen months (Kirby & Keon, 2006). Finally, despite the availability of a range of effective treatments for child mental health problems, less than 25 % of Canadian children waiting for mental health services ever receive the best available evidence-based care (Offord, Boyle, Szatmari et al., 1987; Ringel & Strum, 2001; Waddell et al., 2005).

Several factors contribute to the discrepancy between the proportion of children needing mental health services and the number receiving timely care. First, the children's mental health system has been chronically and severely under-funded. The Kirby Commission described the children's mental health system in Canada as the orphan of the mental health system, and the mental health system, in turn, as the orphan of our health system (Kirby & Keon, 2006). Second, there are insufficient child mental health training positions to meet the demand should resources be made available (Kirby & Keon, 2006). Third, family work schedules, the time and costs of travel, child care, and related logistical demands of participating in clinic-based programs constitute barriers which prevent families from using children's mental health services (Cunningham et al., 2000; Cunningham, Bremner, & Boyle, 1995; Kazdin et al., 1997; Kazdin, Holland, & Crowley, 1997) and contribute to rates of attrition and premature termination that approach 75% of child mental health patients (Kazdin et al., 1997; Kazdin et al., 1997); (Kazdin, Mazurick, & Siegel, 1994).

The Kirby Report (Kirby & Keon, 2006) examined wait times for child and youth mental health services, and recommended that, "standardized, evidence-based group therapies be used, where clinically appropriate, to reduce wait times for children and

youth who need access to mental health services" (Kirby & Keon, 2006, p. 151). This specific behavior was chosen for inclusion in this study.

1.8 Present Study

The primary purpose of this study was to use psychological theories to identify factors predictive of evidence-based clinical behavior among pediatric mental health clinicians. The specific models used in this study (Theory of Planned Behavior (TPB) and Operant Learning Theory (OLT)) were chosen for three reasons. First, they have been rigorously evaluated with patients or with healthy individuals. Second, they allow us to examine the influence on clinical behavior of perceived external factors, such as patient preferences and organizational barriers and facilitators. Third, they all explain behavior in terms of variables that are amenable to change (Michie et al., 2005).

The population selected was mental health clinicians (social workers, psychiatrists and psychologist) working in outpatient mental health. The behaviors of interest included focusing on two behaviors of interest as outlined above: (1) management attention deficit hyperactivity disorder which encompasses two distinct behaviors that will be examined separately: (a) recommendation of medication consultation/prescription for the treatment of attention deficit hyperactivity disorder and (b) recommendation of parent training regarding child behavior management; and (2) utilization of evidence-based group therapy when clinically appropriate with the specific objective of reducing wait lists.

Behavioral intention, a theoretically derived measure, was included as the main outcome measure. Intention has been defined as "indications of how hard people are willing to try, of how much effort they are planning to exert, in order to perform a behavior" (Azjen, 1991, p. 181).

There is evidence supporting the use of behavioral intention as a predictor of subsequent health-related behavior. A meta-analysis of 10 meta-analyses by (Sheeran, 2002) reported that intention accounted for almost one-third of the variance in behavior across a variety of health behaviors. From a meta-analysis of 47 experimental tests of the intention-behavior relationship, (Webb & Sheeran, 2006) concluded that a "medium-to large" change in intention leads to a "small-to-medium" change in behavior. These reviews demonstrate that there is a reliable, albeit imperfect, relationship between stated intention and behavior. However, none of these reviews examined health professional behavior.

In a systematic review of healthcare professionals' intentions and behaviors related to social cognitive theories such as the TPB, Eccles and colleagues (2008) concluded that intention was a valid proxy measure for behavior among clinicians (i.e., physicians, nurses, pharmacists, other allied health professionals). Of the 78 studies included in this review (Eccles et al., 2006), the overall efficacy of the predication of behavioral intention among health professionals was higher (59% of the explained variance) than in other studies (33.7% in Conner & Sparks, 1996 and 40% in Godin & Kok, 1996) examining non-health professionals' behavioral intention. Although this review (Eccles et al., 2006) was based upon a much smaller population of health professionals (1,623 health professionals) compared to the reviews of non-professionals (82,107 participants, Sheeran, 2002), it was found that there is a predictable and consistent relationship between intention and behavior and supports the use of intention as a proxy measure for behavior (Godin, Bélanger-Gravel, Eccles, & Grimshaw, 2008).

This dissertation outlines a series of development studies culminating in a national survey of mental health professionals that applied two theory-driven approaches to predicting pediatric mental health clinician behavior in the utilization of evidence-based practice: (1) Motivational theory: The Theory of Planned Behavior (TPB); and (2) Action Theory: Operant Learning Theory (OLT). In defining the clinical condition and behavior of interest for use in applying the Theory of Planned Behavior and other psychological theories, it is recommended that there be clear clinical evidence about the relevant issues, that compliance with the evidence is low or moderate, that the clinical condition or behavior is not rare, that there is variation in performing the behavior to be investigated, and the behavior involves a yes/no treatment decision (Francis, 1994). The population of interest in this study are outpatient pediatric mental health clinicians (e.g., psychologists, psychiatrists, social workers). The clinical behaviors targeted are: (1) recommendation of medication and parent management training for the treatment of attention deficit hyperactivity disorder; (2) referral to standardized, evidence-based group therapies clinically appropriate, to reduce wait times for children and youth who need access to mental health services.

1.8.1 Hypotheses.

The overall objective of this study was to apply theory-driven approaches to predict pediatric mental health clinician behavior in the utilization of evidence-based practice to develop an understanding of the factors underlying mental health clinician behaviour. These factors could then be utilized to identify the processes that should be targeted by interventions aimed at changing behavior. The following questions were posed regarding each of the theories (TPB and OLT) investigated: When considered

independently of one another: 1) Does the theory (TPB or OLT) predict behavioral intention? (2) What factors of each theory contribute to this prediction? (3) Does the prediction vary based upon behaviors investigated? When both theories are considered together: (4) What factors from each theory remain predictive when all significant factors are considered for prediction, i.e., does OLT contribute significantly to the prediction of mental health clinician behavior above what is accounted for by the TPB? (5) Do these factors vary according to behavior investigated?

Hypotheses (a): It is hypothesized that the TPB will be predictive of mental health clinician behavioural intention for each of the behaviors investigated.

Hypothesis (b) It is hypothesized that the OLT will be predictive of mental health clinician behavioural intention for each of the behaviors investigated.

Hypothesis (c): When considered independently, there will be differences in the predictive pattern from the TPB across behaviors studied: The management of ADHD, which includes two behaviors, the intention to recommend medication consultation/prescription and the intention to recommend parent management training, is a common and familiar behavior experienced by mental health clinicians. Since much of the decision making about treatment for ADHD is conducted by an individual clinician, it is expected that Attitude will demonstrate the greatest level of prediction of behavioral intention from the TPB. The intention to recommend evidence-based group therapy to reduce wait times is a more novel behavior for clinicians and as such strong attitudes may not yet exist, therefore it is expected that Perceived Behavioral Control or Subjective Norm will demonstrate the greatest predictive power for this behavior.

Hypothesis (d): When considered independently of the TPB, OLT will be consistent across behaviors investigated, with evidence of habitual behavior demonstrating the greatest level of prediction of behavioral intention, above anticipated consequences /reinforcement.

Hypothesis (e): When considered together, evidence of habitual behavior will demonstrate the greatest level of prediction of behavioral intention across all significant predictors considered from both theories, however, there will be differences across behaviors investigated. The TPB will continue to contribute to the prediction, but to a lesser degree.

The relationship between past behavior predicting future behavior is more clearly demonstrated with frequently performed behavior, therefore it is expected that evidence of habitual behavior will be predictive of both behaviors involved in the management of ADHD (intention to recommend medication consultation/prescription and intention to recommend parent management training), but not the intention to recommend evidence-based group therapy to reduce wait times (a potentially new or unfamiliar behavior). It is expected Perceived Behavioral Control and Subjective Norms from the TPB or anticipation of consequences/ reinforcement from OLT will be greater predictors of the intention to recommend evidence-based group therapy to reduce wait times.

CHAPTER 2 METHOD

2.1 Ethics Review

Ethical approval was provided by the Research Ethics Board at the IWK Health Centre for each component of this research. Notification of this approval was provided to the Health Science Research Ethics Board at Dalhousie University.

2.2 Development And Pilot Testing Of Questionnaire

2.2.1 Objective.

Using a methodology outlined by Francis et al. (2004) in the creation of a questionnaire based upon the Theory of Planned Behavior the objective of this development study was two fold: (1) To develop the indirect (belief-based) measures for all the predictor constructs in the TPB model (Attitude, Subjective Norm, and Perceived Behavioral Control). The TPB was the most complex theory examined in this study and required more intensive investigation to develop questions that accurately reflect the predictor variables; and (2) To develop and pilot test the questions from both the TPB and OLT along with demographic questions that were to be utilized in the national survey.

2.2.2 Participants.

There was a target of a total of 25 professionals selected across different disciplines, including psychology, psychiatry and social work who participated in this phase of the research. A sample size of 25 was recommended by Francis et al. (1994) for the development phase in the creation of a questionnaire based upon the Theory of Planned Behavior. Specifically, outpatient psychologists, social workers, and

psychiatrists who work in pediatric mental health were targeted for inclusion in the study. Partnerships with other institutions in Nova Scotia, New Brunswick and Prince Edward Island were solicited. Ethical approval was sought and obtained from Charlottetown, PEI and Bridgewater, NS research Boards. It was not possible to obtain ethical approval from the clinic in Saint John, NB within the time frames of this study and as such, no attempt was made to recruit participants from this site. Participants were recruited through outpatient mental health managers at the IWK Health Centre, South Shore Mental Health Clinic (Bridgewater, NS) and the Child and Adolescent Mental Health clinic in Charlottetown, PEI. Managers were asked to distribute an email to the psychologists, social workers and psychiatrists working on their teams soliciting participation (See Appendix A). A written consent form was included in this initial email (See Appendix B) to clearly explain the requirements, risks, and benefits associated with participation in the study. If participants were interested in the study they emailed the principal investigator to indicate their desire to participate.

Eight participants were recruited for participation in this development phase, which included two social workers, one psychiatrist, and five psychologists practicing in pediatric outpatient mental health at the IWK Health Centre. Despite multiple contacts with management from the other sites, there was no interest forthcoming. Participants were all female and had practiced within child and adolescent mental health for an average of 7.8 years (range 2 to 25 years). This sample size was short of the target number of 25 participants; however, despite following the recruitment procedures, including multiple contacts across the participating sites it was not possible to recruit further participants within the time frames of the study. Further recruitment did not

occur as it was decided in subsequent steps (see Step 9) in the creation of the survey to exclude the indirect questions from the TPB due to this small sample size and the final length of the survey.

2.2.3 Method.

Using the method outlined by Francis et al. (2004) in the development of a questionnaire using the TPB as a guide, nine steps were followed in the creation of the questionnaire, with specific steps related to the development of the TPB questions to be utilized in the questionnaire.

Step 1. Define the population of interest.

The population selected for this study was mental health clinicians (psychologists, social workers and psychiatrists) practicing in pediatric outpatient mental health settings.

Step 2. Select the behavior under study using the TACT Principle (Target, Action, Context, Time).

The following behaviors were selected and defined using the TACT Principle:

Behavior #1: When a child or youth presents for treatment following diagnosis of ADHD what is the intention of mental health clinicians to: a) Recommend medication consultation/ prescription; b) Recommend parent management training? The target is the child or youth, the action is the recommendation of medication consultation/prescription and parent management training, the context is treatment of ADHD and the time is following diagnosis.

Behavior #2: What is the intention of mental health clinicians to refer children and youth who need access to mental health services to standardized, evidence-based group therapies when clinically appropriate to reduce wait times? The target is the child

or youth, the action is the referral to group treatment, the context is waitlist management and the time is upon initial access to the mental health system.

This definition of each behavior was then used to construct a general introductory statement for the start of each section of the questionnaire (e.g., *Each question in this section refers to recommendation of parent management training when a child or youth presents for treatment following diagnosis of ADHD)*.

Step 3. Determine how to measure intention.

Francis et al. (2004) outline various methods of measuring intentions, intention performance, generalized intention and intention simulation. Intention performance is a single item question (e.g., *Given 10 patients presenting for treatment following diagnosis of ADHD how many would you expect to recommend parent management training?)*. The number indicated is the intention score. This method was not selected as it was a one item measure for the main outcome measure in the study. Intention simulation utilizes clinical scenarios. While this method may provide a more valid proxy measure of behavior as it more closely approximates real world complex clinical decision making, the scenarios must be carefully created and can be misleading and lack in reliability (Francis et al., 2004). As a result, this method was not selected. Generalized intention is the most commonly used method of intention in the TPB literature applied to individual health behavior and has been utilized in many other studies investigating health professional behavior (e.g., Eccles et al., 2007) and the method of measuring intention utilized in this study. Three items are utilized and the mean score of the three items was used as the intention score. Adequate internal consistency can be demonstrated using three items. The items were 1) *I expect to recommend...(parent management training; medication*

consultation/prescription; referral to evidence-based group therapies to reduce wait times); 2) *I want to recommend…(parent management training; medication consultation/prescription; referral to evidence-based group therapies to reduce wait times*); and 3) *I intend to recommend...(parent management training; medication consultation/prescription; referral to evidence-based group therapies to reduce wait times*).

Step 4. Develop the direct and indirect measures of the TPB.

Each predictor variable may be measured directly (e.g., by asking respondents about their overall attitude and indirectly, by asking respondents about specific behavioral beliefs). Direct and indirect measurement approaches make different assumptions about the underlying cognitive structures and as such it is recommended that both be included in TPB questionnaires. These constructs are operationalized as follows: Attitude - the most frequently perceived advantages and disadvantages of performing the behavior; Subjective Norm- the most important people or groups of people who would approve or disapprove of the behavior; and Perceived Behavioral Control- the perceived barriers or facilitating factors which could make it easier or more difficult to adopt the behavior.

Creation of the Direct Measurements of the Constructs in the TPB

Attitude

Measurement. The direct measurement of attitude involves the use of bipolar adjectives, i.e., pairs of opposites that are evaluative, such as, good- bad. Francis et al. (2004) recommend the use of at least four items following a single "stem" which defines the behavior under investigation (see Table 1 for direct attitude questions used in this

study for behavior #1 (a): *When a child or youth presents for treatment following diagnosis of ADHD what is the intention of mental health clinicians to recommend medication consultation/ prescription*). Further, the questions included instrumental items (i.e., whether the behavior achieves something, such as *useful-worthless*) and experiential items (i.e., how it feels to perform the behavior, e.g., *pleasant-unpleasant*). The Good Bad scale was utilized as it is considered to capture an overall evaluation of the attitude toward the behavior (Francis et al., 2004). The items were arranged so the end points of the scales were a mix of positive and negative end points to minimize response bias (Francis et al., 2004). Each item was rated on a 5-point scale going from 1 on the left to 5 on the right.

Operationalization. Seven bipolar adjectives were utilized in the current study. In scoring this scale, items that had negatively worded end points on the right were recoded so that higher numbers always reflected a positive attitude toward the target behavior, (e.g., for *pleasant- unpleasant*, an answer of 4 becomes a score of 2, a score of 3 remains a 3). The mean of the item scores was calculated to give an overall Attitude score.

Subjective Norm

Measurement. The direct measure of subjective norm involves using the questions referring to the opinions of important people in general (e.g., *Most people who are important to me think that*… (see Table 1 for direct subjective norm questions used in this study for behavior #1 (a).

Operationalization. Three questions were used to evaluate this construct. Items that have negatively worded endpoints on the right, were recoded so that high scores

consistently reflect greater social pressure to do the target behavior. The mean of the item scores were calculated to give an overall Subjective Norm score.

Perceived Behavioral Control

Measurement. Items were designed to reflect participants' confidence in performing the target behavior through assessment of the person's self-efficacy beliefs about the controllability of the behavior. Self efficacy was assessed by asking how difficult it would be to perform the behavior and how confident they would be doing it. Controllability is assessed by asking whether performing the behavior would be up to them and whether factors beyond their control would determine their behavior (see Table 1 for direct perceived behavioral questions used in this study for behavior #1 (a).

Operationalization. Three items were used to assess this construct. The mean item scores were calculated to give an overall perceived behavioral control score. As with the other measures, items that had negative endpoints on the right were recoded so that high scores consistently reflected a greater level of control over the target behavior.

Step 5. Creation of the indirect measurements of the constructs in the TPB.

To develop the indirect measures for each of the three constructs in the TPB, an elicitation study was required. An elicitation study involves taking a sample (25 is recommended by Francis et al., 2004) from the population where the questionnaire respondents will be selected from. Open-ended questions specific to each of the three constructs were developed (e.g., Attitude: *What do you believe are the advantages/disadvantages of recommending X?*; Subjective Norm: *Are there any individuals who would approve/disapprove of you recommending X?*; Perceived Behavioral Control: *What factors or circumstances enable you to recommend X?* (see

Appendix C for questions utilized in the elicitation interview). Telephone interviews were conducted with participants who agreed to be part of the development project (as outlined in participants above). Participants who were interested contacted the principal investigator via email who then arranged a telephone interview. Consent was obtained at the initiation of the telephone interview (See Appendix D for telephone script). A copy of the consent form was mailed or emailed to the participant depending upon their preference. Participants were entered into a draw to receive a copy of a mental health evidence-based practice book. The interviews were approximately 30 minutes in length and were transcribed and reviewed by the principal investigator. The content of the interviews were analyzed to select the beliefs most often reported. The principal investigator reviewed the interviews for consistent themes, noting the top three themes from each of the constructs. This was accomplished by making a list of themes mentioned and then simply counting to find the most common. For example, when developing the Subjective norm indirect measures, consistently parents, colleagues and management were reported as individuals who would approve or disapprove of recommending a specific treatment/behavior. These themes were then converted into questions to be utilized in the final questionnaire, with guidance from Francis et al. (2004). See Table 1 for indirect measures of the three constructs related to the behavior of recommending medication consultation/prescription for the treatment of ADHD.

Table 1. Direct and Indirect Measures of the TPB

Attitude

DIRECT Measure

Recommending medication consultation/prescription as a treatment for clients diagnosed with ADHD is…

Harmful	1	2	3	4	5	Beneficial
Good	1	2	3	4	5	Bad
Pleasant (for me)	1	2	3	4	5	Unpleasant (for me)
Worthless	1	2	3	4	5	Useful
Unrewarding	1	2	3	4	5	Rewarding
Frustrating	1	2	3	4	5	Not at all frustrating
Unsatisfying	1	2	3	4	5	Satisfying

INDIRECT Measures

If I recommend medication prescription/consultation….

Unlikely 1 2 3 4 5 Likely

1. I will help my patient with concentration/focus.
2. I will make parents uncomfortable.

Subjective Norm

DIRECT Measure

I would recommend medication prescription/consultation as one treatment for clients who present for treatment of ADHD because….

Strongly Disagree 1 2 3 4 5 Strongly Agree

1. It is expected of me.
2. I feel under social pressure to do so.
3. People who are important to me want me to do so.

INDIRECT Measure

Strongly Disagree 1 2 3 4 5 Strongly Agree

1. Parents/caregivers approval of my practice is important to me.
2. What management thinks I should do matters to me.
3. Doing what other mental health professionals do is important to me.

Perceived Behavioral Control (PBC)

DIRECT Measure

When considering the recommendation of medication consultation/prescription as one treatment of ADHD….

Strongly Disagree 1 2 3 4 5 Strongly Agree

1. I am confident I could recommend it if I wanted to.
2. For me to do so would be easy.
3. The decision is beyond my control.

INDIRECT Measure

1. The availability of psychiatry or appropriate prescribing authority, affects my decision.
2. A family's financial situation is part of my decision.

S***tep 6. Creation of the operant learning theory (OLT) questions.***

Measurement. Two theoretical constructs were included from OLT: perceived consequences/reinforcement and evidence of habitual behavior. Perceived consequences/reinforcement was assessed using a five-point scale. The following four questions were asked for each of the three behaviors investigated: *If I recommend (parent management training; medication consultation/prescription; group treatment for wait list management), for clients/patients…*(1) *I will maintain a good relationship with them*; (2) *I will receive support from my colleagues*; (3*) I will receive support from management*; and 4) *It will save me time*. Evidence of habitual behavior was assessed using the following three questions for each of the three behaviors investigated: *In my clinic, for patients/clients diagnosed with ADHD, recommending (parent management training; medication consultation/prescription; group treatment for wait list management*)…(1) *is something I do frequently*; (2) *is something I automatically consider*; and (3) *is my usual practice*. The anchors used in these scales were *strongly disagree* to *strongly agree*. These questions were adapted from the work of Grimshaw and colleagues in the Process Modeling for Implementation Research (PRIME) studies (Eccles et al., 2007; Walker et al., 2003).

Operationalization. A mean score was calculated for each of the constructs assessed. Raw scores ranged from 1 to 5 with higher scores indicative of higher levels of reinforcement and greater evidence of habitual behavior.

Step 7. Creation of the demographic and clinical background questions.

Demographic questions were included in this questionnaire to assess gender, age, professional registration status, professional designation, clinical orientation, years of

experience, and number of clients seen per week. Participants were asked to rate their knowledge of clinical practice guidelines for the treatment of ADHD that have been issued by the American Academy of Pediatrics; Canadian ADHD Resource Alliance (CADDRA); American Academy of Child and Adolescent Psychiatry and the National Institute for Health and Clinical Excellence in the UK. Participants were also asked to rate their familiarity with the terms evidence-based practice and empirically supported treatments and note with a yes or no answer if both terms essentially meant the same thing. Knowledge of guidelines and familiarity with the terms were rated on a five-point scale with the anchors, not at all familiar to very familiar.

Step 8. Inclusion of the Evidence-based Practice Scale (EBPAS).

Measurement. Aarons (2004) developed the Evidence-Based Practice Attitude Scale (EBPAS), a brief measure of mental health clinician attitudes toward the adoption of EBPs. The EBPAS consists of 15 items, measured on a 5-point scale. The anchors for this scale are 0 (*not at all*) to 4 (*a very great extent*). The EBPAS is comprised of four subscales and a total scale score, which represents respondents' overall attitude toward adoption of EBPs. The Appeal subscale assesses the extent to which the clinician would adopt an EBP if it were intuitively appealing, could be used correctly, or was being used by colleagues who were happy with it (e.g., *If you received training in a therapy or intervention that was new to you, how likely would you be to adopt it if it 'made sense' to you?*). The Requirements subscale assesses the extent to which the provider would adopt an EBP if it were required by an agency, supervisor, or state (e.g., *If you received training in a therapy or intervention that was new to you, how likely would you be to adopt it if it were required by your organization?*). The Openness subscale assesses the

extent to which the provider is generally open to trying new interventions and would be willing to try or use more structured or manualized interventions (e.g., *I am willing to try new types of therapy/interventions even if I have to follow a treatment manual*). The Divergence subscale assesses the extent to which the provider perceives EBPs as not clinically useful and less important than clinical experience (e.g., *Clinical experience is more important than using manualized therapy/interventions*). Cronbach's alpha reliability for the EBPAS is good (alpha = 0.76), with subscale alphas ranging from 0.67 to 0.91 (Aarons et al., 2010), and the measure's validity is supported by studies of EBPAS score associations with mental health clinic structure and policies (Aarons, 2004), culture and climate (Aarons & Sawitzky, 2006) and leadership (Aarons, 2006).

Operationalization. Participants' attitude toward EBP was operationalized as the total score on the EBPAS. The EBPAS Total score is computed by first reverse scoring Divergence scale item scores and then computing the overall mean from all four subscales.

Step 9. Pilot testing the questionnaire.

All items (Direct and Indirect measures of TPB, OLT, demographics and the EBPAS) were included in a draft questionnaire (Appendix E), which was then pilot tested to a group of people using the computer based platform (GQuest System; a web-based survey software, written in Ruby, using a MySQL database) to be utilized in the final survey and reworded as necessary. Potential participants were sent an email requesting participation in the pilot testing of the national survey (See Appendix F for email text). Also included in this email were questions regarding the survey, requesting feedback to the length of the questionnaire, ambiguous or annoying questions, wording, format or

other potential difficulties with the questionnaire. The consent form (See Appendix G for written form) was found on the first web page. If participants choose to complete the questionnaire, they indicated their consent through the action of clicking on the accept button. This pilot testing assessed the ambiguity of questions, length, annoying features or wording, format, and problematic questions. All recommended changes were made and the second draft was redistributed to the initial sample requesting further feedback. There was no further feedback after the second review and the questionnaire was accepted in its final format (see Appendix E for the final questionnaire).

As a result of the limited sample size accessed for the elicitation interviews (n=8 where a sample of 25 was recommended) for the development of the indirect measures of the TPB and complaint from pilot testing that the final survey was too long, indirect measures of the Theory of Planned Behavior were excluded from the survey, thereby eliminating 21 questions (seven questions for each of three behaviors). The constructs within the TPB were assessed using the direct measures only. Francis et al. (2004) outline specific research questions where it is appropriate to exclude the indirect measures of the TPB. Some research questions can be answered with a reduced data set where others cannot. If the goal of research is to predict variance in behavioral intentions (as in this study), to assess the influence of each predictor with a view to designing an intervention to modify the most powerful predictor (a possible future use of this data), or evaluating the impact of an intervention, a brief questionnaire can be utilized and it is sufficient to measure intentions and the three predictor variables using direct measures (Francis et al., 2004). If the purpose of the research is to understand the

specific beliefs that contribute most to the three predictor variables, both direct and indirect measures are needed.

2.3 National Survey

2.3.1 Objective.

The objective was to conduct a survey of outpatient mental health professionals (psychology, psychiatry, and social work) from a national sample working in outpatient child and adolescent mental health in order to predict intention to complete three specific behaviors based upon the Theory of Planned Behavior (Attitude, Subjective Norm, and Perceived Behavioral Control) and Operant Learning Theory (evidence of habitual behavior and anticipation of consequences/reinforcement), in order to identify what processes should be targeted by interventions to improve the utilization of EBP.

2.3.2 Recruitment.

Participant recruitment was carried out using multiple methods. Strategies and steps recommended by Dillman (2007) were employed to increase the success of recruitment. These strategies included the careful construction of the questions and questionnaire lay out to ensure ease of reading and response. This was pilot tested as outlined in the previous section. The multiple contact method as recommended by Dillman (2007) was utilized, consisting of a pre-notice of the questionnaire, an invitation to participate in the questionnaire, a thank you/reminder notice and a final contact with potential participants. As an incentive to participation, a two dollar donation was made the Canadian Mental Health Foundation for each completed survey. The provision of a small token, one to five dollar incentive (which includes charitable donations), prior to completion of a survey has been found to be more effective than the promise of a greater

reward at completion of the survey (Dillman, 2007). Further, a larger prior incentive has not been found to increase compliance (Dillman, 2007). End of survey incentives, often provided via a lottery of entered respondents, while increasing in use, have been found to have little to no effect on response rates (Dillman, 2007). The challenge of offering a pre-incentive to anonymous participants was addressed in this survey through the use of a donation to a charity.

Attempts were made to secure a representative sample of individuals from each of the three disciplines of interest (i.e., social work, psychology, and psychiatry). Ideally, recruitment would have focused on targeting members of professional regulatory bodies soliciting participation from all members, thereby having a record of number of potential participants contacted to provide an understanding of response rates. However, due to privacy issues, gaining access to lists of professionals from a regulatory or association body was not possible. Therefore, mental health clinicians were recruited using a variety of convenience methods. Direct email, phone or in person contact, word of mouth, targeted emails to direct service sites through managers, advertisements on discipline specific websites, distribution through discipline specific and topic specific listservs, and advertisement in specialty newsletters were the methods used in sampling.

Where possible, outpatient pediatric mental health clinicians, psychologists, psychiatrists, and social workers, practicing within the public system were directly recruited through the managers of outpatient pediatric mental health clinics at pediatric health centres across Canada. This list of centres and managers was generated from the membership of the Canadian Association of Pediatric Health Centres. A series of

emails were sent to these managers. The first email outlined the request to the managers to request participation from the mental health clinicians, specifically, psychologists, social workers, and psychiatrists working in outpatient mental health services to request participation (Appendix H). Following agreement to this plan of distribution, a series of email texts was provided to the managers for distribution to the selected clinicians. Following the multiple contact method as recommended by Dillman (2007) the managers were provided with an initial email script for distribution that provided pre-notice of the questionnaire (see Appendix I). Three days later, a second email script was sent to the managers for distribution requesting participation in the study and providing the link to the questionnaire (see Appendix J). Approximately 10 days later, a thank you/reminder email script was sent to the managers for distribution (see Appendix K). Finally, approximately two weeks later, a final email script was sent to the managers for distribution (see Appendix L) thanking those who have participated and providing one more opportunity for completion of the questionnaire. The principal investigator requested to be copied on these emails to ensure compliance with the methodology. Emails were sent to mental health managers at the IWK Health Centre, the Hospital for Sick Children, BC Children's Hospital, the Janeway Children's Hospital, Stollery Children's Hospital, Children's Hospital of Eastern Ontario, Alberta Children's Hospital and service providers within Children's Mental Health Ontario. However, despite multiple attempts, only the IWK Health Centre and Children's Mental Health Ontario participated in this recruitment process.

As it was recognized that many of the targeted participants may not be accessed through hospital affiliations and the response rate from these managers was very low, a

variety of other sources were targeted. These included strategies specific to individual disciplines and other broad based recruitment strategies attempting to contact practicing mental health clinicians across Canada. Sampling was most heavily focused where the principal investigator was able to make targeted contacts, which included the Maritime provinces, Ontario, and Alberta. Attempts were made to access other provinces (i.e., British Columbia, Manitoba, Saskatchewan, Quebec), however, this was met with limited success. Broad based recruitment strategies included sending email notices and recruitment through Canada CHAIN (Contact, Help, Advice and Information Network, research and evidence-based practice listserv) and Member organizations with Children's Mental Health Ontario. The principal investigator was provided with several email mailing lists, including a special interest child and adolescent psychology group in Nova Scotia and a book review group of child psychiatrists based across Canada. When possible (i.e., when the principal investigator had access to a mailing list, listserv or other targeted distribution) the multiple contact (Dillman, 2007) method of recruitment was utilized with multiple contacts initiated by the principal investigator using a modified version of the email scripts sent to the pediatric health centres. The survey launch also coincided with the annual meeting of the Canadian Association of Pediatric Health Centres (CAPHC) held in Edmonton on October 19-23, 2008. Advertisement and recruitment of participants occurred through networking at this conference through distribution of advertisement (see Appendix M), and word of mouth.

Supplemental recruitment of psychiatrists occurred through direct solicitation of directors of child and adolescent psychiatry divisions associated with University teaching hospital who distributed the survey request to their members (e.g., Dalhousie

University, University of Toronto, University of Calgary), email mailing lists provided to the principal investigator from other psychiatrists and word of mouth from individual participants.

Psychologists were specifically targeted through distribution of the survey link to the section chairs of the Canadian Psychological Association (CPA) for distribution to their members, advertisement in the Clinical section of the CPA newsletter, mailing lists provided from other psychologists, and word of mouth from individual participants.

Social workers were targeted through advertisement within the newsletters that are sent to all members of the provincial social work associations, websites of the provincial associations, email mailing lists provided by the provincial associations (Prince Edward Island was the only province to provide an email mailing list), and word of mouth from individual participants. Recruitment began on October 18, 2008 and ended on June 30, 2009.

2.3.3 Participants.

To be eligible to participate in the survey, psychologists, psychiatrists and social workers had to spend the majority of their time working in child/adolescent mental health, with at least part of this time in an outpatient mental health setting (broadly defined as any setting other than inpatient or residential treatment). Participants were registered/licensed psychologists, social workers, and psychiatrists primarily working within child and adolescent mental health within an outpatient setting. While there are other disciplines represented in outpatient mental health clinics (e.g., occupational therapists, nurses) it was decided to focus on the three most prevalent professions within an outpatient mental health setting. Across Canada there is inconsistency in the

diversity of allied health professionals working within pediatric mental health above the core professions of psychology, psychiatry, and social work. These three professions were chosen to ensure consistency across the national sample. The clinical practice decisions under investigation (i.e., recommendation of medication and parent management training for first line treatment of initially diagnosed ADHD and referral to evidence-based mental health treatment groups for wait list management) are decisions made primarily by mental health outpatient clinicians. Other clinical settings (e.g., residential, inpatient, community, day treatment, crisis) are excluded from the study as these decisions are not as relevant to their daily practice.

A total of 310 participants entered the survey site and responded to the first three questions assessing eligibility to participate in the study. Of those, 154 completed all or part of the survey. There was participant drop out over the course of the study with 154 participants completing the first section examining the behavior of recommending parent management training for the treatment of ADHD, 149 participants for recommendation of medication/prescription and 126 participants for recommendation of evidence-based group therapy for waitlist management. The demographic section was presented at the end of the survey as recommended by (Dillman, 2007) to encourage participation in the study by presenting what would be perceived as socially interesting questions first. As a result, full demographic data is available for approximately 85% or between 115 and 120 of the total 154 participants. Of the 83% (n=117) of participants that responded to the demographic question regarding gender, 66% were female and 17% were male. Eighty five percent (n=120) of respondents indicated their age, with 8% (n=10) under the age of 30 and 7% (n=9) over the age of 60. The age of the remaining

participants were distributed as follows, 35% (n=42) between the ages of 30-39, 19% (n=23) between the ages of 40-49, and 30% (n=36) between the ages of 50 and 59. The total years of experience within the mental health system of respondents (85%, n=120) ranged from 2 to 46 years (Mean=17.63;SD=10.47) with 1-45 years of experiences years of experience specific to child and adolescent mental health (Mean=15.95; SD=10.03), and who see from 2-75 children adolescents per week (Mean=14.58; SD=11.06).

Eighty percent of respondents (n=120) indicated their professional certification, Social Workers were the largest group, representing 44% of respondents (n=55), Psychologists represented 21% of respondents (n=21 for registered Psychologists, n=5 for Psychologists on the Candidate Register) and 17% of respondents were psychiatrists (n=21 for psychiatrists (hospital and university practicing) and n=1 for psychiatry resident). A further 16% identified as other certification (e.g., Marriage and Family Therapy (n=3); Psychometrist (n=3); Theraplay Therapist and Art Therapist (n=2); Masters of Education in Counselling (n=4)). Given the affirmative response to the inclusion question of asking participants if they were practicing psychologists, social workers or psychiatrists, the other certification was seen as providing more specifics above the initial categorization provided regarding professional status, i.e., an individual may be a social worker working as a marriage and family therapist. As a result these participants were retained for the analyses.

In response to the question regarding knowledge of the term Evidence-Based Practice, almost all (96%) of the 120 respondents to this question indicated that they were familiar or very familiar with the term. Similarly, 90% of 119 respondents were

familiar or very familiar with the term Empirically Supported Treatments. Thirty eight percent of the 120 respondents indicated that they felt the terms EBP and EST were interchangeable. The majority of respondents reported that they were unfamiliar with any of the clinical practice guidelines, e.g., 60% of the 155 respondents were unfamiliar with the American Academy of child and Adolescent Psychiatry guidelines regarding ADHD; 62% of the 117 respondents were unfamiliar with the American Academy of Pediatrics Guideline regarding the treatment of ADHD; 70% of the 118 respondents were unfamiliar with the Canadian ADHD Resource Alliance guidelines; and finally, a full 92% of the 114 respondents were unfamiliar with the UK guidelines distributed by the National Institutes of Health and Clinical Excellence (NICE).

The evidence-based practice attitude scale (EBPAS) was completed by 126 of the 154 study participants who completed all or part of the survey. In comparison to the normative sample (Aarons et al., 2010), this sample scored a full two standard deviations above the mean score for the Total EBPAS scale and at least one full standard deviation above the mean for three of the four factor scales, Openness (to new practices), Appeal (intuitive appeal of EBP), and Requirements (likelihood of adopting EBP given requirements to do so), suggesting that this sample was biased toward more positive attitudes related to evidence-based practice than the normative sample (Aarons et al., 2010). However, this sample was similar to the normative sample on the Divergence scale, a measure of how different individuals view their usual practice from research-based/academically developed interventions, where both this sample and the normative sample saw their practice as divergent from academic/research-based interventions.

2.3.4 Procedure.

The questionnaire was posted on a secure internal website from the Centre for Research and Family Health Server, held at the IWK Health Centre. The survey was managed using the GQuest System. The GQuest system is a web-based survey software, written in Ruby, using a MySQL database. The site ran on IIS over SSL. The link to the questionnaire was included in the email and other advertisements requesting participation in the study. Participants accessed the survey via a weblink and participation was anonymous. The first page of the survey consisted of three questions assessing eligibility for participation in the study. The participant had to respond in the affirmative to the three questions in order to move into the consent portion of the survey. If they responded negatively to any of the questions they were redirected to a thank you page, where they were thanked for their participation. The consent form for the survey was the next page that was accessed by potential participants (See Appendix N). Participants read the consent form and indicated their agreement to participate in the study. If participants choose to complete the questionnaire, they signified their consent through their action of clicking on the accept button which then automatically proceeded to the first question in the survey. No identifying data was collected from participants, such as their name or email address that could be linked to their survey responses. Participants progressed through the approximately 30 minute survey page by page through the secure internal server. At the end of the survey they clicked on the submit button and their survey was submitted to the internal server.

CHAPTER 3 RESULTS

3.1 Sample Size and Analytic Approach

Sample size was assessed based upon the recommendations from the literature regarding TPB questionnaires (Francis et al., 2004; Rashidian, Miles, Russell & Russell, 2006) and the simple method recommended by Tabachnik and Fidell (1996) resulting in an a priori sample size target between 109 and 148 participants. Rashidian, Miles, Russell, and Russell's (2006) recommend a minimum of 148 participants when undertaking regression analyses utilizing the Theory of Planned Behavior. Power calculations for sample size in multiple regression depend upon the number of cases per predictor variable. The literature suggests that it is reasonable to expect a moderate effect size for TPB studies (i.e., a multiple R of around 0.3; (Cohen, 1998)) using multiple regression, leading to a minimum recommended sample size of 80 (Francis et al., 2004). This study applied one other theory and as such has a greater number of predictor variables than a sole TPB survey. A minimum sample size of 50+ 8m where m is the number of predictor variables is recommended for testing the multiple correlations and 104+ m for testing individual predictors (Tabachnik & Fidell, 1996). This study has five predictor variables, three for TPB (Attitude, Subjective Norm and Perceived Behavioral Control); and two for operant learning theory (Reinforcement and Habit), requiring a minimum sample size of 90 to test the multiple correlation or 109 to test the individual predictors.

The overall analytic approach was to first check the internal consistency of the predictor measures that were measured with multiple questions (TPB: Attitude,

Subjective Norm and Perceived Behavioral Control; OLT: Habit and Reinforcement) and the corresponding outcome variables (Intention to recommend: (1) Parent management training for ADHD; (2) Medication consultation for ADHD; and (3) Referral to evidence-based group treatment to reduce wait times for access to mental health services). When necessary questions were considered for removal if they failed to achieve a Cronbach's alpha of 0.70 or greater (see section 3.2.3 Internal Consistency for detailed description).

Pearson correlation coefficients between the individual constructs and the outcome measure were calculated, and then multiple regression analyses were used to examine the predictive value of each theoretical model. Finally, predictors that were statistically significant across models were analysed using stepwise multiple regression to determine the individual contributions to prediction for the outcome variables. The aim of the analyses was to determine the specific significant factor or factors that were predictive of behavioral intention that could potentially be targeted for intervention to increase the utilization of evidence-based practice across the three target behaviors. Each target behavior (i.e., Intention to recommend (1) Parent management training for ADHD; (2) Medication consultation for ADHD; and (3) Referral to evidence-based group treatment to reduce wait times for access to mental health services) was analyzed separately. The unique variance among predictor variables was explained through reporting of squared semi-partial correlations (see section 3.2.4 Common Variance for further explanation).

Stepwise multiple regression was chosen as it allows for entry of variables in a statistical manner when there is little basis for ordering variables according to theory.

For example, while it is clear that the three constructs within the TPB are related to one another, there is no guidance as to which of the three constructs would be logically entered prior to another. There is little guidance from previous research to suggest that one theory or constructs within a theory are better predictors than others for a novel behavior and as such, this research remains largely exploratory in nature and much of the theorizing regarding prediction remains inconclusive. Cohen, Cohen, West, & Aiken (2003) suggest that while there are limitations to the use of stepwise regression (i.e., capitalization on chance when many variables are entered into the regression; when there are only trivial differences among partial relationships between predictors and the outcome variable; the computer selects the one with the highest association which may lead to an inversion of independent variables (IV); there is a risk of failure to generalize the findings to an alternative population), they concede that the use of this method is optimized under certain conditions. These conditions include: when there is not a large number of IVs (there are only five in total in this study) and that the IVs are known to be related to one another with mild to moderate correlations (i.e., less than r=0.70); when the goal of the research is largely or primarily predictive in nature (as is the case in this study) and there is no theoretical precedence to the variables; and when there is a large sample size. They recommend a k/n ratio of 1 to 40, where k=number of predictors and n=sample size. While the full sample size of this study falls short of this recommended ratio, i.e., for five predictors the sample should be 200, however, for each individual stepwise regression this ratio is met in the current study.

3.2 Preliminary Analyses

3.2.1 Data Coding.

As described in the method section, the scoring of the items used in assessing the constructs included in the Theory of Planned Behavior (TPB) were based upon procedures outlined by Francis et al. (2004) in the development of a questionnaire based upon the TPB. All data were initially screened for accuracy and frequencies were checked to ensure that the data downloaded was consistent with the scale of measurement in the questionnaire. Across the questionnaire items measuring components of the TPB, items that had negatively worded endpoints on the right side of the question, were recoded, so that high scores then consistently reflected greater intention, attitude, social pressure, and perceived behavioral control. The mean scores were calculated across the items in each scale.

A behavioral intention outcome variable was calculated for each of the target behaviors under investigation: (1) PMGMT: Intention to recommend parent management training for children with ADHD; (2) MEDICATION: Intention to recommend medication consultation/prescription for children with ADHD; and (3) WAIT: Intention to refer to evidence-based group therapy to reduce wait times. Participants responded on a scale of 1 (strongly disagree) to 5 (strongly agree) regarding their intention to engage in the target behavior. The outcome variable was a mean score of three questions: (1) I want to do *(target behavior)*; (2) I intend to do *(target behavior)*; and (3) I expect to do *(target behavior)*, with higher scores indicative of greater intention to perform the target behavior.

Predictor variables were measured for each of the two theories under investigation across each of the three target behaviors: (1) The Theory of Planned Behavior (TPB); and (2) Operant Learning Theory (OLT). Three constructs were included in the TPB: (1) direct measurement of Attitude (seven questions); (2) direct measurement of Subjective Norm (three questions); and (3) direct measurement of Perceived Behavioral Control (three questions). Two constructs were included in OLT: (1) Evidence of habitual behavior (Habit) (three questions); and (2) Anticipated Consequences/ Reinforcement (Reinforcement) (four questions). For each of the predictor variables, the total scores with a range of 1 to 5 were utilized as the final variables, higher scores were indicative of more positive attitudes, greater social pressure, higher perceived behavioral control, stronger habit, and greater reinforcement. This resulted in a total of five predictor variables for each of the three target behaviors (See Table 2 for a summary of the outcome and predictor items for each of the target behaviors).

3.2.2 Missing Data.

Missing data is of particular concern for this study because of the likelihood of incomplete questionnaires given the length of the survey. There was a steady drop-out rate during completion of the questionnaire, and as such a different number of participants completed the survey for each of the three behaviors of interest. The deletion of the incomplete cases that resulted from non-response is an undesirable method of handling missing data since it drastically reduces sample size and is susceptible to bias (Shafer, 2000). In order to maximize the utilization of available data, missing data analysis and subsequent analysis were conducted separately for each of the three behaviors examined in this study (i.e., parent management, medication, and wait).

Table 2. Summary of predictive and outcome measures.

Predictor Variables *(number of items)* [a]	**Example Item(s)**
Theory of Planned Behavior (Azjen, 1991)	
Attitude *(7)*	Recommending X is…
(All questions were rated on a 5 pt scale)	Harmful-Beneficial
	Good-Bad
	Pleasant (for me)- Unpleasant (for me)
	Worthless- Useful
	Unrewarding-Rewarding
	Frustrating- Not at all frustrating
	Unsatisfying- Satisfying
Subjective Norm *(3)*	I would recommend X because it is expected of me; I feel under social pressure to do so; People who are important to me want me to do so.
Perceived Behavioral Control *(3)*	I am confident I could recommend X; Recommending X would be easy; recommending X is entirely my decision.
Operant learning theory	
Habit *(3)*	Recommending X is something I automatically consider…is my usual practice…is something I do frequently.
Reinforcement *(3)**	If I do X I will maintain a good relationship with my client/families…I will receive support from my colleagues/management.
Outcome Variable	
Behavioral Intention *(3)*	I expect to…X
	I want to…X
	I intend to…X

[a] Each predictor and outcome variable was assessed for each of the three behaviors of interest, i.e., replace X with: 1) parent management training (PMGMT); 2) medication consultation/prescription (MED) and 3) referral to standardized, evidence-based group therapies when clinically appropriate, to reduce wait times (WAIT). *Only two variables were included in Reinforcement for the Wait behavior; the third item was inadvertently deleted in the final survey.

Missing demographic data was not included in the missing data analysis.

Three hundred and ten participants entered the study site. Missing value analysis was run separately for each of the three target behaviors. Participants who were missing 30% or more of the data points across each of the three target behaviors were deleted from further analysis (n=156). The remaining participants were retained (i.e., PMGMT (n=154), MED (n=151), WAIT (n=126). Missing data was replaced using the group mean from each of the variables of interest, specifically, Behavioral intention, three TPB variables (Attitude, Subjective Norm, and Perceived Behavioral Control) and two OLT variable (Habit and Reinforcement). The number of data points replaced ranged from seven to fifteen for the predictor and outcome variables for the three behaviors of interest. Analysis of the differences between the pre and post mean replacement values using paired sample *t*-tests indicated that there were no significant differences in the means of any of the variables following replacement of missing data.

3.2.3 Internal Consistency.

Theoretical measures were tested for acceptable internal consistency. Cronbach's alpha is the most common estimate of internal consistency of items in a scale (Cohen et al., 2003). Cronbach's alpha measures the extent to which item responses obtained at the same time correlate highly with each other. It is not a measure of unidimensionality, rather a high score indicates high correlations or interrelatedness among the items (i.e., a scale can have a high alpha and be either unidimensional or multidimensional). A set of items can be interrelated and multidimensional, as such alpha is a measure of interrelatedness, rather than homogeneity or unidimensionality. The widely-accepted social science cut-off is that alpha should be .70 or higher for a set of items to be

considered a scale. Cronbach's alpha is reportable in raw or standardized formats. To control for variance among the measures the standardized statistic is recommended. The standardized statistic is reported in all cases for this study. If the criterion value (Cronbach's α=0.70) was not reached, items were considered for deletion from the variable measure until the maximum possible Cronbach alpha was achieved (see Table 5 for a summary of Cronbach's alpha levels for the predictor and outcome variables). The criterion level of Cronbach's alpha was exceeded for all three of the main outcome variables (Intention), and for 13 of the 15 predictor variables, retained in the analysis. The Subjective Norm predictor variable for the intention to recommend parent management training did not reach criterion with an alpha of 0.67 and the Reinforcement predictor variable for the intention to recommend group therapy for wait list management reached 0.69. Given the small divergence from the 0.70 criterion they were included in further analysis.

Across behaviors, one of the four questions from the OLT Reinforcement variable was removed. The question considered whether recommending the specific behavior would save the clinician time. The other three questions were related to preserving relationships with the client/family; colleagues and management. This question was initially included in the reinforcement construct as related to reinforcement for the individual clinician. However, upon further reflection after the analysis, it was clear that this one item was fundamentally different from the relationship questions and was therefore removed. While reinforcement by way of saving time may impact upon clinician behavior, the decision was made to remove this question as it was not sufficiently interrelated to the other reinforcement questions and there were no other

tangible individual reinforcement questions asked, i.e., financial incentives, to potentially create another construct. The removal of this question improved internal consistency across all three behaviors; (Parent Management α= *.68 to* α= *.79;* Medication α= *.73* to α= *.81;* Wait α= *.60* to α= *.69).* There were no other item deletions across the scales.

3.2.4 Common Variance.

In regression modeling, there is common and unique variance associated with the relationship between the predictor variables and the outcome variable. The common variance is the variance in the prediction that is attributable to multiple predictor variables, the shared variance. The unique variance is that what can be attributed to a single predictor variable, that is, separating out each individual variable's contribution in the prediction of the outcome.

Within regression analysis it is often desirable to estimate a variable's unique contribution to the model. One method of addressing common variance is through using a statistical control process through reporting the partial and/or semi-partial (part) correlation coefficients. These coefficients provide an estimation of the relationship between a predictor variable and a criterion or outcome variable after controlling for the effects of other predictors in the equation (Stevens, 2003). Partialing out the variance in this manner attempts to determine the degree of association between two variables that would exist if all influences of one or more other variables could be removed. This process can be viewed as analogous to post hoc testing in ANOVA procedures.

A partial correlation is another way of expressing the unique relationship between the outcome variable and a specific predictor. Partial correlation represents the correlation between the outcome and a predictor after common variance with other

predictors has been removed from both the outcome and predictor variables. In other words, after removing the variance that the outcome measure and the predictor have in common with other predictors, the partial correlation coefficient represents the correlation between the residualized predictor and the residualized outcome variable (Stevens, 2003). Both the predictor and outcome measure are altered or residualized.

A semi-partial correlation coefficient represents the correlation between the outcome variable and a predictor that has been residualized with respect to all other predictors in the equation. That is, after removing variance that the predictor has in common with other predictors, the semi-partial coefficient represents the correlation between the residualized predictor and the unchanged outcome variable. The fact that the outcome variable remains unchanged in the semi-partial is a distinct advantage, permitting comparisons of the coefficients across predictors while using the same denominator, the outcome variable. The square of the semi-partial correlation coefficient can be interpreted as the proportion of the variance in the outcome variable uniquely associated with the predictor (Stevens, 2003). That is, out of all the variance to be accounted for, how much does this variable explain that no other predictor does? Specifically, within stepwise regression, the squared semi-partial correlation coefficient is the unique contribution of the variable at the point it enters the equation. Both the squared partial and semi-partial correlation coefficients will be reported in table format, however, the semi-partial correlation coefficient will be interpreted in text to discuss the issue of shared and common variance.

3.2.5 Examination of Demographic Variables

Pearson correlations were conducted among the demographic variables, e.g., age, gender, total years of experience, total years of experience related to child and adolescent mental health and number of children/adolescents seen per week, and none of the demographic variables analyzed were significantly associated with any of the outcome variables.

3.3 Primary Analysis

3.3.1 Examination of the Relationship Among Predictor and Outcome Variables.

Parent management training.

Table 3 provides a summary of the Pearson correlations among the predictor variables and outcome variable, behavioral intention to recommend parent management training as a treatment for ADHD. Each of the five predictor variables were positively and significantly correlated with the outcome variable, indicating that a more positive attitude, greater social pressure, greater perceived behavioral control, past habit, and higher levels of reinforcement were all associated with a greater intention to engage in the specific behavior. Habit correlated most strongly with intention, r=.78, p<.001. Subjective Norm had the lowest correlation with intention, r=.26, p<.001. Each of the predictor variables was also significantly and positively correlated with one another, with the exception that there was no significant correlation between Subjective Norm and the other two constructs in TPB, Attitude and Perceived Behavioral Control. The lowest correlation among predictor variables was between Subjective Norm and Perceived Behavioral Control (both from the TPB), r= .06, p=.48. The highest correlation among

Table 3. Correlations between predictive measures and outcome variables for the recommendation of parent management training (PMgmt) for the treatment of ADHD (N=151)

PMgmt	Outcome	Theory of Planned Behavior			Operant Learning Theory	
	Intention	**Attitude**	**Perceived Behavioral Control**	**Subjective Norm**	**Habit**	**Reinforcement**
Intention	1					
Attitude	.42**	1				
Perceived Behavioral Control	.47**	.36**	1			
Subjective Norm	.26**	.08	.06	1		
Habit	.78**	.47**	.64**	.29**	1	
Reinforcement	.42**	.48**	.51**	.20**	.58**	1

*p<.05, **p<.001

predictor variables was between Perceived Behavioral Control and Habit, $r = .64$, $p < .001$. The magnitude of these correlations is consistent with the recommendation of mild to moderate correlations among IVs for the use of stepwise regression.

Medication consultation/prescription.

The results of the Pearson correlations among the predictor and outcome variables for the recommendation of medication consultation/prescription for ADHD treatment are summarized in Table 4. Habit was the most highly correlated predictor variable with the outcome variable, Behavioral Intention, $r = .72$, $p < .001$. Subjective Norm was the only predictor that was not significantly correlated with the outcome variable, $r = .10$, $p = .20$. Subjective Norm was only significantly and positively correlated with one predictor variable, Reinforcement, $r = .18$, $p < .05$. All other predictor variables were positively and significantly correlated with one another. The lowest significant correlation among predictors was between Subjective Norm and Reinforcement, $r = .18$, $p < .05$. The highest significant correlation was between Habit and Attitude, $r = .64$, $p < .001$. The correlations among the IVs are mild to moderate as recommended for use in stepwise regression.

Group treatment for waitlist management.

Table 5 provides a summary of the Pearson correlations among predictor and outcome variables for the recommendation of evidence-based group therapy when clinically appropriate to reduce wait times. Each of the five predictor variables was significantly and positively correlated with the outcome variable, Behavioral Intention. As with the two previous behaviors, Habit was the most highly correlated variable, $r = .60$, $p < .001$. Subjective Norm was only significantly correlated with Habit and this was the lowest correlation among predictor variables, $r = .34$, $p < .001$). All of the other

Table 4. Correlations between predictive measures and outcome variables for the recommendation of medication consultation/prescription (MED) for the treatment of ADHD (N=149)

Med	Outcome	Theory of Planned Behavior			Operant Learning Theory	
	Intention	**Attitude**	**Perceived Behavioral Control**	**Subjective Norm**	**Habit**	**Reinforcement**
Intention	1					
Attitude	.59**	1				
Perceived Behavioral Control	.33**	.40**	1			
Subjective Norm	.10	.08	-.00	1		
Habit	.72**	.64**	.50**	.14	1	
Reinforcement	.50**	.62**	.38**	.18*	.52**	1

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

predictor variables were positively and significantly correlated with one another. Like the two other behaviors under study, the highest correlation was among Habit and Perceived Behavioral Control, $r = .50$, $p < .001$ and reflects mild to moderate correlation among IVs.

3.3.2 Examination of Behavioral Intention Across Behaviors.

Behavioral Intention was the main outcome variable utilized in this study and was rated on a five-point scale, with 1 indicating low intention and 5 indicating greatest intention. A comparison of the intention scores across behaviors revealed a differential pattern of intention. The intention to recommend parent management training for treatment of ADHD following initial diagnosis had the greatest intention (M=4.45, SD= .73), followed by recommendation of referral to evidence-based group therapy when clinically appropriate to reduce wait times (M=4.19, SD=1.0), and finally recommendation of medication consultation/prescription (M=3.81, SD= .10). Paired sample *t*-tests indicated that the intention to recommend parent management training was significantly higher than the intention to recommend either medication ($t(153) = 6.8$, $p < .001$) or group therapy ($t(153) = 5.0$, $p < .001$). There was no difference between the intention to recommend medication or group therapy ($t(153) = 1.54$, $p = .126$).

3.3.3 Regression Analysis.

Regression Analysis by Theoretical Framework

The first regression analysis examined the TPB independently of the OLT. Each of the predictor variables in the TPB (Attitude, Subjective Norm, and Perceived Behavioral Control) were entered into a regression analysis for each of the three

Table 5. Correlations between predictive measures and outcome variables for the recommendation of evidence-based group therapy for waitlist management (WAIT) (N=126)

WAIT	Outcome	Theory of Planned Behavior			Operant Learning Theory	
	Intention	**Attitude**	**Perceived Behavioral Control**	**Subjective Norm**	**Habit**	**Reinforcement**
Intention	1					
Attitude	.38**	1				
Perceived Behavioral Control	.45**	.41**	1			
Subjective Norm	.20*	-.04	.13	1		
Habit	.60**	.36**	.50**	.34**	1	
Reinforcement	.47**	.40**	.44**	.12	.41**	1

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

behaviors under study with the main outcome of Behavioral Intention. The second regression analysis examined the OLT independently of the TPB. Each of the OLT predictors, evidence of habitual behavior (Habit) and Reinforcement, were entered into the regression for each of the three behaviors of interest with the outcome of behavioral intention (see Table 6 for a summary of the regression results by theoretical framework and behavior). The following will provide the results of the regression analysis for each theoretical framework applied to each behavior.

Theory of Planned Behavior

Hypotheses (a): It was hypothesized that the TPB would be predictive of mental health clinician intentional behavior for each of the behaviors investigated.

Hypothesis (b): When considered independently, there would be differences in the predictive pattern from the TPB across behaviors studied: Attitude would demonstrate the greatest level of prediction of behavioral intention in regard to the intention to recommend parent management training and medication consultation/prescription; Perceived Behavioral Control or Subjective Norm would demonstrate the greatest predictive power for intention to recommend group therapy for wait list management.

Parent Management Training (PMgmt).

Overall, the three predictor model from the TPB was able to account for 33% of the variance in clinician Behavioral Intention to recommend parent management training, $F(3, 147) = 25.38$, $p<.005$. All three constructs within the TPB, Attitude, Subjective Norm and Perceived Behavioral Control were significant predictors with standardized beta weights of, .28, .36 and .22 respectively. The semi-partial correlation coefficients for

each of the predictor variables indicated that Attitude uniquely explained 11% of the variance; Perceived Behavioral Control explained 7% while Subjective Norm explained 5% (see Table 6 for the complete set of statistics). Note that 12% of the variance accounted for is shared by the three predictors.

Medication.

Overall, the one predictor model of the TPB was able to account for 35% of the variance in Behavioral Intention, $F(3,145) = 27.08$, $p<.001$. As predicted in the second hypothesis, only Attitude contributed significantly to the explanation of the variance in intention ($\beta=.54$, $p<.001$). The semi-partial correlation coefficient for Attitude in this model indicated that attitude uniquely contributed 27% of the explained variance, leaving an additional 8% of the explained variance accounted for by common variance among other predictors, although they were not significant contributors.

Wait.

The three factor model of the TPB accounted for 26% of the variance in intention to recommend group therapy for wait list management, $F(3, 122)= 15.69$. Each of the three predictors contributed significantly to the full model, Attitude $\beta= .25$, $p<.001$; Perceived Behavioral Control $\beta=.33$, $p<.001$; Subjective Norm $\beta=.17$, $p<.05$. Perceived Behavioral Control accounted for a greater proportion of the unique variance in this model, as reflected in the squared semipartial correlation coefficient, $sr^2= .11$, uniquely accounting for 11% of the explained variance in intention. Attitude contributed an additional 7% of unique variance and Subjective Norm, 4%. An additional 4% of the explained variance is attributable to common variance among the predictors.

Operant Learning Theory (OLT).

Hypothesis (c) It was hypothesized that the OLT would be predictive of mental health clinician behavioural intention for each of the behaviors investigated.

Hypothesis (d): When considered independently of the TPB, OLT would be consistent across behaviors investigated, with evidence of habitual behavior demonstrating the greatest level of prediction of behavioral intention, above anticipated consequences /reinforcement.

Parent Management Training.

The one predictor OLT model was able to account for 61% of the variance in Behavioral Intention to recommend parent management training, $F(2,148) = 117.46$, $p < .005$. Evidence of habitual behavior (Habit) was the only significant predictor in this model, $\beta = .812$, $p < .001$. Review of the significant squared semi-partial correlation coefficient (sr^2) for Habit indicated that it solely and uniquely contributed to the prediction of intention, sr^2 (Habit)= 0.61.

Medication.

The two predictor model accounted for 53% of the variance in the intention to recommend medication consultation/prescription, $F(2, 146) = 85.20$, $p < .001$. Reinforcement and evidence of habitual behavior (Habit) contributed significantly, $p < .05$, to the two predictor model, with standardized beta weights of .18 and .63 respectively. The semi-partial correlation coefficients for each of the variables, indicated that Habit uniquely accounted for 29% of the explained variance with Reinforcement providing an additional 2% of unique variance. This leaves an additional 21% of the explained variance to common variance between the two variables.

Wait.

The two predictor model from OLT accounted for 41% of the variance in the intention to recommend group therapy for waitlist management, F (2, 123) = 44.07, $p<.001$. Each of the predictors significantly ($p<.001$) contributed to the model with standardized beta weights as follows: β Habit= .48; β Reinforcement= .28. Habit uniquely accounted for 25% of the explained variance in intention with reinforcement uniquely contributing 10% to the explained variance. The remaining 6% of variance explained by this model is captured as common variance between the two predictors.

3.3.4 Stepwise Regression Analysis With All Significant Predictors Across Theories.

The third regression analysis entered each of the significant predictors identified from the individual theory analysis into a stepwise multiple regression analysis, see Table 7 for a summary of results.

Hypothesis (e): When all significant predictors were considered together, evidence of habitual behavior would demonstrate the greatest level of prediction of behavioral intention across all significant predictors considered from both theories, however, there would be differences across behaviors investigated. It was predicted that evidence of habitual behavior would be the best predictor of the behaviors involved in the management of ADHD (intention to recommend medication consultation/prescription and intention to recommend parent management training). It was expected that Perceived Behavioral Control and Subjective Norm from the TPB or anticipation of consequences/ reinforcement from OLT would be greater predictors of the intention to recommend

Table 6. Predicting intention to recommend: (1) parent management training; (2) medication consultation/prescription; and (3) evidence-based group therapy: Correlation and multiple regression analysis by theoretical framework.

Theoretical framework	**Predictive variables**	**N**	**Alpha**	**Mean**	**(SD)**	**r**	**Beta**	**sr^2**	**pr^2**	**R^2 (adj)**	**df**	**F**
Outcome: Intention to recommend parent management training												
		3	*.77*	*4.45*	*(.73)*							
Theory of Planned Behavior	Attitude	7	.88	4.28	(.57)	.42**	.28**	.11	.14			
	PBC	3	.67	4.56	(.72)	.47**	.36**	.07	.09			
	Subjective Norm	3	.79	2.36	(.80)	.26**	.22**	.05	.07	.33	3, 147	25.38**
Operant learning theory	Habit	3	.93	4.38	(.96)	.78**	.81**	.61	.61	.61	2, 148	117.46**
	Reinforcement	3	.79	4.40	(.63)	.42**	-.05	.00	.00			
Outcome: Intention to recommend medication consultation/prescription												
		3	.89	3.81	(.10)							
Theory of Planned Behavior	Attitude	7	.90	3.79	(.72)	.59**	.54**	.27	.24			
	PBC	3	.78	4.42	(.80)	.33**	.12	.02	.01			
	Subjective Norm	3	.79	2.50	(.90)	.10	.06	.01	.00	.35	3,145	27.08**
Operant learning theory	Habit	3	.91	3.90	(1.09)	.72**	.63**	.38	.29	.53	2,146	85.20**
	Reinforcement	3	.81	4.16	(.73)	.50**	.18*	.05	.02			
Outcome: Intention to recommend evidence-based group therapy to reduce wait times												
		3	.84	4.16	(1.00)							
Theory of Planned Behavior	Attitude	7	.87	4.02	(.69)	.38**	.26**	.07	.05			
	PBC	3	.86	3.98	(1.11)	.45**	.33**	.11	.09			
	Subjective Norm	3	.74	2.54	(.97)	.26**	.17*	.04	.03	.26	3,122	15.69**
Operant learning theory	Habit	3	.92	3.47	(1.24)	.60**	.48**	.25	.19	.41	2,123	44.07**
	Reinforcement	2	.69	4.10	(.86)	.47**	.28**	.10	.06			

*p<.05 **p<.005 N= number of individual items in each construct; Alpha= Cronbach's Alpha; Beta = standardized regression coefficients; (SD)= standard deviation; r= Pearson bivariate correlation between predictor and outcome variable; sr^2/ pr^2= squared semi-partial /partial correlation coefficient.

evidence-based group therapy to reduce wait times. The TPB would continue to contribute to the prediction, but to a lesser degree.

Parent Management.

When all the variables which significantly predicted Behavioral Intention were entered into a stepwise regression analysis (TPB: Attitude, Perceived Behavioral Control; Subjective Norm; OLT: Habit and Reinforcement), only Habit remained as a significant predictor accounting for 61% of the variance in intention, $F(1,149)= 234.73$, $p<.001$, (see Table 7). Predictors from the TPB did not continue to contribute to the model. Review of the squared semi-partial correlation coefficient, $sr^2= .61$, indicated that Habit uniquely and solely contributed to the explanation of variance in the intention to recommend parent management training, uniquely accounting for all of the 61% of explained variance.

Medication.

When all the variables which significantly predicted behavioral intention were entered into a stepwise regression analysis (TPB: Attitude; OLT: Habit and Reinforcement), consistent with predictions both Habit and Attitude remained as significant predictors of behavioral intention. The two predictor model accounted for 54% of the variance in intention, $F (2,146) = 39.84$, $p<.001$ (see Table 7). A review of the semi-partial correlation coefficients, indicated that Habit uniquely contributed to 30% of the explained variance in intention with attitude contributing 5% of unique variance to intention. The remaining 19% of the explained variance is attributable to common variance between Habit and Attitude.

Table 7. Results of the stepwise regression analysis, which included all variables across theories which significantly predicted outcomes[2].

Significant Predictive Variables	Entered	Beta	Semi-partial r^2	Partial r^2	R^2 Change	df	F
Outcome: Intention to recommend parent management training							
Attitude, Subjective Norm, Perceived Behavioral Control, Habit	Habit	.78**	0.61	0.61	.61	1, 149	234.73**
Outcome: Intention to recommend medication consultation/prescription							
Attitude, Habit, Reinforcement	Habit	.58**	.30	.20	.52**		
	Attitude	.21*	.05	.03	.03*	2,148	86.16**
Outcome: Intention to recommend evidence-based group therapy to reduce wait times							
Attitude, Subjective Norm, Perceived Behavioral Control, Habit, Reinforcement	Habit	.48**	.25	.19	.35**	2, 123	44.07**
	Reinforcement	.28**	.10	.06	.06**		

*p<.005 **p<.001

[2] Final stepwise model presented

Wait.

When all the variables which significantly predicted behavioral intention (TPB: Attitude, Subjective Norm, Perceived Behavioral Control; and OLT: Habit and Reinforcement) were entered into a stepwise regression analysis, only OLT constructs remained, with the two predictor model accounting for 41% of the variance in intention to recommend group therapy for wait list management, $F(2, 123) = 44.07$, $p<.001$, (see Table 7). An analysis of unique and common variance through the squared semi-partial correlation coefficients indicated that Habit uniquely contributed 25% of explained variance with Reinforcement contributing an additional 10% of unique variance. The remaining 6% of the explained variance is attributable to common variance among Habit and Reinforcement.

3.4 Secondary Analysis.

To better understand the specific factors contributing to the predictions across theories, the significant predictors contained in the final regression model were separated into their individual items and these items were entered into a stepwise regression analysis to determine which specific factors could be targeted for use as an intervention to improve the utilization of evidence-based practice (see Table 8 for a summary). For all behaviors, Habit was the most significant predictor of intention. A review of the Pearson bivariate inter-item correlations indicated high levels of correlation among each of the three items included in the Habit construct across behaviors ($r>.88$), therefore item analysis of Habit was not conducted due to concerns regarding multicollinearity. A review of the inter-item correlations for Attitude in the prediction of intention to recommend medication consultation/prescription revealed moderate correlations among

variables, i.e., r =.47 - .72 (harmful-beneficial and good-bad). Similarly, inter-item correlations for Reinforcement in the prediction of recommending group therapy for wait list management, revealed a moderate correlation between the two items, r=.56.

For the intention to recommend medication consultation/prescription both Habit and Attitude remained in the model. For Attitude, a two factor model was also predictive of intention, F (2, 140) = 63.03, p<.001, accounting for 47% of the variance in intention, with the harmful-beneficial bipolar pair uniquely accounting for 9% of the variance and the good-bad bipolar pair contributing 2% of unique variance. This leaves a significant amount of the model (36%) attributable to common variance among the variables entered.

Finally, for intention to recommend group therapy for wait list management, as with the other behaviors, Habit was significantly predictive of this intention. Reinforcement was also predictive. When Reinforcement was analyzed on an item level, a one factor model accounted for 21% of the variance in this intention, with the question: If I recommend referral to evidence-based group therapy when clinically appropriate to reduce wait times, I will receive support from management. The second[3] question, I will maintain a good relationship with my clients was not predictive.

[3] Note: for the intention to recommend group therapy, the reinforcement variable was only comprised of two items as one was inadvertently left out of the final questionnaire.

Table 8. Results of the stepwise regression analysis, item level[4]

Significant Predictive Variables	Entered	Beta	Semi-partial r^2	Partial r^2	R^2 Change	df	F
Outcome: Intention to recommend medication consultation/prescription							
Attitude 7-item scale	Harmful-beneficial	.482	.09	.15	.45		
	Good-Bad	.244	.02	.04	.02	2, 140	63.03*
Outcome: Intention to recommend evidence-based group therapy to reduce wait times							
Reinforcement 2- item scale	Management	.467	.22	.22	.22	1, 121	33.71*

*p<.001

[4] Final Model Presented

CHAPTER 4 DISCUSSION

4.1 Overview

The primary purpose of this dissertation was to apply theory-driven approaches to predict pediatric mental health clinician behavior in the utilization of evidence-based practice, with the goal of developing an understanding of the factors underlying mental health clinician behavior in order to identify what processes should be targeted by interventions to increase the utilization of evidence-based practice. Overall, it was predicted that when analyzed across theories, evidence of habitual behavior from OLT would have the greatest prediction for behavioral intention. Differential patterns of secondary predictors were expected across behaviors, specifically that attitude from the TPB would have a greater influence on the more common behavior investigated, the management of ADHD with recommendation of parent management training and medication consultation/prescription; and OLT reinforcement or TPB perceived behavioral control/subjective norm would have greater influence on the less common behavior, referral to evidence-based group therapy when clinically appropriate to reduce wait times. Based upon the data analyses, partial support for these predictions was found. The specific hypotheses will be reviewed, and possible explanations for the pattern of findings will be discussed, in turn. A review of the limitations of the current study and next steps will then be discussed.

4.2 Review of Preliminary Analyses and Discussion of Findings

Regression analysis by theory.

Theory of Planned Behavior.

As predicted, when analyzed independently, at least one construct from the TPB was significantly predictive of each of the behavioral intentions, contributing to a considerable proportion of the explained variance in each of the behaviors, with approximately 30% (range, 27% to 35%) of the total variance in intention accounted for by the TPB. These findings are consistent with previous research utilizing the TPB for the prediction of intention among professionals (28% for the intention to take intra-oral radiographs among dentists (Bonetti et al., 2006); 30% for the intention to manage upper respiratory infections without antibiotics among physicians (Eccles et al., 2007) and to change health related behaviors among individuals (34% in Conner & Sparks, 1996 and 40% in Godin & Kok., 1996). However, in a systematic review of predicting behavioral intentions, the TPB was found to account for 59% of the variance in intention (Godin et al., 2008), but this study acknowledged considering the TPB along with other motivational theories which may have inflated the explained variance.

As predicted, clinician attitude toward a specific behavior was the greatest predictor from the TPB across the "common" behaviors (treatment of ADHD, including parent management training and the recommendation of medication consultation/prescription), indicating that if clinicians hold favorable attitudes toward a specific clinical practice they are more likely to engage in that practice. Or, alternatively, if they engage in a practice already they are more likely to hold favorable attitudes toward that practice. This *perception-behavior bias* was outlined by Weinstein (2007) as

a criticism of tests of health behavior theories, noting that this bias can inflate the importance of any given predictor. This bias was noted to be least likely in behaviors that were novel or not performed frequently and most likely in behaviors that were engaged in on a regular basis (Weinstein, 2007). Perceived Behavioral Control was the most significant predictor of the "novel" behavior (referral to evidence based group treatment for wait list management), suggesting that factors external to the clinician were significant predictors of this behavior. Perhaps they had not yet considered this practice and their lack of familiarity resulted in perception that it was beyond their control. Alternatively, clinicians may hold positive attitudes toward the use of group treatment for wait list management, however, the lack of availability or access to these groups may be the more significant predictor rather than attitude. If one is not already performing the behavior on a consistent basis, then the perception-behavior bias related to individual attitudes is not as influential. However, for common behaviors, where compliance is high and evidence is clear, such as with the intention to recommend medication for the treatment of ADHD, attitude as the sole predictor of intention may very well be an indication of the perception-behavior bias and not a prediction of intention. Regardless of the causal direction, this finding suggests that targeting attitudes toward specific EBPs would be one method of changing practice.

Subjective norm and perceived behavioral control also provided unique explanation to the intention to recommend parent management training and group therapy for wait list management. The approval of families, management and colleagues impacted upon intentions. While group treatment may have strong evidence to support its use in some instances, parental preference for individual therapy or barriers to accessing

group therapy (i.e., work schedules, timing of group, transportation, child care), may reduce clinician intention to recommend this as a treatment option. Availability of group treatment through provision of groups and child/youth/family access to groups, may also contribute to intention. While a clinician may believe that this is a valid treatment option as evidenced by positive attitudes toward the treatment, lack of availability or barriers to accessing the behavior may impact perceived behavioral control and subsequently intention. While these hypotheses require testing in future studies, ensuring the availability of groups at convenient times and the encouragement of utilization of groups as part of standard clinical practice from colleagues and institutions could be targeted to increase behavioral intention and subsequently behavior.

Operant Learning Theory.

As predicted, when analyzed independently, evidence of habitual control was the most significant predictor from OLT across behaviors, accounting for a significant proportion of the variance in intention (41% group treatment for waitlist; 54% for medication and 61% for parent management). These findings are slightly higher than previous research (43% in both Bonetti et al., 2006 and Eccles et al., 2007). Habit was the sole contributing factor to the intention to recommend parent management training. Habit continued to provide significant unique contribution to intention to recommend group therapy for wait list management and for the recommendation of medication consultation/prescription.

It is possible that habit is not necessarily a predictor of subsequent behavior, but also a reflection of a previous decision to act. Therefore, clinicians have already made the decision to engage in the behavior, have been doing it and intend to continue to do so,

and habit reflects this accurately. This argument holds for common behaviors, however, when the behavior is infrequent such as recommending group therapy for wait list management, previous practices would not be expected to hold as great an influence on intentions as it would be assumed that there have not been consistent and stable previous practices.

Reinforcement also contributed to the prediction for both intention to recommend medication and group therapy for wait list management. This is consistent with the finding that professionals tend to seek out evidence from peers and colleagues rather than from books and journals (Davies, 2007; Gerrish & Clayton, 2004; Jackson, Baird, Davis, Reynolds, Smith, Blackburnt & Allsebrook, 2007). To test this hypothesis, inter item stepwise regression analyses were run on the reinforcement variable for both intention to recommend medication and intention to recommend group treatment. Results indicated that for the infrequent behavior, reinforcement from management to engage in the behavior was the most significant predictor of intention. While within the more common behavior, intention to recommend medication, reinforcement from colleagues was of greater importance. Perhaps, when the evidence is less clear or the behavior is infrequent, a requirement from management or an institutional authority is required to improve utilization. However, when the behavior is more common within the profession, consultation and comparison with colleagues is of greater importance. It is also possible, that within mental health clinics, some behaviors are mandated by management where others are not. In many clinics the use of group therapy is a mandated practice for the delivery of parent management training, however, the recommendation for medication consultation/prescription is not mandated. It is possible that when colleagues cannot

provide support for engaging in a clinical practice, because, for example, it is a new practice, then more directive requirements for professional practice is required from authorities to ensure uptake of the clinical practice.

Combined regression model .

When all the significant predictors across the theories were entered into the analysis, as predicted Habit demonstrated the greatest predictive power. This was consistent with previous research (Bonetti et al., 2006; Eccles et al., 2007). The main construct driving mental health clinician behavior across these three behaviors was Habit, with additional influence from individual clinician beliefs (attitudes) and reinforcement from others (i.e., colleagues and management). The stepwise regression model explained more variance in behavioral intention than the TPB alone across behaviors. However, only the intention to recommend medication consultation/prescription was better explained with a combination of theories, e.g., Habit and Attitude. For the other two behaviors, only OLT remained as a significant predictor.

Examined on an item level, the most significant contributor to the Attitude variable related to the intention to recommend medication consultation/prescription was the beneficial – harmful bipolar pair, followed by what is considered to be the global assessment of attitude (Francis et al., 2004) , i.e., the good-bad bipolar pair. First and foremost this reflects the core of the medical model of not doing harm to patients, and it is positive that this reflection remains above and beyond the reported habitual nature of this clinical practice. Even when a behavior has strong evidentiary support and is a norm in clinical practice, e.g., the use of medication to treat ADHD, the evaluation of harm and benefit remains of utmost importance. When the behavior is more innocuous, i.e., parent

management training, Habit remains the sole contributing factor. And when infrequent, i.e., group treatment for wait list management, the influence of important others contributes above habitual practice.

Action based theories, such as OLT contribute more to the understanding of intention above motivational theories, such as TPB, alone. However, the finding that habit contributes most significantly to the prediction of behavior does not necessarily argue for habit as an operant conditioning construct. It could simply be that whatever a clinician decides is best practice they continue to do so (Neil Weinstein, personal communication, June 26, 2009). This suggests that both habit and intentions could be the result of prior decisions. Habit tells us what clinicians do, i.e., it is what they have already decided to do and will continue to do. Intentions that have been repeatedly followed in the past become habitual. When an individual is presented with the relevant behavioral context, this spontaneous intention is activated automatically. This automatically activated intention initiates behavior without the necessity of conscious monitoring (Ouellette & Wood, 1998). So, individuals are not assumed to review their beliefs and construct a new intention every time they perform a behavior. However, infrequent behaviors and unfamiliar situations evoke deliberate production of beliefs, attitudes and intentions which direct subsequent behavior; routine behaviors are guided by automatically activated implicit attitudes and intentions, e.g., habit.

It is important to discuss the differences between habit, which is governed by stimulus cues which trigger a behavioral response in an automatic manner presumably with little to no conscious cognition; and a goal directed action, which while governed by stimulus cues, also contains a cognitive component, including assessment of potential

outcomes, leading to intentional action (Dickinson & Balleine, 2000). This dissertation has shown that habit, i.e., what clinicians have reportedly done in the past, is a significant predictor of behavioral intention. However, it is likely that within clinical behavior, stimulus cues, i.e., patient presentations, symptoms, etc., are not responded to in a purely habitual manner, i.e., without conscious consideration of possible outcomes. In fact, the very nature of evidence-based practice involves a conscious application of clinical judgment and patient preferences in the intentional application of evidence in practice.

It was not possible to determine in this study (as cognitions were not investigated) if what was defined as habit (i.e., past behaviour) occurred as a primarily habitual or automatic response to stimulus cues or involved an intentional representation between action and outcome (Dickinson & Balleine, 2000). For example, certain symptom presentations enact specific treatment protocols within the clinician based upon training, knowledge of the evidence, attitudes toward the behavior, assessment of outcomes, reinforcement from important social relationships, etc. However, it is likely that while these treatment protocols are enlisted in a habitual manner, there remains goal directed action which necessarily incorporates assessment of potential outcomes and further the value or reinforcement assigned to that outcome (Dickinson & Balleine, 2000). Further, these reinforcers would likely differ according to clinician, as what is reinforcing to one clinician, i.e., approval from management, may not be to another.

In this study behavioral intention was high across behaviors, so perhaps these findings were a reflection of current practice. If this were the case, then the infrequent behavior would have been better predicted by the TPB, reflecting conscious review of beliefs to construct an intention, rather than OLT alone. However, the influence of

reinforcement on the recommendation of referral to group therapy for wait list management suggests that there is some conscious processing of intentions, considering whether important others, i.e., management would agree with the practice. It is possible that that finding of habit related to what would seem to be an infrequent behavior, recommending group therapy for wait list management, was a reflection of the question itself. Evidence-based group treatment is certainly not a novel EBP, however, the utilization of this method to specifically address wait list management is a novel and infrequent practice. It could be that the question or the respondents did not differentiate clearly between using a well known methodology and applying it to a novel behavior.

4.3 Summary of Major Findings

Behavioral intention was high across all of the behaviors investigated, indicating that clinicians in this sample expected to engage in each of the behaviors investigated regardless of the type of behavior, whether the behavior was common (parent management and medication) or potentially infrequent (use of group therapy for managing wait lists). Taken together, the results suggest that clinicians have considered these behaviors and operate in a predominantly habitual manner backed up by beliefs (attitude from the theory based analyses) and reinforcement from important others that support their habit. However, despite reporting intention to engage in evidence-based treatment of ADHD, most clinicians were unaware of the clinical practice guidelines for ADHD. This may reflect where clinicians gather their information about clinical practice, generally from colleagues, popular books and workshops (Beutler, et al., 1995), rather than scientific journals or clinical practice guidelines. Importantly, behavioral beliefs

about harm and benefit remained predictive when such an assessment is required, i.e., medication versus parent management training.

It is possible that while the use of group therapy for wait list management was novel, the intuitive appeal of this behavior as a method for managing wait lists, an ever increasing pressure in mental health service delivery, was high and therefore influenced behavioral intention. That reinforcement (i.e., approval from management) was a significant contributor to only this behavior suggesting that when implementing a new clinical practice, capitalizing on strong messaging of the appropriate use of the practice from individuals who are important to the clinician or mandating the requirement of the clinical practice can improve utilization of the practice.

4.4 Limitations Of This Study

There are some limitations in the present research that need to be addressed. First, the cross-sectional nature of this study does not allow the causal relations among the theoretical predictor-intention relationship to be addressed. For example, a strong relationship between attitudes and intention may just as well indicate the effects of intention on attitudes as attitudes on intention (Neil Weinstein, personal communication, June 26, 2009). Longitudinal or pre-post intervention studies are required to provide a greater understanding of relationships among theoretical constructs and behavior or behavioral intention. Weinstein (2007) challenges that better designed survey studies are not the solution to the problems with correlational research in behavioral health sciences. There is a lack of intervention studies in the literature which explicitly test theoretical factors associated with behaviors.

The challenge with repeated application of theoretical constructs to new behaviors, situations, clinical and professional populations is that while these studies identify the specific circumstances where a behavior or clinical practice is not being implemented, the lack of cause and effect information prevents the ability to know how to appropriately intervene. In the comprehensive systematic review of over 235 intervention studies (Grimshaw et al., 2002) there was an inability to generalize specific intervention methods to new situations despite evidence of effectiveness. Davies, Walker, & Grimshaw (2010) reviewed the sample of studies utilized for the (Grimshaw et al., 2002) systematic review dated from 1976 to 1998 for evidence of the use of theory in the design of the implementation. A minority of the studies utilized theory at all (22.5%) with less than 6% using theory explicitly to guide the development of the choice and design of interventions. Overall, even when theory was utilized, the rationale for the choice of the theory and the operationalization of the constructs was poor. It is noted, however, that the discourse regarding the need to include theory in the design interventions to increase implementation has only begun over the last five years (Eccles et al., 2005;Michie et al., 2008), and as such theory may be more prevalent if a more recent review were undertaken. Nevertheless, Davis, Walker and Grimshaw (2010) recommend that researchers should develop a clear rationale for the selection of theory, explain how it is proposed to operate, provide a clear operationalization of the constructs and explicitly test hypotheses that are deduced from theories.

While the goal of utilizing theories to inform interventions is necessary to overcome significant deficiencies in the ability of the current literature to offer guidance in the development of interventions and therefore prevent the depletion of resources that

are currently expended to find the "right" theory for the specific population, it is methodologically challenging. These challenges include, choosing between theories and translating the theoretical constructs into operationalized interventions (Eccles & The Improved Clinical Effectivenss through Behavioral Research Group (ICEBeRG), 2006) Michie, Johnston, Abraham, Lawton, Parker and Walker (2005) have begun to address these challenges through providing a consolidated set of theoretical constructs identified through expert consensus which are beginning to be operationalized for use within experimental studies.

Second, while intention to perform a behavior has been found to be a valid proxy for actual behavior in systematic reviews of the intention-behavior relationship (Godin et al., 2008; Eccles et al., 2006), it remains a proxy and does not measure actual behavior. While both intention and behavior can be well predicted through the application of theoretical constructs, Godin, Belanger-Gravel, Eccles, and Grimshaw (2008) found that the strength of the prediction was greater for intentions (59%) than for behaviors (35%). The health care system does not care about intentions, rather, it and the public interest is better served through examination of behaviors. Some people who intend to behave in ways other than they have in the past, fail to carry out these intentions and instead, continue previous practices. It is important to recognize that predictions made about intentions from theoretical constructs may overestimate the accuracy of the theory.

Third, participants in this study reported a high level of intention to engage in both common and potentially infrequent behaviors. It may be that the wording of the outcome measure as intention to recommend a particular behavior rather than engage in a particular behavior may have artificially increased the intention score. For example, I can

recommend all manner of things, but there is no guarantee that they will be implemented or followed. If the question was framed in regard to getting children/youth/families to engage in the behavior rather than recommending that they do it is possible that intention may have been lower. Given that this was not a random sample of clinicians, it is possible that more motivated people answered the questionnaire, which was reflected in greater intention. This study did not assess whether clinicians agreed with the selection and identification of the evidence-based practices chosen for inclusion in this study. While the majority of clinicians reported that they were unaware of the clinical practice guidelines presented in this study, questions were not asked whether clinicians agreed that recommendation of parent management training and medication consultation/prescription were evidence-based treatments for ADHD. Further, while the second behavior was chosen based upon a recommendation from the Kirby report to improve access to mental health care in a system with limited mental health professionals, (Kirby & Keon, 2006) there is not clear evidence in the literature that utilization of group therapy when clinically appropriate actually reduces wait times.

Fourth, the selection of the behaviors chosen for inclusion in this study was based upon consultation with local mental health clinicians regarding commonly performed behaviors, i.e., the treatment of ADHD. However, it is not clear whether clinicians would view this as a common behavior and this was not investigated in the current study. Similarly, while the utilization of group based therapy is unlikely to be a novel behavior, the application to specific use of wait list management may be a novel behavior. However, this study did not objectively assess whether this was an uncommon practice.

This study would have been strengthened by surveying a group of clinicians to determine consensus regarding the selection of a common versus uncommon or novel behavior.

Fifth, the sample frame for this study is not well defined. It was impossible to accurately define the sample frame. There are no consistent central repositories of listings of allied health professionals provincially or nationally within Canada. Some provincial organizations list their membership publically (but do not provide contact information), i.e., the Nova Scotia Board of Examiners in Psychology, while others offer no such listings, i.e., the Ontario Psychological Association. Similar barriers to accessing the full scope of professionals practicing within social work and psychiatry were encountered. The Canadian Psychiatric Association has a policy against divulging the lists of professionals (personal communication, Dr. Wade Junek, President, Canadian Psychiatric Association, January 15, 2009).

Without an accurate denominator it is not possible to have a good understanding of the representativeness of the sample. However, given the limited sample size despite extensive and multiple recruitment methods, including utilizing evidence-based recruitment strategies (Dillman, 2007), the representativeness of what was a convenience sample is not guaranteed. The results should be interpreted with this in mind. In fact, the findings that this sample was one standard deviation above the mean of the normative sample for the Evidence-based Practice Attitude Scale (EBPAS, Aarons, 2010), suggests that this sample may have some bias toward positive attitudes toward the utilization of evidence-based practice. This may have resulted in increased intention scores and may limit the generalizability of these results to a less motivated group of clinicians, arguably the group one would most want to target for intervention.

The placement of the demographic questions at the end of the survey resulted in a lack of a complete set of demographic data due to the drop outs across the study. Dillman (2007) recommends that the study begin with engaging questions related to the study so as to pique the interest of the participant and recommends that demographic questions be at the end of the survey. However, Porter (2004) suggests that basic nonthreatening demographic data, be presented at the beginning so as to ensure an accurate description of the sample regardless of drop out rate, while more detailed and potentially sensitive demographics can come at the end.

Sixth, survey research in general has important limitations that require mentioning. The most serious limitation concerns the validity and reliability of responses obtained to questions. Respondents provide self reported descriptions about what they say they do or of how they feel about something. Responses cannot always be taken as accurate descriptions of what the respondents actually do or really feel about something.

Finally, recruitment was a significant challenge in the current study. Despite exhaustive and often repeated efforts to recruit participants utilizing multiple evidence-based methods, the resultant sample while adequate for analysis, was small across each individual profession. Therefore, potentially interesting discipline or professional based analyses were not possible.

There are a number of factors which may have contributed to poor recruitment. First, the method of questioning recommended by Francis et al., (2004) derived from the TPB is repetitive in nature, particularly when analyzing two theories across three behaviors; it is possible that the repetition of the questions may have proven too tedious

for some participants. It may have improved response rate to have limited the survey a maximum of two behaviors. This was the initial intention, i.e., treatment of ADHD versus referral to group therapy for wait list management, however, since the evidence-based treatment for ADHD involves both parent management training and medication management, it was necessary to separate the treatment of ADHD into two behaviors.

Second, with the advances in web based survey methodology there has been a steady increase in the number of surveys conducted. As the cost of conducting surveys has decreased so has the number of surveys requested. Today, anyone with a minimum of skill can put together a web survey with little to no cost (Umbach, 2004). This can result in survey fatigue where potential participants are bombarded with multiple surveys from their own institution (e.g., accreditation and employee health and wellness), professional bodies and other researchers, and unless the survey is of high salience to the individual, this fatigue often leads to nonresponse (Porter, Whitcomb, & Weitzer, 2004).

Third, the survey may have been too long. The dropout rate across the survey, particularly following the second behavior, provides clear evidence that at least some (n=30) felt the survey was too long. Porter (2004) recommends that ideally surveys should be approximately ten minutes in length, with a maximum of 20 minutes. The survey for this study was approximately 30 minutes. However, in a review of methods for increasing response rates, Porter (2004) indicated that the impact of length has a modest negative effect, for example increasing the number of pages from two to eight accounted for only a three to four percentage drop in response rate. Efforts were made to reduce the length of the survey through the elimination of indirect questions from the TPB, however, it remained a lengthy and repetitive survey.

Fourth, one of the most commonly cited problems with web based surveys is nonresponse bias (Umbach, 2004) This is the bias that is introduced when the respondents to a survey differ from the non respondents on important demographic variables or attitudes, introducing error and therefore the generalizability of the results obtained to the larger sample under investigation.

Finally, it is possible that the salience of the topic under study was not high for front line mental health clinicians. Porter (2004) suggests that many of the effects of survey fatigue can be combated if the survey is of particular importance to the population investigated. Perhaps mental health clinicians were not motivated to participate in a survey which was examining their practice and the use of evidence in their practice.

4.5 Implications and Suggestions for Future Studies

Despite these limitations, these data have implications for both clinician behavior change and improvements within the mental health field in general.
In this sample, professionals hold positive attitudes toward EBP, which suggests that there is an openness to utilizing evidence in practice. However, there remain barriers to implementing EBP. This study is the first to provide evidence of differentiation in the theoretical application dependent upon the type of behavior investigated, e.g., stable and habitual (treatment of ADHD) versus new and dynamic (referral to group treatment for wait list management).

The utilization of a theory based approach provides a replicable methodology for identifying factors which predict clinician behavior. This study supports the application of psychological theory to changing clinical behavior in that the constructs are acting as the theories predict. Therefore, an intervention that targets these constructs, e.g., habit,

attitude, and reinforcement from management and colleagues should have the greatest likelihood of success in influencing the use of these specific evidence-based practices. Future studies could focus on examining the development of habit within this clinician population. Perhaps, clinicians who are trained in an evidence-based approach are more likely to continue using evidence in their practice and this becomes habitual. Alternatively, perhaps clinician attitude and reinforcement from important others influences habit and clinician behavior. In order to better understand how to change clinician behavior, specific experimental studies are needed where attitude and reinforcement are trialed as interventions to determine effectiveness in the change process.

However, even with a replicable theoretical framework, there remains little information about *how* to develop theory based interventions (Michie, Johnston, Francis, Hardeman & Eccles, 2008). Two independent attempts at simplification of choice among theoretical frameworks have been published and show consistency regarding the key behavioral determinants that should be addressed in clinician behavior change (Fishbein, Triandis, Kanfer, Becker, Middlestadt, & Eichler, 2001 and Michie, Johnston, Abraham, Lawton, Parker & Walker, 2005). There is a need to develop a link between identification of the predictor (the behavioral determinants) and the behavior change technique (Michie et al., 2008). Michie et al. (2008) have begun developing a comprehensive classification of behavior change techniques linked to theoretically derived behavioral determinants. These efforts, along with the development of methodologically sound experimental designs to test the behavior change techniques will continue to advance the field and

provide further guidance and development of a methodology to improve the implementation of EBPs.

4.6 Summary and Conclusions

The vast literature of correlational studies, of which this current thesis is a part, provide rich information about what behavioral determinants should be included in future experimental studies that design and test interventions aimed at changing clinical practices; theories that predict well should be given high priority for inclusion in experimental studies (Weinstein, 2007). Explicit testing of theoretical constructs through random assignment of components of theories would provide more information to researchers, clinicians and the field of implementation science regarding how to modify the constructs in a theory rather than simply describing what needs to be targeted.

There is limited need for further correlational surveys that aim to test theoretical influence, but simply describe associations, rather, with carefully chosen variables and designs, experiments can focus on the differences among theories and help identify those that are superior; and from there link these identified behavioral determinants to behavioral change techniques. Implementation scientists need to resist the urge to speed through the development of methodologically sound research design in response to the urgency demanded by the current health care system. It is through this step by step analysis of theoretical constructs through experimental manipulation that the field of implementation science will advance. It is only through advancement in the ability to implement effective and efficient practices that the mental health system will advance in ability to meet the ever increasing need of the population within a climate of ongoing resource restrictions.

REFERENCES

Aarons, G. A. (2006). Transformational and transactional leadership: Association with attitudes toward evidence-based practice. *Psychiatric Services, 57*(8), 1162-1169.

Aarons, G. A., & Sawitzky, A. (2006). Organizational culture and climate and mental health provider attitudes toward evidence-based practice. *Psychological Services, 3*(1), 61-72.

Aarons, G. A., Glisson, C., Hoagwood, K., Kelleher, K., Landsverk, J., Cafri, G., & the Research Network on youth Mental Health (2010). Psychometric properties and U.S. national norms of the evidence-based practice attitude scale (EBPAS). *Psychological Assessment, 22*(2), 356-365.

Aarons, G. A. (2004). Mental health provider attitudes toward adoption of evidence-based practice: The evidence-based practice attitude scale (EBPAS). *Mental Health Services Research, 6*(2), 61-74.

Addis, M. E., Wade, W. A., & Hatgis, C. (1999). Barriers to dissemination of evidence-based practices: Addressing practitioners' concerns about manual-based psychotherapies. *Clinical Psychology: Science and Practice, 6*(4), 430-441.

AHRQ. (2001). Translating research into practice (TRIP)–II: Fact sheet. *Fact Sheet,* Agency for Healthcare, Rockville, MD. Retrieved from http://www.ahcpr.gov/research/trip2fac.pdf.

American Psychological Association. (2005). *Policy statement on evidence-based practice in psychology.* Retrieved from http://www.apa.org/practice/ebpstatement.pdf.

Azjen, I. (1991). The theory of planned behaviour. *Organizational Behaviour and Human Decision Processes, 50*, 179-211.

Azjen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behaviour*. Englewood Cliffs, NJ: Prentice Hall.

Azjen, I. (undated). TPB: Frequently Asked Questions, retrieved from www.people.umass.edu/azjen/faq.html.

Bandura, A. (1977). Self-efficacy: Towards a unifying theory of behaviour change. *Psychological Review, 84*, 191-215.

Barlow, D. H., Levitt, J. T., & Bufka, L. F. (1999). The dissemination of empirically supported treatments: A view to the future. *Behaviour Research and Therapy, 37*(1), S147-s162.

Bauer, M. S. (2002). A review of quantitative studies of adherence to mental health clinical practice guidelines. *Harvard Review of Psychiatry, 10*(3), 138-153.

Bero, L. A., Grilli, R., Grimshaw, J. M., Harvey, E., Oxman, A. D., & Thomson, M. A. (1998). Closing the gap between research and practice: An overview of systematic reviews of interventions to promote the implementation of research findings. *British Medical Journal, 317*, 465–468.

Beutler, L. E., Williams, R. E., Wakefield, P. J., & Entwistle, S. R. (1995). Bridging scientist and practitioner perspectives in clinical psychology. *American Psychologist, 50*(12), 984-994.

Blackman, D. (1974). *Operant conditioning: An experimental analysis of behaviour*. London: Methuen.

Bonetti, D., Pitts, N. B., Eccles, M., Grimshaw, J., Johnston, M., Steen, N., &…Walker, A. (2006). Applying psychological theory to evidence based clinical practice: Identifying factors predictive of taking intra-oral radiographs. *Social Science & Medicine,* , 1889-1899.

Boney-McCoy, S., Gibbons, F. X., Reis, T. J., Gerrard, M., Luus, C. A. E., & Wald Sufka, A. (1992). Perceptions of smoking risk as a function of smoking status. *Journal of Behavioral Medicine, 15*(5), 469-488.

Borntrager, C. F., Chorpita, B. F., Higa-McMillan, C., & Weisz, J. R. (2009). Provider attitudes toward evidence-based practices: Are the concerns with the evidence or with the manuals? *Psychiatric Services, 60*(5), 677-681.

Brown, R. T., Amler, R. W., Freeman, W. S., Perrin, J. M., Stein, M. T., Feldman, H. M., &…Wolraich, M.L. (2005). Treatment of attention-deficit/hyperactivity disorder: Overview of the evidence. *Pediatrics, 115*(6), 749-757.

Chambers, D. (2003). *Dissemination and implementation of evidence in clinical practice in mental health.* Paper presented at the meeting of the Academy of Management, Seattle, WA.

Chambless, D. L., Sanderson, W. C., Shoham, V., Bennett Johnson, S., Pope, K. S., & Crits-Cristoph, P. (1996). An update on empirically validated therapies. *The Clinical Psychologist, 49*(2), 5-18.

Chambless, D. L., & Hollon, S. (1998). Defining empirically supported treatments. *Journal of Consulting and Clinical Psychology, 66*, 7-18.

Chambless, D. L., & Ollendick, T. H. (2001). Empirically supported psychological interventions: Controversies and evidence. *Annual Review of Psychology, 52*, 685-716.

Chorpita, B. F., Yim, L. M., Donkervoet, J. C., Aresndorf, A., McGee, C., Serrano, A., &…Morelli, P. (2002). Toward large scale implementation of empirically supported treatments for children: A review and observations by the Hawaii empirical basis to services task force. *Clinical Psychology: Science and Practice, 9*(2), 165-190.

Clark, L. A., Watson, D., & & Reynolds, S. (1995). Diagnosis and classification of psychopathology: Challenges to the current system and future directions. *Annual Review of Psychology, 46*, 121-153.

Cohen, J. (1998). *Statistical power analysis* (2nd Ed ed.). Hillside, NJ: Erlbaum.

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple Regression/Correlation analysis for the behavioral sciences* (3rd Edition). Mahwah, NF: Lawrence Erlbaum Associates, Inc.

Conner, M., & Sparks, P. (1996). The theory of planned behaviour and health behaviours. In M. Conner, P. Norman, M. Conner & P. Norman (Eds.), *Predicting health behaviour: Research and practice with social cognition models.* (pp. 121-162). Maidenhead, BRK England: Open University Press.

Cunningham, C. E., Boyle, M., Offord, D., Racine, Y., Hundert, J., Secord, M., & McDonald, J. (2000). Tri ministry project: Diagnostic and demographic correlates of school-based parenting course utilization. *Journal of Consulting and Clinical Psychology, 68*, 928-933.

Cunningham, C. E., Bremner, R. B., & Boyle, M. (1995). Large group community-based parenting programs for families of preschoolers at risk for disruptive behaviour disorders: Utilization, cost effectiveness, and outcome. *Journal of Consulting and Clinical Psychology, 36*, 1141-1159.

Davies, K. (2007). The information-seeking behaviour of doctors: A review of the evidence. *Health Information and Libraries Journal, 24*, 78-94.

Davies, P., Walker, A. E., & Grimshaw, J. M. (2010). **A** systematic review of the use of theory in the design of guideline dissemination and implementation strategies and interpretation of the results of rigorous evaluations. *Implementation Science, 5*(14), doi:10.1186/1748-5908-5-14.

Dell, M. L., Vaughan, B. S., & Kratochvil, C. J. (2008). Ethics and the prescription pad. *Child and Adolescent Psychiatric Clinics of North America, 17*(1), 93-111.

Dickinson, A. & Balleine, B.W. (2000). Causal cognition and goal-directed action. In C. Heyes & L. Huber (Eds.), The evolution of cognition (pp. 185-204). Cambridge, MA: The MIT Press

Dillman, D. (2007). *Mail and internet surveys: The tailored design method 2007 update with new internet, visual, and mixed-mode guide*. Hoboken, New Jersey: John Wiley & Sons Inc.

Eccles, M., & The Improved Clinical Effectivenss through Behavioral Research Group (ICEBeRG). (2006). Designing theoretically-informed implementation interventions. *Implementation Science: 1 (4)* doi:10.1186/1748-5908-1-4.

Eccles, M. P., Hrisos, S., Francis, J., Kaner, E. F., Dickinson, H. O., Beyer, F., & Johnston, M. (2006). Do self- reported intentions predict clinicians' behaviour: A systematic review. *Implementation Science, 1*, 28-28.

Eccles, M. P., Grimshaw, J. M., Johnston, M., Steen, N., Pitts, N. B., Thomas, R., &…Walker, A. (2007). Applying psychological theories to evidence-based clinical practice: Identifying factors predictive of managing upper respiratory tract infections without antibiotics. *Implementation Science, 2*, 26-26.

Eccles, M., Grimshaw, J., Walker, A., Johnston, M., & Pitts, N. (2005). Changing the behavior of healthcare professionals: The use of theory in promoting the uptake of research findings. *Journal of Clinical Epidemiology*, *58* (*2*), 107-112.

Ennett, S. T., Tobler, N. S., Ringwalt, C. L., & Flewelling, R. L. (1994). How effective is drug abuse resistance education? A meta-analysis of project DARE outcome evaluations. *American Journal of Public Health, 84*, 1394-1401.

Field, M. J., & Lohr, K. N. (1990). *Clinical practice guidelines: Directions for a new program.* Washington, DC: National Academy Press.

Fishbein, M., Triandis, H. C., Kanfer, F. H., Becker, M., Middlestadt, S. E., & Eichler, A. (2001). Factors influencing behaviour and behaviour change. In A. Baum, T. A. Revenson & J. E. Singer (Eds.), *Handbook of Health Psychology*. Mahwah, NJ: Lawrence Erlbaum Associates.

Francis, J.J., Eccles, M.P., Johnston, M., Walker, A., Grimshaw, J., Foy, R. ... Bonetti, D. (2004). *Constructing Questionnaires Based On The Theory Of Planned Behaviour.* Newcastle upon Tyne, United Kingdom, Centre for Health Services Research.

Gerrish, K., & Clayton, J. (2004). Promoting evidence-based practice: An organizational approach. *Journal of Nursing Management, 12*, 114-123.

Gibbons, R., Hendricks Brown, C., Hur, K., Marcus, S. M., Bhaumik, D. K., Erkens, J. A., & …Mann, J.J. (2007). Early evidence on the effects of regulators warnings on SSRI prescriptions and suicide in children and adolescents. *The American Journal of Psychiatry, 164*, 1356-1363.

Godin, G., & Kok., K. (1996). The theory of planned behaviour: A review of its applications to health-related behaviours. *American Journal of Health Promotion, 11*, 87-98.

Godin, G., Bélanger-Gravel, A., Eccles, M., & Grimshaw, J. (2008). Healthcare professionals' intentions and behaviours: A systematic review of studies based on social cognitive theories. *Implementation Science, 3*, 36-36.

Graham, I. D., Logan, J., Harrison, M. B., Straus, S. E., Tetroe, J., Caswell, W., Robinson, N. (2006). Lost in knowledge translation: Time for a map? *Journal of Continuing Education in the Health Professions, 26*(1), 13-24.

Graham, I. D., Tetroe, J., Robinson, N., Grimshaw, J., & the International Funders Study Research Group. An international study of health research funding agencies' support and promotion of knowledge translation. Proceedings from the 2005 Academy Health Annual Research Meeting, Boston, MA.

Grimshaw, J., Shirran, L., Thomas, R., Mowatt, G., Fraser, C., Bero, L., et al. (2001). Changing provider behavior: An overview of systematic reviews of interventions. *Medical Care, 39*(8:2), 112-145.

Grimshaw, J. M., Thomas, R. E., MacLennan, G., Fraser, C., Ramsay, C. R., Vale, L., et al. (2002). Effectiveness and efficiency of guideline dissemination and implementation strategies. *Health Technology Assessment, 8*(6), iii.

Grol, R. (2001). Successes and failures in the implementation of evidence-based guidelines for clinical practice. *Medical Care, 39*(8), II46-54.

Herschell, A.D., McNeil, C.B., & McNeil, D.W. (2004). Clinical child psychology's progress in disseminating empirically supported treatments. *Clinical Psychology: Science & Practice, 11*(3), 267-288.

Hoagwood, K. E., & Olin, S. S. (2002). The NIMH blueprint for change report: Research priorities in child and adolescent mental health. *Journal of the American Academy of Child and Adolescent Psychiatry, 41*, 760-767.

Hunsley, J. (2007). Addressing key challenges in evidence-based practice in psychology. *Professional Psychology: Research and Practice, 38*(2), 113-121.

Jackson, R., Baird, W., Davis-Reynolds, L., Smith, C., Blackburnt, S., & Allsebrook, J. (2007). The information requirements and information-seeking behaviours of health and social care professionals providing care to children with health care needs: A pilot study. *Health Information and Libraries Journal, 24*, 95-102.

Kazdin, A. E., Holland, L., & Crowley, M. (1997). Family experience of barriers to treatment and premature termination from child therapy. *Journal of Consulting and Clinical Psychology, 65*(1997), 453-463.

Kazdin, A. E., Mazurick, J. L., & Siegel, T. C. (1994). Treatment outcome among children with externalizing disorder who terminate prematurely versus those who complete psychotherapy. . *Journal of the American Academy of Child and Adolescent Psychiatry, 33*, 549-557.

Kirby, M. J. L. & Keon, W.J. (2006). *Out of the shadows at last: Transforming mental health, mental illness and addiction services in Canada* (Final Report of The Standing Senate Committee on Social Affairs, Science and Technology)

Klaybor, G. R. (1999). An application of the theory of planned behaviour on clinical social workers' utilization of the DSM-IV: An exploratory. *Dissertation Abstracts International, Section A 59*, 2720.

McGlynn, E. A., Asch, S. M., Adams, J., Keesey, J., Hicks, J., DeCristofaro, A., et al. (2003). The quality of health care delivered to adults in the united states. *The New England Journal of Medicine, 348*(26), 2635-2645.

McGrath, P., Lingley-Pottie, P., Johnson Emberly, D., Thurston, C., & McLean, C. (2009). Integrated knowledge translation in mental health: Family help as an example. *Journal of the Canadian Academy of Child and Adolescent Psychiatry, 18*(1), 30-37.

McLennan, J. D., & Lavis, J. N. (2006). What is the evidence for parenting interventions offered in a canadian community? *Canadian Journal of Public Health, 97*(6), 454-459.

McLennan, J. D., Wathen, C. N., MacMillan, H. L., & Lavis, J. N. (2006). Research-practice gaps in child mental health. *Journal of the American Academy of Child and Adolescent Psychiatry, 45*(6), 658-665.

Meissen, G. J., Mason, W. C., & Gleason, D. F. (1991). Understanding the attitudes and intentions of future professionals towards self-help. *American Journal of Community Psychology, 19*, 699-714.

Michie, S., Johnston, M., Abraham, C., Lawton, R., Parker, D., & Walker, A. (2005). Making psychological theory useful for implementing evidence based practice: A consensus approach. *Quality & Safety in Health Care, 14*(1), 26-33.

Michie, S., Johnston, M., Francis, J., Hardeman, W., & Eccles, M. (2008). From theory to intervention: Mapping theoretically derived behavioural determinants to behaviour change techniques. *Applied Psychology: An International Review, 57*(4), 660-680.

National Institutes of Mental Health (2010). Retrieved from http://nimh.nih.gov/health/topics/attention-deficit-hyperactivity-disorder-adhd/index/shtml.

Nova Scotia Department of Health. (2005). *Annual statistical report*. Retrieved from http://www.gov.ns.ca/health/reports/pubs/DOH_Annual_Statistical_Report_2005_06.pdf.

Offord, D.R., Boyle, M.H., Szatmari, P., Rae-Grant, N.I., Links, P.S., Cadman, D. T. &…Woodward, C.A. (1987). Six-month prevalence of disorder rates of service utilization. *Archives of General Psychiatry*, *44* (*9*), 832-836.

Ouellette, J. A., & Wood, W. (1998). Habit and intention in everyday life: The multiple processes by which past behavior predicts future behavior. *Psychological Bulletin, 124*(1), 54-74.

Oxman, A. D., Thomson, M. A., Davis, D. A., & Haynes, R. B. (1995). No magic bullets: A systematic review of 102 trials of interventions to improve professional practice. *CMAJ: Canadian Medical Association Journal, 153*(10), 1423-1431.

Perkins, M. B., Jensen, P. S., Jaccard, J., Oettingen, G., Hoagwood, K. E., Pappadopulos, E., & Gollwitzer, P. (2007). Applying theory-driven approaches to understanding and modifying clinicians' behavior: What do we know? *Psychiatric Services, 58*(3), 342-348.

Petrosino, A., Turpin-Petrosino, C., & Buehler, J. (2002). "Scared straight" and other juvenile awareness programs for preventing juvenile delinquency. *Cochrane Database of Systematic Reviews,* (2), Art. No.: CD002796. DOI: 10.1002/14651858.CD002796.

Porter, S. R. (2004). Raising response rates: What works? *New Directions for Institutional Research, 121*, 5-21.

Porter, S. R., Whitcomb, M. E., & Weitzer, W. H. (2004). Multiple surveys of students and survey fatigue. *New Directions for Institutional Research, 121*, 63-75.

Prochaska, J. O., & DiClemente, C. C. (1983). Stages and processes of self-change of smoking: Toward an integrated model of change. *Journal of Consulting and Clinical Psychology, 50*, 390-395.

Rashidian, A., Miles, J., Russell, D. and Russell, I.T. (2006) Sample size for regression analyses of theory of planned behaviour studies: case of prescribing in general practice. British *Journal of Health Psychology, 11*(*4*):581-593.

Ringel, J., & Strum, R. (2001). National estimates of mental health utilization and expenditure for children in 1998. *Journal of Behavioral Health Services and Research, 28*, 319-322.

Rushton, J. L., Fant, K. E., & Clark, S. J. (2004). Use of practice guidelines in the primary care of children with attention-deficit/hyperactivity disorder. *Pediatrics, 114*(1), e23-8.

Sackett, D. L., Rosenberg, W. M. C., Gray, J. A. M., Hanes, R. B., & Richardson, W. S. (1996). *Evidence based medicine: How to practice and teach evidenced based medicine* (Second ed.). New York, NY: Churchill Livingstone.

Schoenwald, S. K., & Hoagwood, K. (2001). Effectiveness and dissemination research: Their mutual roles in improving mental health services for children and adolescents. *Report on Emotional and Behavioral Disorders, 2*(1), 3.

Shafer, J. (2000). *Analysis of incomplete multivariate data.* Boca Raton, FL: Chapman & Hall.

Sheeran, P. (2002).
Intention-behavior relations: A conceptual and empirical review. In W. Stroebe, & M. Hewstone (Eds.), *European review of social psychology* (pp. 1-36) John Wiley & Sons Ltd.

Silverman, W. K., & Hinshaw, S. P. (2008). The second issue on evidence-based psychosocial treatments for children and adolescents: A ten-year update. *Journal of Clinical Child and Adolescent Psychology, 37*, 1-7.

Silverman, W. K., & Kurtines, W. M. (2004). Research progress on effectiveness, transportability, and dissemination of empirically supported treatments: Integrating theory and research. *Clinical Psychology: Science & Practice, 11*(3), 295-299.

Silverman, W. K., Kurtines, W. M., & & Hoagwood, K. (2004). Research progress on effectivness, transportability, and dissemination of empirically supported treatments: Integrating theory and research. *Clinical Psychology: Science and Practice, 11*(3), 295-299.

Spring, B. (2007). Evidence-based practice in clinical psychology. What it is, why it matters and what you need to know. *Journal of Clinical Psychology*, *63* (*7*), 611-631.

Stevens, J. (2003). *Partial and semi-partial correlations.* Retrieved 06/15, 2010, from http://www.uoregon.edu/~stevensj/MRA/partial.pdf

Summerfelt, W. T., & Meltzer, H. Y. (1998). Efficacy vs. effectiveness in psychiatric research. *Psychiatric Services, 6*, 834.

Tabachnik, B. G., & Fidell, L. S. (1996). *Using multivariate statistics*, 5th Edition. Boston, MA. Allyn & Bacon

Umbach, P. D. (2004). Web surveys: Best practices. *New Directions for Institutional Research, 121*, 23-38.

US Public Health Service. (1999). *Mental health: A report of the surgeon general.* Washington, DC: Department of Health and Human Services.

Waddell, C., McEwan, K., Shepher, C. A., & et. al. (2005). A public health strategy to improve the mental health of canadian children. *Canadian Journal of Psychiatry, 50*, 226-233.

Walker, A. E., Grimshaw, J., Johnston, M., Pitts, N., Steen, N., & Eccles, M. (2003). PRIME -- process modelling in ImpleMEntation research: Selecting a theoretical basis for interventions to change clinical practice. *BMC Health Services Research, 3*, 22-12.

Wallston, K. A. (1992). Hocus-pocus, the focus isn't strictly on locus: Rotters' social learning theory modified for health. *Cognitive Therapy and Research, 16*, 183-199.

Webb, T. L., & Sheeran, P. (2006). Does changing behavioral intentions engender behavior change? A meta-analysis of the experimental evidence. *Psychological Bulletin, 132*(2), 249-268.

Weinstein, N. D. (2007). Misleading tests of health behavior theories. *Annals of Behavioral Medicine, 33*(1), 1-10.

Weisz, J., Donenburg, G., Han, S., & Weiss, B. (1995). Bridging the gap between laboratory and clinic in child and adolescent psychotherapy. *Journal of Consulting and Clinical Psychology, 63*(5), 688-701.

Wensing, M., Van der Weijden, T., & Grol, R. (1998). Implementing guidelines and innovations in general practice: Which interventions are effective? *British Journal of General Practice, 48*, 991-997.

West, S. L., & O'Neil, K. K. (2004). Project DARE outcome effectiveness revisited. *American Journal of Public Health, 94*, 1027-1029.

Westen, D., Novotny, M., & & Thompson-Brenner, H. (2004). The empirical status of empirically supported psychotherapies: Assumptions, findings, and reporting in controlled trials. *Psychological Bulletin, 130*, 631-663.

APPENDIX A. ELICITATION INTERVIEW: RECRUITMENT EMAIL

Dear [Manager name]

Further to our telephone conversation, please find enclosed the text of an email to be sent to potential participants for the research study on mental health clinician behaviour. As a reminder please send this out to all of the psychologists, social workers and psychiatrists who work in your outpatient mental health clinics.

Dear Colleagues,

My name is Debbie Emberly. I am a PhD student at Dalhousie University in the Psychology Department, working under the supervision of Dr. Patrick McGrath. I am also a registered psychologist working at the IWK Health Centre. My dissertation research is investigating pediatric mental health clinician behaviour as it relates to the use of the evidence-based practice.

We know that despite enormous resources spent on research that may add to improving patient care, a huge gap exists between what is known about mental health services that work and what is done in the real world. The Canadian Senate report on the status of mental health in Canada, *Out of the Shadows at Last*, noted that without effective communication of research to the professionals who treat children within mental health services, "ineffective or even harmful treatments may continue, while effective, evidence-based treatments may not be adopted by policy-makers and mental health service providers,"p.263. Within mental health research there are many successes in finding new evidence-based practices, but getting the message out to professionals and ensuring the use of this information remains a challenge. The goal of this research is to use theories of behaviour change to improve the transfer of research into what pediatric mental health professionals do everyday to ultimately improve the quality of life and outcomes of children, youth and families living with mental illness.

The proposed research will be a series of studies that will apply theory-driven approaches to predicting pediatric mental health clinician behaviour in the utilization of evidence-based practice. The clinical behaviours targeted are: 1) recommendations in the treatment of attention deficit hyperactivity disorder; and 2) utilization of group therapies. The goal of this study is to gather information to develop the questionnaire items that will be used in future national survey. This email is to determine your interest in participating in the study. If you decided to participate in the study, you would be asked to participate in a 1-hour telephone interview. Please see the consent form attached to this email for more specific details of the study.

If you are interested in hearing more about this study or have any questions, contact me directly, either by email, Debbie.Emberly@iwk.nshealth.ca or by telephone at (902) 470-7097. All individuals who participate in the study will be entered into a draw to win a copy of *Evidence-Based Psychotherapies for Children and Adolescents* (2003) Edited by

Alan E. Kazdin and John R. Weisz. Thank you for your time and I look forward to hearing from you.

APPENDIX B. ELICITATION INTERVIEW: INFORMATION AND CONSENT FORM

Study Title:	Predicting pediatric mental health clinician behaviour in the utilization of evidence-based practice: Item Development
Principal Investigator:	Debbie Emberly, MSc PhD Candidate, Dalhousie University; Psychologist, IWK Health Centre,
Co-investigators:	Patrick McGrath, PhD, Professor of Psychology, Pediatrics, Psychiatry, Dalhousie University; Psychologist, IWK Health Centre, Cyndi Brannen, PhD, Research Associate IWK Centre for Research in Family Health

Introduction

You are being invited to take part in the research study named above. This form provides information about the study. Before you decide if you want to take part, it is important that you understand the purpose of the study, the risks and benefits and what you will be asked to do. You do not have to take part in this study. Taking part is entirely voluntary (your choice). Informed consent starts with the initial contact about the study and continues until the end of the study. A staff member of the research team will be available to answer any questions you have. You may decide not to take part or you may withdraw from the study at any time. This will not affect the care you or your family members will receive from the IWK Health Centre in any way.

Why are the researchers doing the study?

Despite enormous resources spent on research that may add to improving patient care, a huge gap exists between what is known about mental health services that work and what is done in the real world. Within mental health research there are many successes in finding new evidence-based practices, but getting the message out to professionals and ensuring the use of this information remains a challenge. The goal of this research is to use theories of behaviour change to improve the transfer of research into what child and adolescent mental health professionals do everyday to improve the quality of life and outcomes of children, youth and families living with mental illness. This study is the first in a series of studies investigating clinician behaviour related to the use of evidence-based practice. The goal of the current study is to develop items for use in a national survey at a later date.

Interviews will take place in Nova Scotia, New Brunswick and Prince Edward Island and Ontario, to get an understanding of the behaviour of professionals living in different provinces and working in different settings.

How will the researchers do the study?

You will be asked to participate in a 1-hour telephone interview. In total, 15 participants will be enrolled in this study at the IWK Health Centre. An additional 15 participants will be recruited from other centres in the Atlantic provinces. There will be 30 participants involved in this project in total. Once all the interviews are complete, the researchers will analyze the transcripts of the interviews. No names will be included in transcripts.

What will I be asked to do?

You will be asked to participate in a one-hour telephone interview with the primary investigator of open-ended questions regarding your opinions about the use of specific clinical practices. Telephone interviews will be audiotaped for transcription purposes.

What are the burdens, harms, and potential harms?

There are no known risks to participating in this study. The interview will cause you to reflect on your clinical practice and will cover potentially sensitive information for you. This could cause some emotional discomfort. If so, you may stop participating in the interview at any time.

What are the possible benefits?

Taking part in this study may be of no help to you personally. However, the interview will cause you to reflect on your clinical practice which some individuals may find helpful.

What alternatives to participation do I have?

This is a voluntary interview to collect information for future studies; there are no alternatives to the study.

Can I withdraw from the study?

Participation in the study is entirely voluntary (your choice). You may decide not to sign the consent form or you may withdraw from the study at any time. This will not affect your employment at the IWK Health Centre in any way.

If you decide to withdraw, you may request that your data be removed from the study.

Will the study cost me anything and, if so, how will I be reimbursed?

Participation in this study will not result in any expenses to you.

Are there any conflicts of interest?

There are no conflicts of interest on the part of the researchers and/or the institutions.

How will I be informed of study results?

On the signature page (the last page of this form), you may indicate whether or not you would like to receive a summary of the results of this study. If you are interested in receiving the results, they can be sent to you through the mail. We ask that you provide your mailing address on the signature page for this reason only. Please note that you may not receive results for several months following participation in the focus group.

How will my privacy be protected?

Any information that is learned about you will be kept private. Only research staff directly involved in this study will have access to your information. The transcripts of the interview will not include any identifying names and simply be labelled as Interviewer or Participant. No identifying information will be available to the data coders and you will not be identified in publication of the results.

All study records, recorded material and transcripts will be stored in a locked filing cabinet on the 8th floor of the IWK Health Centre. The study material will be kept for 5 years after publication of this research as required by the IWK Research Ethics Board.

Records may be shown to the IWK Health Centre Research Ethics Board, in the case of an audit.

What if I have study questions or problems?

If you have any questions or concerns following your enrollment, you may directly contact the primary investigator, Debbie Emberly. She may be reached by phone: (902) 470-7097, Monday to Friday between 9am and 5pm or by email: Debbie.Emberly@iwk.nshealth.ca.

What are my Research Rights?

If you become ill or injured as a direct result of participating in this study, necessary medical treatment will be available at no additional cost to you. Your signature on this form only indicates that you have understood to your satisfaction the information regarding your participation in the study and agree to participate as a subject. In no way does this waive your legal rights nor release the investigator, the research doctor, the study sponsor or involved institutions form their legal and professional responsibilities. If you have any questions at any time during or after the study about research in general you

may contact the Research Office of the IWK Health Centre at (902) 470-8765, Monday to Friday between 9am and 5pm.

PARTICIPANT CONSENT

I have read or had read to me this information and consent form and have had the chance to ask questions which have been answered to my satisfaction before signing my name I understand that I have the right to withdraw from the study at any time without affecting my care in any way. I have received a copy of the Information and Consent Form for future reference. I freely agree to participate in this research study.

Name: (Print) _____

Participant Signature: _____

Date: _____ Time: _____

- Would you like to receive a copy of a summary of the research findings once the study is completed?

  ☐ Yes _____ ☐ No
  (Participant Initials)

If yes, please provide your mailing address:

Street Address: _____

City and Province: _____ Postal Code: _____

- Do you agree to be contacted for future studies by Dr. McGrath's staff?
  ☐ Yes _____ ☐ No
  (Participant Initials)

To be completed by study staff:

STATEMENT BY PERSON PROVIDING INFORMATION ON STUDY

I have explained the nature and demands of the research study and judge that the participant named above understands the nature and demands of the study.

Name: (Print) _____

Signature: _____ Position: _____

Date: _____ Time: _____

STATEMENT BY PERSON OBTAINING CONSENT

I have explained the nature of the consent process to the participant and judge that they understand that participation is voluntary and that they may withdraw at any time from participating.

Name: (Print) _____

Signature: _____ Position: _____

Date: _____ Time: _____

APPENDIX C. ELICITATION INTERVIEW: QUESTIONS

We are conducting a study of outpatient mental health clinicians in Atlantic Canada. We are interested in why outpatient mental health clinicians do or do not recommend certain types of treatment in their practice. We are interested in two specific areas of clinical practice and will ask you a series of questions regarding each practice.

ADHD

We are interested in why outpatient mental health clinicians do or do not recommend the use of medication and parent management training as the first line treatment for attention deficit hyperactivity disorder. We would appreciate your responses to some questions about this. There are no right or wrong answers. Please tell us what you really think.

Attitudes

When children and youth with attention deficit hyperactivity disorder present for treatment following initial diagnosis:

1) a) What do you think are the advantages of recommending the use of medication as a first line treatment for ADHD?

b) What do you think are the advantages of recommending parent management training as a first line treatment for ADHD?

2) a) What do you believe are the disadvantages of recommending the use of medication as a first line treatment for ADHD?

b) What do you believe are the disadvantages of recommending parent management training as a first line treatment for ADHD?

3) a) Is there anything else you associate with your own views about recommending the use of medication as a first line treatment for ADHD?

b) Is there anything else you associate with your own views about recommending parent management training as a first line treatment for ADHD?

Subjective Norms

When children and youth with attention deficit hyperactivity disorder present for treatment following initial diagnosis:

4) a) Are there any individual or groups who would approve of you recommending the use of medication as a first line treatment for ADHD?

b) Are there any individual or groups who would approve of you recommending parent management training as a first line treatment for ADHD?

5) a) Are there any individual or groups who would disapprove of you recommending the use of medication as a first line treatment for ADHD?

b) Are there any individual or groups who would disapprove of you recommending parent management training as a first line treatment for ADHD?

6) a) Is there anything else you associate with other people's views about you recommending the use of medication as a first line treatment for ADHD?

b) Is there anything else you associate with other people's views about you recommending parent management training as a first line treatment for ADHD?

Perceived Behavioral Control

When children and youth with attention deficit hyperactivity disorder present for treatment following initial diagnosis:

7) a) What factors or circumstances would enable you to recommend the use of medication as a first line treatment for ADHD?

b) What factors or circumstances would enable you to recommend parent management training as a first line treatment for ADHD?

8) a) What factors or circumstances would make it difficult or impossible for you recommend the use of medication as a first line treatment for ADHD?

b) What factors or circumstances would make it difficult or impossible for you recommend parent management training as a first line treatment for ADHD?

9) a) Are there any other issues that come to mind when you think about your recommending the use of medication as a first line treatment for ADHD?

b) Are there any other issues that come to mind when you think about your recommending parent management training as a first line treatment for ADHD?

Group Treatment

Now we are going to move into the second area of clinical practice. We are interested in why outpatient mental health clinicians do or do not refer children and youth who need access to mental health services to standardized, evidence-based group therapies when clinically appropriate, to reduce wait times. As before, I would appreciate your responses to some questions about this. There are no right or wrong answers. Please tell us what you really think.

Attitudes

10) What do you think are the advantages of referring children and youth who need access to mental health services to standardized, evidence-based group therapies when clinically appropriate, to reduce wait times?

11) What do you believe are the disadvantages of referring children and youth who need access to mental health services to standardized, evidence-based group therapies when clinically appropriate, to reduce wait times?

12) Is there anything else you associate with your own views about referring children and youth who need access to mental health services to standardized, evidence-based group therapies when clinically appropriate, to reduce wait times?

Subjective Norms

13) Are there any individual or groups who would approve of your referral of children and youth who need access to mental health services to standardized, evidence-based group therapies when clinically appropriate, to reduce wait times?

14) Are there any individual or groups who would disapprove of your referral of children and youth who need access to mental health services to standardized, evidence-based group therapies when clinically appropriate, to reduce wait times?

15) Is there anything else you associate with other people's views about your referral of children and youth who need access to mental health services to standardized, evidence-based group therapies when clinically appropriate, to reduce wait times?

Perceived Behavioral Control

16) What factors or circumstances would enable you to your referral of children and youth who need access to mental health services to standardized, evidence-based group therapies when clinically appropriate, to reduce wait times?

17) What factors or circumstances would make it difficult or impossible for you to refer children and youth who need access to mental health services to standardized, evidence-based group therapies when clinically appropriate, to reduce wait times?

18) Are there any other issues that come to mind when you think about your referral of children and youth who need access to mental health services to standardized, evidence-based group therapies when clinically appropriate, to reduce wait times?

APPENDIX D. ELICITATION INTERVIEW: CONSENT TELEPHONE SCRIPT

Participant ID: _____

Step 1. Ask to speak to the person who scheduled the interview.

Hi, may I speak to [professional's name – first and last], please?

Step 2. Introduce yourself.

Hi, this is Debbie Emberly. As you may recall from our email correspondence, I'm a researcher at the IWK Health Centre working on a project called, Predicting pediatric mental health clinician behaviour in the utilization of evidence-based practice. I am working on this study with my supervisor, Dr. Patrick McGrath and the research associate from the Centre for Research in Family Health at the IWK Dr. Cyndi Brannen.

Step 3. Introduce the purpose of the call.

As scheduled in the email, this was a good time to conduct the interview for this study. Is this still a good time for you?

☐ **Yes ⇨ Continue to step 4**
☐ **No** ⇨ When would be a good time to call back? Date: _____ Time: _____
(If the participant is no longer interested, thank them for their time and end call)

Step 4. Describe the purpose of the study.
Despite enormous resources spent on research that may add to improving patient care, a huge gap exists between what is known about mental health services that work and what is done in the real world.

Within mental health research there are many successes in finding new evidence-based practices, but getting the message out to professionals and ensuring the use of this information remains a challenge. The goal of this research is to use theories of behaviour change to improve the transfer of research into what child and adolescent mental health professionals do everyday to improve the quality of life and outcomes of children, youth and families living with mental illness.

This study is the first in a series of studies investigating clinician behaviour related to the use of evidence-based practice. The goal of the current study is to develop items for use in a national survey at a later date.

Step 5. Describe what participants will be asked to do.

This research will involve a telephone interview lasting about one hour. You will be asked open ended questions about your opinions regarding two specific clinical behaviours, one focusing on the management of Attention Deficit Hyperactivity Disorder and one on the use of group treatment. The telephone interviews will be audiotaped and transcribed.

You do not have to answer a question if you do not know the answer or choose not to answer. In fact,
you do not have to participate at all, and this decision will not affect your any aspect of your involvement with the IWK, personally or professionally. If you decide to withdraw, you may request that your data be removed from the study.

Step 6. Describe any foreseeable harms or inconveniences.

This study will take about one hour of your time. It will involve you reflecting on your clinical practice. Some clinicians find this beneficial while others find it discouraging. You may stop participating in the interview at any time. There are no obvious risks or direct benefits to participating in this study. However, you will be provided with a summary of the research results if desired which you may find interesting. You may choose to be entered into a draw to win a copy of the book: Evidence-Based Psychotherapies for Children and Adolescents (2003) Edited by Alan E. Kazdin and John R. Weisz , a $58 value.

Step 7. Discuss the confidentiality provisions

This interview will be electronically recorded and then transcribed into a text document for analysis. Your personal identifying information will not be linked to either the electronic or text files.

Any information that is learned about you will be kept private. Only research staff directly involved in this study will have access to your information. The transcripts of the interview will not include any identifying names and simply be labelled as Interviewer or Participant. A code will be used to match the electronic transcript of your interview with your contact information. No identifying information will be available to the data coders and you will not be identified in publication of the results.

All study records, recorded material and transcripts will be stored in a locked filing cabinet on the 8th floor of the IWK Health Centre. The study material will be kept for 7 years after completion of the research in compliance with the Tri-Council policy.

Records may be shown to the IWK Health Centre Research Ethics Board, in the case of an audit.

Do you have any questions?

☐ **Yes** ⇨ (Listen to questions and respond if possible.)
☐ **No** ⇨ **Continue to Step 8**

Step 8. Request participation.

Would you like to participate in this interview?

☐ **Yes** ⇨ **Continue to Step 9**
☐ **No** ⇨ Thank you for taking the time to hear about the project. Have a great day.

Step 9. Consent

Would you prefer to have the consent form forwarded email ☐ or by mail ☐?

If email, enter participants email address:
_____@_____

If mail, enter the participants mailing address:

Address:
_____
_____

City: _____ Province: _____ Postal code: _____

Conduct Interview and then return to Step 10 upon completion of interview.

Step 10. Research Dissemination (Upon completion of interview).

Would you like to be entered in the draw for a free book?

☐ **Yes** ⇨ **record contact information**
☐ **No** .

Would you like to receive a summary of the research results?

☐ **Yes** ⇨

Would you prefer to receive the results by email ☐ or by mail ☐?

☐ **Check here if the same address as in Step 9 consent above.**

If different email, enter participants email address:
_____@_____

If different mailing address, enter the participants mailing address:

Address: _____

City: _____Province: _____ Postal code: _____

☐ **No**

PARTICIPANT VERBAL CONSENT DOCUMENTATION

Participant's Name: _____ Date: _____

STATEMENT BY PERSON PROVIDING INFORMATION ON STUDY AND OBTAINING CONSENT

I have explained the nature and demands of the research study and judge that the participant named above understands the nature and demands of the study. I have explained the nature of the consent process to the participant and judge that they understand that participation is voluntary and that they may withdraw at any time from participating.

Name: (Print) _____

Signature: _____ Position: _____

APPENDIX E. NATIONAL SURVEY: QUESTIONNAIRE

*****Please note the shaded section headings will not be in the final questionnaire*****		
We are interested in why outpatient mental health clinicians do or do not recommend certain types of treatment in their practice. We are interested in two specific areas of clinical practice and will ask you a series of questions regarding each practice.		
Behavioural Intention (Dependent Variable)		
Given 10 clients presenting for treatment following diagnosis of ADHD…		
1.	How many patients would you expect to recommend parent management training ?	**0 1 2 3 4 5 6 7 8 9 10**
2.	How many patients would you expect to recommend medication consultation/prescription?	**0 1 2 3 4 5 6 7 8 9 10**
FOR CLIENTS WITH A DIAGNOSIS OF ADHD CONSIDERING POSSIBLE TREATMENTS…		
3.	I **expect** to recommend parent management training	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
4.	I **want** to recommend parent management training	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
5.	I **intend** to recommend parent management training	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
6.	I **expect** to recommend medication consultation/prescription	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**

7.	I **want** to recommend medication consultation/prescription	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**				
8.	I **intend** to recommend medication consultation/prescription	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**				
STAGES OF CHANGE						
When a child or youth presents for treatment following diagnosis of ADHD…		**I have not thought about doing this**	**I have thought about doing this, but that's all**	**I want to do this, but have not been able to**	**I have started doing this**	**I do this on a regular basis**
9.	I recommend parent management training	**1**	**2**	**3**	**4**	**5**
10.	I recommend medication consultation/prescription	**1**	**2**	**3**	**4**	**5**
OPERANT CONDITIONING						
11.	Approximately how many patients/clients have you seen with ADHD in the past six months?	_____ (number)				
12.	For what proportion (%) of these patients/clients did you recommend parent management training?	_____%				
13.	For what proportion (%) of these patients/clients did you recommend medication consultation/prescription?	_____%				
14.	In my clinic, for patients/clients diagnosed with ADHD, recommending parent management training is something I do frequently.	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**				
15.	In my clinic, when for patients/clients with ADHD, recommending parent management training is something I automatically consider.	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**				

16.	It is my usual practice to recommend parent management training for patients/clients diagnosed with ADHD.	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
17.	In my clinic, for patients/clients diagnosed with ADHD, recommending medication prescription/consultation is something I do frequently.	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
18.	In my clinic, for patients/clients with ADHD, recommending medication prescription/consultation is something I automatically consider.	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
19.	It is my usual practice to recommend medication prescription/consultation for patients/clients diagnosed with ADHD.	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
If I recommend parent management training as a treatment for clients/patients diagnosed with ADHD …		
20.	I will maintain a good relationship with them…	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
21.	I will receive support from my colleagues…	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
22.	I will receive support from management…	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
23.	It will save me time…	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
If I recommend medication consultation/prescription for clients/patients diagnosed with ADHD…		
24.	I will maintain a good relationship with them…	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
25.	I will receive support from my colleagues…	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
26.	I will receive support from management…	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**

27.	It will save me time…	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
THEORY OF PLANNED BEHAVIOUR DIRECT MEASUREMENT OF ATTITUDE		
RECOMMENDING PARENT MANAGEMENT TRAINING AS A TREATMENT FOR CLIENTS DIAGNOSED WITH ADHD IS…		
28.	**Harmful**	**1 2 3 4 5 6 7 Beneficial**
29.	**Good**	**1 2 3 4 5 6 7 Bad**
30.	**Pleasant (for me)**	**1 2 3 4 5 6 7 Unpleasant (for me)**
31.	**Worthless**	**1 2 3 4 5 6 7 Useful**
32.	**Unrewarding**	**1 2 3 4 5 6 7 Rewarding**
33.	**Frustrating**	**1 2 3 4 5 6 7 Not at all frustrating**
34.	**Unsatisfying**	**1 2 3 4 5 6 7 Satisfying**
RECOMMENDING MEDICATION CONSULTATION/PRESCRIPTION AS A TREATMENT FOR CLIENTS DIAGNOSED WITH ADHD IS…		
35.	**Harmful**	**1 2 3 4 5 6 7 Beneficial**
36.	**Good**	**1 2 3 4 5 6 7 Bad**
37.	**Pleasant (for me)**	**1 2 3 4 5 6 7 Unpleasant (for me)**
38.	**Worthless**	**1 2 3 4 5 6 7 Useful**

39.	**Unrewarding**	**1 2 3 4 5 6 7** **Rewarding**
40.	**Frustrating**	**1 2 3 4 5 6 7** **Not at all frustrating**
41.	**Unsatisfying**	**1 2 3 4 5 6 7** **Satisfying**
Direct measurement of subjective norm		
I would recommend parent management training as one treatment for clients who present for treatment following diagnosis of ADHD because…		
42.	It is expected of me.	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
43.	I feel under social pressure to do so.	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
44.	People who are important to me want me to do so.	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
AS PART OF THE TREATMENT PLAN FOR CLIENTS WITH A DIAGNOSIS OF ADHD…		
45.	Parents/caregivers of clients diagnosed with ADHD think I…	**Should not 1 2 3 4 5 6 7 Should** recommend parent management training
46.	Other mental health professionals…	**Do not 1 2 3 4 5 6 7 Do** recommend parent management training
47.	Management would…	**Disapprove 1 2 3 4 5 6 7 Approve** of my recommendation of parent management training
48.	Parents/caregivers approval of my practice is important to me	**Not at all 1 2 3 4 5 6 7 Very much**
49.	What management thinks I should do matters to me	**Not at all 1 2 3 4 5 6 7 Very much**
50.	Doing what other mental health professionals do is important to me	**Not at all 1 2 3 4 5 6 7 Very much**

DIRECT MEASURE OF PERCEIVED BEHAVIOURAL CONTROL		
WHEN CONSIDERING THE RECOMMENDATION OF PARENT MANAGEMENT TRAINING AS ONE TREATMENT FOR ADHD…		
51.	I am confident I could recommend it if I wanted to.	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
52.	For me to do so would be…	**Easy 1 2 3 4 5 6 7 Difficult**
53.	The decision is beyond my control.	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
54.	The decision is entirely up to me.	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
I would recommend medication consultation/prescription as one treatment for clients who present for treatment following diagnosis of ADHD because…		
55.	It is expected of me.	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
56.	I feel under social pressure to do so.	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
57.	People who are important to me want me to do so.	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
AS PART OF THE TREATMENT PLAN FOR CLIENTS WITH A DIAGNOSIS OF ADHD…		
58.	Parents/caregivers of clients diagnosed with ADHD think I…	**Should not 1 2 3 4 5 6 7 Should** recommend medication consultation/prescription
59.	Other mental health professionals…	**Do not 1 2 3 4 5 6 7 Do** recommend medication consultation/prescription
60.	Management would…	**Disapprove 1 2 3 4 5 6 7 Approve** of my recommendation of medication consultation/prescription
61.	Parents/caregivers approval of my practice is important to me	**Not at all 1 2 3 4 5 6 7 Very much**
62.	What management thinks I should do matters to me	**Not at all 1 2 3 4 5 6 7 Very much**
63.	Doing what other mental health professionals do is important to me	**Not at all 1 2 3 4 5 6 7 Very much**

WHEN CONSIDERING THE RECOMMENDATION OF MEDICATION CONSULTATION/PRESCRIPTION AS ONE TREATMENT OF ADHD…		
64.	I am confident I could recommend it if I wanted to…	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
65.	For me to do so would be….	**Easy 1 2 3 4 5 6 7 Difficult**
66.	The decision is beyond my control.	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
67.	The decision is entirely up to me.	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**

B. ***We are interested in the utilization of evidence-based group therapies specifically with the goal of reducing wait times****.*

Now we are going to move into the second area of clinical practice. This behaviour is not related to any specific clinical diagnosis, please consider any clinically appropriate possibilities, i.e., Anxiety, Depression, etc. As before, I would appreciate your responses to some questions about this. There are no right or wrong answers.

We are interested in why outpatient mental health clinicians do or do not refer children and youth who need access to mental health services to standardized, evidence-based group therapies when clinically appropriate, to reduce wait times.

BEHAVIOURAL INTENTION (DEPENDENT VARIABLE)		
To reduce wait times, given 10 clients who need access to mental health services,…		
68.	How many patients would you expect to refer to standardized, evidence-based group therapies when clinically appropriate?	**0 1 2 3 4 5 6 7 8 9 10**
69.	I **expect** to refer clients to standardized, evidence-based group therapies when clinically appropriate	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
70.	I **want** to refer to standardized, evidence-based group therapies when clinically appropriate	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**
71.	I **intend** to refer clients to standardized, evidence-based group therapies when clinically appropriate	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**

STAGES OF CHANGE						
To reduce wait times, when a child or youth needs access to mental health services….		**I have not thought about doing this**	**I have thought about doing this, but that's all**	**I want to do this, but have not been able to**	**I have started doing this**	**I do this on a regular basis**
72.	I refer them to standardized, evidence-based group therapies when clinically appropriate	**1**	**2**	**3**	**4**	**5**
OPERANT CONDITIONING						
73.	Approximately how many patients/clients have you seen who need access to mental health services for whom treatment is not readily available in the past six months?	_____ number				
74.	For what proportion (%) of these patients/clients did you recommend referral to standardized evidence-based group therapies to reduce wait times for services?	_____%				
75.	In my clinic, referring patients/clients to standardized evidence-based group therapies when clinically appropriate to reduce wait times for services, is something I do frequently.	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**				
76.	In my clinic, referring patients/clients to standardized evidence-based group therapies when clinically appropriate to reduce wait times for services is something I automatically consider.	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**				
77.	It is my usual practice to refer patients/clients to standardized evidence-based group therapies when clinically appropriate to reduce wait times for services	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**				
If I refer patients/clients who need access to mental health services to standardized, evidence-based group therapies when clinically appropriate, to reduce wait times…						

78.	I will maintain a good relationship with them…	**Strongly Disagree**	**1 2 3 4 5 6 7** **Strongly Agree**
79.	I will receive support from my colleagues…	**Strongly Disagree**	**1 2 3 4 5 6 7** **Strongly Agree**
80.	I will receive support from management…	**Strongly Disagree**	**1 2 3 4 5 6 7** **Strongly Agree**
81.	It will save me time…	**Strongly Disagree**	**1 2 3 4 5 6 7** **Strongly Agree**

THEORY OF PLANNED BEHAVIOUR DIRECT MEASUREMENT OF ATTITUDE

Referring children and youth who need access to mental health services to standardized, evidence-based group therapies when clinically appropriate, to reduce wait times is…

82.	**Harmful**	**1 2 3 4 5 6 7**	**Beneficial**
83.	**Good practice**	**1 2 3 4 5 6 7**	**Bad practice**
84.	**Pleasant (for me)**	**1 2 3 4 5 6 7**	**Unpleasant (for me)**
85.	**Worthless**	**1 2 3 4 5 6 7**	**Useful**
86.	**Unrewarding**	**1 2 3 4 5 6 7**	**Rewarding**
87.	**Frustrating**	**1 2 3 4 5 6 7**	**Not at all frustrating**
88.	**Unsatisfying**	**1 2 3 4 5 6 7**	**Satisfying**

Direct Measurement of subjective Norm

I would refer children and youth who need access to mental health services to standardized, evidence-based group therapies when clinically appropriate, to reduce wait times because….

89.	It is expected of me.	**Strongly Disagree**	**1 2 3 4 5 6 7** **Strongly Agree**
90.	I feel under social pressure to do so.	**Strongly Disagree**	**1 2 3 4 5 6 7** **Strongly Agree**

91.	People who are important to me want me to.	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**				
92.	Parents/caregivers of clients who need access to mental health services think I…	**Should not 1 2 3 4 5 6 7 Should** Refer children and youth to standardized, evidence-based group therapies when clinically appropriate, to reduce wait times				
93.	Other mental health professionals…	**Do not 1 2 3 4 5 6 7 Do** Refer children and youth to standardized, evidence-based group therapies when clinically appropriate, to reduce wait times				
94.	Management would…	**Disapprove 1 2 3 4 5 6 7 Approve** Refer children and youth to standardized, evidence-based group therapies when clinically appropriate, to reduce wait times				
95.	Parents/caregivers approval of my practice is important to me	**Not at all 1 2 3 4 5 6 7 Very much**				
96.	What management thinks I should do matters to me	**Not at all 1 2 3 4 5 6 7 Very much**				
97.	Doing what other mental health professionals do is important to me	**Not at all 1 2 3 4 5 6 7 Very much**				
Direct Measurement of Perceived Behavioural Control						
When considering the referral of children and youth who need access to mental health services to standardized, evidence-based group therapies when clinically appropriate, to reduce wait times …						
98.	I am confident I could recommend it if I wanted to.	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**				
99.	For me to do so would be…	**Easy 1 2 3 4 5 6 7 Difficult**				
100.	The decision is beyond my control.	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**				
101.	The decision is entirely up to me…	**Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree**				
Evidence-Based Practice Attitude Scale						
Item	**Question**	Not at all	To a Slight Extent	To a Moderate Extent	To a Great Extent	To a Very Great Extent
102.	I like to use new types of therapy/interventions to help my clients.	**0**	**1**	**2**	**3**	**4**
103.	I am willing to try new types of therapy/interventions even if I have to follow a	**0**	**1**	**2**	**3**	**4**

	treatment manual.					
104.	I know better than academic researchers how to care for my clients.	**0**	**1**	**2**	**3**	**4**
105.	I am willing to use new and different types of therapy/interventions developed by researchers.	**0**	**1**	**2**	**3**	**4**
106.	Research based treatments/interventions are not clinically useful.	**0**	**1**	**2**	**3**	**4**
107.	Clinical experience is more important than using manualized therapy/interventions.	**0**	**1**	**2**	**3**	**4**
108.	I would not use manualized therapy/interventions.	**0**	**1**	**2**	**3**	**4**
109.	I would try a new therapy/intervention even if it were very different from what I am used to doing.	**0**	**1**	**2**	**3**	**4**
	For questions 9-15: If you received training in a therapy or intervention that was new to you, how likely would you be to adopt it if:					
		Not at all	To a Slight Extent	To a Moderate Extent	To a Great Extent	To a Very Great Extent
110.	It was intuitively appealing?	**0**	**1**	**2**	**3**	**4**
111.	It "made sense" to you?	**0**	**1**	**2**	**3**	**4**
112.	It was required by your supervisor?	**0**	**1**	**2**	**3**	**4**
113.	It was required by your organization?	**0**	**1**	**2**	**3**	**4**
114.	It was required by your province?	**0**	**1**	**2**	**3**	**4**
115.	It was being used by colleagues who were happy with it?	**0**	**1**	**2**	**3**	**4**
116.	A parent asked you to use it?					
117.	You felt you had enough training to use it properly?	**0**	**1**	**2**	**3**	**4**
Demographics						
The following questions ask for information about yourself and your clinical practice. Please give your best estimates to all questions						

1.	**Gender** o Male o Female
2.	**Age in years** o **20-24** o **25-29** o **30-34** o **35-39** o **40-44** o **45-49** o **50-54** o **55-59** o **60-64** o **65+**
3.	**What is the type of certification you have as a mental health clinician?** o Board Certified Psychiatrist – year received: o Psychiatric resident o Licensed Psychologist – year received: o Psychologist: Candidate Register – year received: o Licensed Social Worker – year received: o Social Worker: Candidate Register- year received: o Other _____

4.	**What is the highest degree you currently hold?** o MSW o MSN o MD o PhD o MD/PhD o PsyD o Bachelors in _____ o MSc or MA in _____ o Other _____	
Please answer each of the following questions pertaining to your clinical experience.		*Best Estimate*
5.	**How many total years of clinical experience do you have (starting when you saw your first patient/client for mental health problems, including while you were in school)?**	_____
6.	**How many years of clinical experience do you have working with ***children or adolescents*** (starting when you saw your first patient/client for mental health problems, including while you were in school)?**	_____
7.	**On average, how many hours per week do you see therapy patients?**	_____
8.	**On average, how many hours per week do you see therapy patients that are children or adolescents?**	

9.	**How many patients do you see in an average week?**	_____
10.	**How many patients do you see in an average week that are children or adolescents?**	_____ _____
11.	**What are the primary type of mental health problems that you have clinical experience in handling?** _____	
12.	**Please indicate the clinical orientation that most influences your work.** Behavioural o Cognitive or cognitive-behavioural o Eclectic o Interpersonal o Family systems o Multisystemic o Humanistic o Psychoanalytical or psychodynamic o No specific orientation o Other _____	

13.	**Does your program/practice have written policies specifying the use of particular interventions for the treatment of…** o Attention Deficit Hyperactivity Disorder o Conduct Disorder o Depression o Anxiety o Psychosis o Other _____ o Other _____
14.	**How familiar are you with the term Evidence-based Practice?** 0 Not at all familiar/ Have not heard that term 1 Somewhat familiar/ Heard term but don't know much 2 Familiar/ Know the term 3 Very familiar/ Use in practice
15.	**How familiar are you with the term Empirically Supported Treatments?** 0 Not at all familiar/ Have not heard that term 1 Somewhat familiar/ Heard term but don't know much 2 Familiar / Know the term 3 Very familiar/ Use in practice

16.	**Do you view these two terms, evidence-based practice and empirically supported treatments as interchangeable, i.e., meaning the same thing?** o **Yes** o **No**
How familiar are you with the following clinical guidelines related to the treatment of ADHD?	
17.	**American Academy of Pediatrics** 0 Not at all familiar 1 Somewhat familiar 2 Familiar 3 Very familiar
18.	**Canadian ADHD Resource Alliance (CADDRA)** 0 Not at all familiar 1 Somewhat familiar 2 Familiar 3 Very familiar
19.	**American Academy of Child and Adolescent Psychiatry: ADHD Practice Parameter** 0 Not at all familiar 1 Somewhat familiar 2 Familiar 3 Very familiar
20.	**NICE (National Institute for Health and Clinical Excellence: UK)** 0 Not at all familiar 1 Somewhat familiar 2 Familiar 3 Very familiar

21.	**How did you hear about this survey?** o **My manager/director** o **Brochure** o **Web link** o **From colleague** o **Business card** o **From principal investigator** o **Information from my professional organization** o **Email** o **Other _____**

THAT BRINGS US TO THE END OF OUR STUDY. DO YOU HAVE ANY ADDITIONAL COMMENTS?

We greatly appreciate your input and your time. If you have any questions or concerns, you can contact the principal investigator, Debbie Emberly at (902) 470-7282 or email Debbie.Emberly@iwk.nshealth.ca. If you have any research related questions you can contact Research Services at 470-8765.

APPENDIX F. PILOT: EMAIL RECRUITMENT & QUESTIONS

I am in the process of preparing a questionnaire to be utilized in a national survey examining the utilization of evidence-based practice within pediatric mental health. Prior to launching this study, I would appreciate some feedback on the questionnaire. This will take approximately 30 minutes. There are no risks or benefits to providing this feedback, but it will help with the development of this important national survey. If you are interested in reviewing this questionnaire, simply click on, or type the following address into your internet browser: https://www.bringinghealthhome.com/gquest/REBPMH.rh

You will see a brief consent form when you reach this webpage. You will click on the accept button to move forward to the questionnaire should you wish to participate.

Upon completion, please reply to me via email regarding the questionnaire, taking into consideration the following questions:

- Are any items ambiguous or difficult to answer?
- Does the questionnaire feel too repetitive?
- Does it feel too long?
- Does it feel too superficial?
- Are there any annoying features of the wording or formatting?
- Are there any inconsistent responses that might indicate that changes in response endpoints are problematic for respondents who complete the questionnaire quickly?
- Do you think it captures the issues related to evidence-based practice for the specific behaviours of interest?

I thank you in advance for your time and interest. If you have any questions or concerns, please contact me, Debbie Emberly, at the number listed below. Please review attached consent form for further details.

Sincerely,

Debbie Emberly, Principal Investigator
902-470-7282
Debbie.emberly@iwk.nshealth.ca

APPENDIX G. PILOT: INFORMATION AND CONSENT FORM

Study Title:	Predicting pediatric mental health clinician behaviour in the utilization of evidence-based practice: Questionnaire pilot
Principal Investigator:	Debbie Emberly, MSc PhD Candidate, Dalhousie University; Psychologist, IWK Health Centre,
Co-investigators:	Patrick McGrath, PhD, Professor of Psychology, Pediatrics, Psychiatry, Dalhousie University; Psychologist, IWK Health Centre, Cyndi Brannen, PhD, Research Associate IWK Centre for Research in Family Health

Introduction

You are being invited to take part in the research study named above. This form provides information about the study. Before you decide if you want to take part, it is important that you understand the purpose of the study, the risks and benefits and what you will be asked to do. You do not have to take part in this study. Taking part is entirely voluntary (your choice). Informed consent starts with the initial contact about the study and continues until the end of the study. A staff member of the research team will be available to answer any questions you have. You may decide not to take part or you may withdraw from the study at any time. This will not affect the care you or your family members will receive from the IWK Health Centre in any way.

Why are the researchers doing the study?

Despite enormous resources spent on research that may add to improving patient care, a huge gap exists between what is known about mental health services that work and what is done in the real world. Within mental health research there are many successes in finding new evidence-based practices, but getting the message out to professionals and ensuring the use of this information remains a challenge. The goal of this research is to use theories of behaviour change to improve the transfer of research into what child and adolescent mental health professionals do everyday to improve the quality of life and outcomes of children, youth and families living with mental illness. This study is the second in a series of studies investigating clinician behaviour related to the use of evidence-based practice. The goal of the current study is to pilot test the questionnaire items for use in a national survey at a later date.

How will the researchers do the study?

You will be asked to complete a 30-minute web based questionnaire and provide feedback regarding the length, readability of the questions, problematic questions, etc. In total, 5 participants will be asked to provide this feedback at the IWK Health Centre. The data collected during this pilot stage will be collected anonymously and under test circumstances. No names will be attached to the data and the data will not be saved or be included in any final analysis.

What will I be asked to do?

You will be asked to complete a 30-minute web based questionnaire and provide feedback to the principal investigator via email.

What are the burdens, harms, and potential harms?

There are no known risks to participating in this study. The questionnaire will cause you to reflect on your clinical practice and will cover potentially sensitive information for you. This could cause some emotional discomfort. If so, you may stop completing the questionnaire at any time.

What are the possible benefits?

Taking part in this study may be of no help to you personally. However, the questionnaire will cause you to reflect on your clinical practice which some individuals may find helpful.

What alternatives to participation do I have?

This is a voluntary study to pilot test questions for future studies; there are no alternatives to the study.

Can I withdraw from the study?

Participation in the study is entirely voluntary (your choice). You may decide not to sign the consent form or you may withdraw from the study at any time. This will not affect your employment at the IWK Health Centre in any way. If you decide to withdraw, you may request that your data be removed from the study.

Will the study cost me anything and, if so, how will I be reimbursed?

Participation in this study will not result in any expenses to you.

Are there any conflicts of interest?

There are no conflicts of interest on the part of the researchers and/or the institutions.

How will I be informed of study results?

There will not be any communication of results from this study; rather results will be communicated from the final national survey. The researcher will keep a list of the participants in the development studies and send a summary of the results when they are available via email. Please note that you may not receive results for several months following participation in this study.

How will my privacy be protected?

Any information that is learned about you will be kept private. Only research staff directly involved in this study will have access to your information. No identifying information will be linked to the questionnaires. The data will not be saved or utilized in any way.

All study records, recorded material and transcripts will be stored in a locked filing cabinet on the 8th floor of the IWK Health Centre. The study material will be kept for 5 years after publication of this research as required by the IWK Research Ethics Board.

Records may be shown to the IWK Health Centre Research Ethics Board, in the case of an audit.

What if I have study questions or problems?

If you have any questions or concerns following your enrollment, you may directly contact the primary investigator, Debbie Emberly. She may be reached by phone: (902) 470-7097, Monday to Friday between 9am and 5pm or by email: Debbie.Emberly@iwk.nshealth.ca.

What are my Research Rights?

If you become ill or injured as a direct result of participating in this study, necessary medical treatment will be available at no additional cost to you. Your signature on this form only indicates that you have understood to your satisfaction the information regarding your participation in the study and agree to participate as a subject. In no way does this waive your legal rights nor release the investigator, the research doctor, the study sponsor or involved institutions form their legal and professional responsibilities. If you have any questions at any time during or after the study about research in general you may contact the Research Office of the IWK Health Centre at (902) 470-8765, Monday to Friday between 9am and 5pm.

PARTICIPANT CONSENT

If you would like a copy of this consent form please print it now by clicking on the print button within your internet browser. Alternatively, you can send an email request to debbie.emberly@iwk.nshealth.ca to receive an electronic copy of the consent form.

I have read this information and consent form. I understand that I have the right to withdraw from the study at any time without penalty. I have had the opportunity to print the Information and Consent Form for future reference. By clicking on the continue button below, I freely agree to participate in this research study. If I choose not to participate I can simply close this internet browser window.

APPENDIX H. NATIONAL SURVEY: INITIAL EMAIL TEMPLATE TO MANAGERS

Dear (Manager Name):

I am writing to ask your help in a study of child and adolescent mental health clinicians being conducted by a group of researchers at the IWK Health Centre and Dalhousie University to learn what might help or what might get in the way of using evidence-based practice in the daily work of mental health clinicians. We are conducting a national survey regarding evidence-based practice and are seeking participation from mental health professionals working in pediatric health centres.

I am a PhD student at Dalhousie University in the Psychology Department, working under the supervision of Dr. Patrick McGrath. I am also a registered psychologist working in a community based treatment team in the mental health and addictions program at the IWK Health Centre. Results of this study will be used as part of my dissertation research and will help to inform clinical practice and policy to understand the opinions and utilization of evidence-based practice in child and adolescent mental health.

This research has received approval from the IWK Health Centre Human Research Ethics Board. My request to you is to ask you to distribute four emails to the psychologists, social workers and psychiatrists who work in (name of hospital) outpatient mental health clinics. I will provide the text for these emails. We are trying to increase our response rate and are using a methodology recommended by Dillman (2002) to achieve a higher response rate. This results in the four emails: 1) Pre notice of the study and questionnaire; 2) Invitation to complete the questionnaire; 3) Thank you and reminder to complete the questionnaire and 4) Final invitation.

Your responsibility should you agree to assist with this study, would be to send out the emails as I send them to you to all of the psychologists, psychiatrists and social workers who primarily work in your outpatient setting. **Please respond directly via email indicating if you would be willing to distribute these emails or if you would like more information to make this decision**. If I don't hear from you in a week, I will send you a reminder email.

If you have any questions or comments about this study, I would be happy to talk to you. My phone number is 902-470-7282 or you can email me at debbie.emberly@iwk.nshealth.ca.

Sincerely,

Debbie Emberly, Principal Investigator
902-470-7282
debbie.emberly@iwk.nshealth.ca

APPENDIX I. NATIONAL SURVEY: PRE-NOTICE EMAIL

IWK Health Centre
5850/5980 University Avenue
Centre for Research in Family Health
8th Floor Research
Halifax, NS B3K 6R8
902-470-7282
Fax: 902-470-6534

November 1, 2008

Dear Colleagues,

My name is Debbie Emberly. I am a PhD student at Dalhousie University in the Psychology Department, working under the supervision of Dr. Patrick McGrath. I am also a registered psychologist working at the IWK Health Centre.

A few days from now you will receive via email a request to fill out a brief (approx. 30 minutes) questionnaire for an important research study being conducted by a group of researchers at the IWK Health Centre and Dalhousie University.

It concerns child and adolescent mental health clinician behaviour as it relates to the use of the evidence-based practice. We are interested in the experiences of social workers, psychologists and psychiatrists in their use of evidence in their daily practice.

I am writing in advance because we have found that many people like to know ahead of time that they will be contacted. We know that people are very busy and this advance notice can help with setting aside some time in the next week or so to complete the survey. The study is an important one that will help us better understand the use of evidence in practice, specifically what makes it easy and what might get in the way.

Thank you for your time and consideration. It's only with the generous help of people like you that our research can be successful.

Sincerely,

Debbie Emberly

P.S. We will be making a $2 donation to the Canadian Mental Health Foundation for each completed questionnaire as way of saying thanks and giving back to the individuals we all work for.

APPENDIX J. NATIONAL SURVEY: EMAIL INVITATION

5850/5980 University Avenue
Centre for Research in Family Health
8th Floor Research
Halifax, NS B3K 6R8

I am a PhD student at Dalhousie University in the Psychology Department, working under the supervision of Dr. Patrick McGrath. I am also a registered psychologist working in a community based treatment team in the mental health and addictions program at the IWK Health Centre in Halifax, NS.

My dissertation research is a national web based survey applying theory driven approaches to predicting child and adolescent mental health clinician behaviour in the utilization of evidence-based practice. The goal is to understand what might help or what might get in the way of using evidence-based practice in our daily work.

I am seeking a final sample of 100 child and adolescent psychiatrists (along with 100 psychologists and 100 social workers). I have 187 participants to date, but very few psychiatrists (i.e., five).

I am writing for your help to improve these numbers. I need those that spend some time working in an outpatient setting, not all the time, but some time. Would you be willing to send this email on to the child and adolescent psychiatrists who are working in your department or who are members of your divisions?

There are two ways you can help:

1: Complete the survey yourself (click on the link below or cut and paste into your browser). It takes about 20 minutes.

https://www.bringinghealthhome.com/gquest/REBPMH.rb

AND

2: Send this email, the link above and/or the attached advertisement to as many child and adolescent psychiatrists (also psychologists and social workers) that you know across Canada.

This research has received approval from the IWK Health Centre Human Research Ethics Board. Your answers are completely anonymous and confidential and will be released

only as summaries in which no individuals answers can be identified. To participate in the survey you can click on the link below or paste it into your internet browser. This link will take you to a secure server housed at the IWK Health Centre. Your email will in no way be linked to this webpage. This survey is voluntary, however you can help us very much by taking a few minutes to share your experiences and opinions of evidence-based practice.

Please contact me with any questions or suggestions for recruiting psychiatrists. We are in the final weeks of data collection and your help now would be greatly appreciated.

Sincerely,

Debbie Emberly
Registered Psychologist
PhD Candidate (Dalhousie University)
Intensive Community Based Treatment Team
IWK Health Centre
VIA Station, 3rd Floor, 1161 Hollis St.
Halifax, NS B3H 2P6
Phone: (902) 471-9663 Fax: (902) 491-2997

ps. We are donating $2.00 to the Canadian Mental Health Foundation for every completed survey.

APPENDIX K. NATIONAL SURVEY: THANK YOU/REMINDER EMAIL

November 15, 2008

Last week an email was sent to you with a web link to a questionnaire seeking your opinion about evidence-based practice in child and adolescent mental health. You were sent this email as a practicing social worker, psychologist or psychiatrist working primarily in outpatient (office based) child and adolescent mental health.

If you have already completed the questionnaire, please accept my sincere thanks. If not, please do so today. We are especially grateful for your help because it is only by asking people like you to share their experiences that we can understand how evidence is used in mental health practice.

To complete the questionnaire, please either click on the following web link or cut and paste the link into your web browser

http://www.bringinghealthhome.com/gquest/REBPMH.rb

Sincerely,

Debbie Emberly, MSc
Registered Psychologist

P.S. THANKS AGAIN FOR YOUR SUPPORT AND REMEMBER THE MORE CLINICIANS THAT PARTICIPATE THE GREATER THE FINAL DONATION TO THE CANADIAN MENTAL HEALTH FOUNDATION.

APPENDIX L. NATIONAL SURVEY: FINAL CONTACT LETTER EMAIL

5850/5980 University Avenue
Centre for Research in Family Health
8th Floor Research
Halifax, NS B3K 6R8
902-470-7282
Fax: 902-470-6534

December 15, 2008

Dear Colleagues,

During the past six weeks I have sent you several emails about an important research study we are conducting about your opinions regarding evidence-based practice in child and adolescent mental health.

Its purpose is to inform clinical practice and policy to understand the opinions and utilization of evidence-based practice in child and adolescent mental health.

The study is drawing to a close, and this is the last contact that will be made with you as part of this sample of psychologists, social workers, and psychiatrists working within outpatient mental health in pediatric health centres.

I am sending this final contact to provide one more opportunity for you to complete this questionnaire. Please accept our thanks and disregard this email if you have already completed the questionnaire. We know that people are very busy and emails often get deleted so we have provided the link to the questionnaire again in this email.

https://www.bringinghealthhome.com/gquest/REBPMH.rh

I am concerned that people who have not responded may have had different experiences than those that have. Hearing from everyone in pediatric health centres helps assure that the survey results are as accurate as possible.

I also want to assure you that your response to this study is voluntary, and if you prefer not to respond that's fine.

Finally, I appreciate your willingness to consider our request as we conclude this effort to better understand the utilization of evidence-based practice in child and adolescent mental health. Thank you very much.

Sincerely,

Debbie Emberly, MSc
Registered Psychologist

P.S. Thanks again for your support. To date we have made a total donation of $??.?? to the Canadian Mental Health Foundation on behalf of our research participants, people like you. It's not too late to contribute.

APPENDIX M. NATIONAL SURVEY: ADVERTISEMENT

Evidence-based Practice

In Child & Adolescent Mental Health: Do we do it?

Are you a child/adolescent social worker, psychologist, or psychiatrist? Do you work primarily in outpatient mental health? If you answered yes…

Tell us what you think…

Please complete our 30-minute web based survey

https://www.bringinghealthhome.com/gquest/REBPMH.rh

Principal Investigator, Debbie Emberly
Email:debbie.emberly@iwk.nshealth.ca
Phone: (902) 470-7282

Version #2 161008

A $2.00 donation to the Canadian Mental Health Foundation will be made for every completed survey.

APPENDIX N. NATIONAL SURVEY: INFORMATION AND CONSENT FORM

Study Title:	Predicting pediatric mental health clinician behaviour in the utilization of evidence-based practice: National Survey
Principal Investigator:	Debbie Emberly, MSc PhD Candidate, Dalhousie University; Psychologist, IWK Health Centre
Co-investigators:	Patrick McGrath, PhD, Professor of Psychology, Pediatrics, Psychiatry, Dalhousie University; Psychologist, IWK Health Centre Cyndi Brannen, PhD, Research Associate IWK Centre for Research in Family Health

Introduction

You are being invited to take part in the research study named above. This form provides information about the study. Before you decide if you want to take part, it is important that you understand the purpose of the study, the risks and benefits and what you will be asked to do. You do not have to take part in this study. Taking part is entirely voluntary (your choice). Informed consent starts with the initial contact about the study and continues until the end of the study. A staff member of the research team will be available to answer any questions you have. You may decide not to take part or you may withdraw from the study at any time. This will not affect the care you or your family members will receive from the IWK Health Centre in any way.

Why are the researchers doing the study?

Despite enormous resources spent on research that may add to improving patient care, a huge gap exists between what is known about mental health services that work and what is done in the real world. Within mental health research there are many successes in finding new evidence-based practices, but getting the message out to professionals and ensuring the use of this information remains a challenge. The goal of this research is to use theories of behaviour change to improve the transfer of research into what child and adolescent mental health professionals do everyday to improve the quality of life and outcomes of children, youth and families living with mental illness. This study is a national survey investigating clinician behaviour related to the use of evidence-based practice. The goal of the current study is to develop a better understanding of the possible psychological theories, which might predict pediatric mental health clinician behaviour in the utilization of evidence-based practice.

How will the researchers do the study?

The researchers are recruiting a national sample of psychologists, psychiatrists and social workers who primarily work within child and adolescent outpatient mental health.

Recruitment is occurring through Pediatric health centres, professional and licensing bodies, advertisement in discipline specific publications and word of mouth. Participants will be invited to complete a 30 minute web based questionnaire. It is hoped that the final sample will contain a total of 300 participants, 100 participants from each of the three disciplines recruited for this study.

What will I be asked to do?

You will be asked to complete a 30-minute web based questionnaire related to two specific areas of clinical practice, namely the treatment of ADHD and the utilization of group therapy when clinically appropriate to reduce children and youth's wait for mental health services.

What are the burdens, harms, and potential harms?

There are no known risks to participating in this study. The questionnaire will cause you to reflect on your clinical practice and will cover potentially sensitive information for you. This could cause some emotional discomfort. If so, you may stop participating in the questionnaire at any time.

What are the possible benefits?

Taking part in this study may be of no help to you personally. However, the questionnaire will cause you to reflect on your clinical practice, which some individuals may find helpful. While there are no costs or expenses to participation, each completed questionnaire will result in a $2.00 donation to the Canadian Mental Health Foundation as a token of our thanks for your time.

What alternatives to participation do I have?

This is a voluntary questionnaire to examine the predictors of pediatric mental health clinician behaviour related to the utilization of evidence-based practice. There are no alternatives to the study.

Can I withdraw from the study?

Participation in the study is entirely voluntary (your choice). You may decide not to accept the consent form or you may withdraw from the study at any time. However, since the survey is anonymous, once you begin participation it is not possible to remove the data from the study.

Will the study cost me anything and, if so, how will I be reimbursed?

Participation in this study will not result in any expenses to you.

Are there any conflicts of interest?

There are no conflicts of interest on the part of the researchers and/or the institutions.

How will I be informed of study results?

The results of this study will be posted on the same web page as the study, www.crfh.com/EBP within six months of completion of the study. Please check back in May/June 2009 for results.

How will my privacy be protected?

Any information that is learned about you will be kept private. All data collected is entirely anonymous. There is no ability or plan to link individual email addresses with the questionnaire. You will simply follow a link to a web page and will not be required to enter any identifying information, such as your name, place of employment, or email address.

All study records and data will be stored in a locked filing cabinet on the 8th floor of the IWK Health Centre. The study material will be kept for 5 years after publication of this research as required by the IWK Research Ethics Board. Records may be shown to the IWK Health Centre Research Ethics Board, in the case of an audit.

What if I have study questions or problems?

If you have any questions or concerns following your enrollment, you may directly contact the primary investigator, Debbie Emberly. She may be reached by phone: (902) 470-7097, Monday to Friday between 9am and 5pm or by email: Debbie.Emberly@iwk.nshealth.ca.

What are my Research Rights?

Your signature on this form indicates that you have understood to your satisfaction the information regarding your participation in the study and agree to participate as a subject. In no way does this waive your legal rights nor release the investigator or involved institutions form their legal and professional responsibilities. If you have any questions at any time during or after the study about research in general you may contact the Research Office of the IWK Health Centre at (902) 470-8765, Monday to Friday between 9am and 5pm.

PARTICIPANT CONSENT

If you would like a copy of this consent form please print it now by clicking on the print button within your internet browser. Alternatively, you can send an email request to debbie.emberly@iwk.nshealth.ca to receive an electronic copy of the consent form.

I have read this information and consent form. I understand that I have the right to withdraw from the study at any time without penalty. I have had the opportunity to print

the Information and Consent Form for future reference. By clicking on the continue button below, I freely agree to participate in this research study. By clicking continue, I will also authorize a $2.00 donation to be made to the Canadian Mental Health Foundation. If I choose not to participate I can simply close this internet browser window.