Implementing a Cognitive Behavioral Skills Program for Anxious Youth: A Knowledge Translation Project

by

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Institute of Medical Science
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Abstract

Cognitive Behavioural Therapy (CBT) is an underutilized evidence-based treatment for Anxiety Disorders. Increasing effective knowledge translation and implementation of CBT has significant public health implications. This study sought to increase the use of CBT by providing a 20-week-group-supervision program to Northern Ontario. Therapist measures of CBT knowledge competence were collected pre and post training, and treatment outcome measures were obtained by child and parent report. Clients in Northern Ontario were older (M=11.6 years, Toronto M=10.0 years), were more likely on medication, and more likely to have a comorbid diagnosis than clients from an existing data-set in Toronto, Ontario. The training program was successful in increasing CBT knowledge competence and decreasing client anxiety in both locations, with greater improvements in self-reported anxiety in the Northern Ontario group. Therapist CBT knowledge competence was predictive of client symptom change as reported by parent but not child. Two therapist variables were found to be moderators.
I would like to thank all those who have helped me along the way in developing who I am today. Specifically I would like to thank my husband LeVar Jones and my parents for their constant support. I would like to especially thank my supervisor Dr. Katharina Manassis and mother Dr. Angela Fountain for their extensive help and contributions to this project. As well I would like to thank my thesis committee members Dr. Paul Arnold, Dr. Judith Wiener, and Dr. Alice Charach. Finally, I would like to thank all other collaborators on this project: Behdin Nowrouzi, Dr. Abel Ickowicz, Dr. Sandra Mendlowitz, Dr. Pamela Wilansky-Traynor, Dr. Kathryn Bennett, Dr. Fred Schmidt and Bell Canada for the research funding.
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Chapter 1: Literature Review

Childhood anxiety is one of the most prevalent forms of psychopathology, affecting over 10% of children by age 16 years (Esbjorn, Hoeyer, Dyrborg, Leth, & Kendall, 2010). Further, as reviewed in Compton et al. (2010), untreated childhood anxiety has been associated with depression, substance abuse, and other psychiatric disorders longitudinally. There are two well-researched evidence based treatments (EBT) for childhood anxiety – Cognitive Behavioural Therapy (CBT) and Selective Serotonin Reuptake Inhibitors (SSRI). While CBT and SSRI’s have been found to be equally effective in treating childhood anxiety, CBT has fewer attendant risks (Compton et al., 2010).

Despite its considerable evidence base, CBT is being underutilized in the community for treating anxiety (Kendall, Settipani, & Cummings, 2012). There are many factors that account for this underutilization. These include client variables (e.g. comorbidity, early onset, severity of disorder, socioeconomic status, family and peer support, and stigma), therapist variables (e.g. attitudes and perceptions, training, access to supervision, competence, ability to be flexible, and general therapeutic skills), and organization variables (e.g. cost-effectiveness measures, support of evidence-based treatment, resources, flexibility, theoretical orientation, team morale and openness to change). Nelson and Steele (2007) did a national survey of mental health practitioners to investigate predictors of evidence based treatment use in practice. It was found that practitioners’ training, culture of clinical setting, attitudes toward treatment research and theoretical orientation were significant predictors of EBT use, accounting for 44.3% of the variance. Kendall, Khanna, Edson, Cummings, and Harris (2011) also report that there is a limited number of therapists trained in CBT for childhood anxiety. Such reports indicate a
discrepancy between the research evidence base and clinical practice. Therefore, knowledge translation to improve accessibility is much needed in the area of CBT for childhood anxiety. Knowledge translation in this area is the focus of the present study.

Childhood anxiety and its treatments, knowledge translation of CBT and barriers to it, and the objectives and geographic context of this study will now be reviewed.

1.1 Childhood Anxiety

The Diagnostic and Statistical Manual of the American Psychiatric Association, Fourth Edition Text Revision (DSM-IV-TR) defines anxiety as, “the apprehensive anticipation of future danger or misfortune accompanied by a feeling of dysphoria or somatic symptoms of tension. The focus of anticipated danger may be internal or external” (APA American Psychiatric Association, 2000). The DSM-IV-TR further categorizes anxiety into fourteen disorders – Agoraphobia without History of Panic Disorder, Panic Disorder without Agoraphobia, Panic Disorder with Agoraphobia, Specific Phobias, Social Phobias, Generalized Anxiety Disorder, Separation Anxiety, Obsessive-Compulsive Disorder, Selective Mutism, Acute Stress Disorder, Post-Traumatic Stress Disorder, Anxiety Disorders Due to a General Medical Condition, Substance-Induced Anxiety Disorder, Anxiety Disorder Not Otherwise Specified. Normal development is used as a reference point to describe atypical development and symptoms. In addition, significant symptom-related distress or impairment is needed to make a diagnosis. While the DSM-IV-TR uses a categorical approach to psychological symptoms, a dimensional approach can also be beneficial in identifying at risk groups and those very close to threshold levels (Drabick & Kendall, 2010).
The DSM-V (APA American Psychiatric Association, 2013) has moved towards a more dimensional approach to viewing anxiety disorders providing disorder-specific scales to help capture severity of anxiety disorder and change of severity across time. Ratings are made on behavioural symptoms, cognitive ideation symptoms, and physical symptoms as they relate to each diagnosis. Further, the DSM-V now categorizes anxiety into twelve disorders: (1) Separation Anxiety Disorder, (2) Selective Mutism, (3) Specific Phobia, (4) Social Anxiety Disorder (Social Phobia), (5) Panic Disorder, (6) Panic Disorder Specifier, (7) Agoraphobia, (8) Generalized Anxiety Disorder, (9) Substance/Medication-Induced Anxiety Disorder, (10) Anxiety Disorder Due to Another Medical Condition, (11) Other Specified Anxiety Disorder, and (12) Unspecified Anxiety Disorder. It should be noted that Obsessive Compulsive and Related Disorders as well as Trauma- and Stressor- Related Disorders are no longer considered anxiety disorders in the DSM-V.

Epidemiological studies estimate that 10% of children by age 16 years will have experienced an anxiety disorder, and 29% within a lifetime (Esbjorn et al., 2010). From a developmental perspective, researchers suggest that childhood anxiety increases the risk for adult psychopathology. They argue that when childhood anxiety is left untreated it may lead to a continuation of adult clinical anxiety and/or other adult clinical disorders such as depression and substance abuse (Compton et al., 2010; Kessler et al., 2005; Wittchen, Stein, & Kessler, 1999). Esbjorn et al. (2010) also found that the cost to families when children have clinical levels of anxiety between the ages of 8-18 years is 21 times that of the average child. Therefore successful treatment of those with childhood anxiety should be a major concern of society.
1.1.1 Evidence Based Treatments for Childhood Anxiety

There are two major Evidence-Based Treatments (EBT’s) for childhood anxiety – Selective Serotonin Reuptake Inhibitors (SSRI’s) and Cognitive Behavioural Therapy (CBT). SSRI’s are thought to reduce anxiety by inhibiting the reuptake of serotonin, a regulatory neurotransmitter thought to be deficient in individuals with anxiety disorders. This action increases the amount of serotonin available in the synaptic cleft, ameliorating anxiety. CBT assumes that childhood anxiety is based on an interaction of psychological arousal, cognitive distortions and avoidance behavior. Therefore, CBT addresses each of these domains through corrective psychoeducation, teaching coping skills, restructuring cognitive distortions, and practicing gradual exposure.

Compton et al. (2010) examined the efficacy of Sertraline (an SSRI), CBT, their combination (COMB), and a placebo pill (PBO) in a large randomized controlled trial for children with Separation Anxiety Disorder (SAD), Generalized Anxiety Disorder (GAD) or Social Phobia (SoP). Groups receiving the SSRI alone and CBT alone responded significantly to treatment (defined as a Clinical Global Impression-Improvement score of 1 or 2) in comparison to the control group (SSRI-54.9% and CBT-59.7%). There was no significant difference in treatment response between the SSRI alone and CBT alone groups. However, the combination of treatments was significantly more efficacious (80.7% treatment response) than either the SSRI alone or CBT alone. Although SSRI’s and CBT were both found to be efficacious, the risk of treatment-related adverse events (e.g. nervousness, weakness, fatigue, headaches and insomnia) is higher in SSRI’s (van Apeldoorn et al., 2010). Also, SSRI’s are already widely available in community settings (Blanco, Raza, Schneier, & Liebowitz, 2003) whereas CBT is not (Gunter & Whittal, 2010; Kendall et al., 2012). Thus studies on knowledge translation of CBT are urgently needed. In this study, CBT will be the focus.
1.1.2 Cognitive Behavioural Therapy (CBT) for Childhood Anxiety

Cognitive Behavioural Therapy for childhood anxiety frames anxiety as an interaction between physiological arousal, cognitive distortions and avoidance behaviour. The treatment then addresses each of these areas through psychoeducation about anxiety, somatic management strategies, cognitive restructuring, systematic exposure to avoided situations, and relapse prevention. CBT is known as a structured therapy where the treatment plan as well as each individual session is carefully outlined with specific goals and actions. Homework is also utilized as an integral part in treatment engagement (Lebeau, Davies, Culver, Craske, 2013).

The goal of psychoeducation is to provide clients with a cognitive behavioral understanding of anxiety, and develop the ability to identify anxiety-provoking situations and make a hierarchy of fears. Also, when working with children in this stage of treatment, time is taken to help the client to learn how to identify emotions and bodily cues associated with emotions. Somatic management consists of teaching the client strategies to help him or her relax and lower physiological arousal that occurs when anxious. Cognitive restructuring refers to techniques that aim to help the client replace anxious thoughts with coping thoughts.

Upon mastering these skills, clients are encouraged to engage in gradual controlled exposures, in which they practice techniques while beginning to face each fear. Hedtke, Kendall, and Tiwari (2009) describe the concept of exposure as helping clients collect new data that is not compatible with their current fear structure and thereby creating a new structure. For example, gradual exposure could begin with imagining the feared object or situation while practicing relaxation and cognitive restructuring, and then moving on to facing the fear in real life. The therapist uses
a hierarchy of fears to set up situations that gradually take the client from exposure to less fear-
inducing situations to exposure of more significantly fear-inducing situations, mastering each
fear along the way.

Finally, during the relapse prevention stage of CBT, the therapist works with the client to
identify fear triggers, helpful resources, and ways to maintain success. An action plan is
formulated to allow the client to cope if fears begin to arise again at any point in life. This plan
may include reintroducing exercises learned in therapy or coming in for a refresher session.

1.1.3 Treatment Outcome

CBT has been shown to be an effective mode of treatment for many disorders. Hofmann,
Asnaani, Vonk, Sawyer, and Fang (2012) reviewed 106 meta-analyses examining CBT for
substance use disorders, schizophrenia and other psychotic disorders, anxiety disorders,
somatoform disorders, eating disorders, insomnia, depression, bipolar disorder, personality
disorders, anger and aggression, criminal behaviours, general stress, distress due to medical
conditions, chronic pain and fatigue, distress related to pregnancy issues and female hormonal
conditions. From these CBT was found to be most effective in the treatment of anxiety disorders,
somatoform disorders, bulimia, anger control problems, and general stress. CBT’s use in child
and adolescent populations has also been examined, showing strongest support for use with
internalizing disorders (Hofmann et al., 2012; Reynolds, Wilson, Austin, & Hooper, 2012).
Further, CBT has been shown to have better efficacy for reducing disruptive classroom
behaviours and aggressive/antisocial behaviours than no treatment or treatment as usual,
equivalent efficacy to other psychosocial treatments, and less efficacy than pharmacological
treatments (Hofmann et al., 2012).
The most well-known format for child CBT is the “Coping Cat” program (Kendall & Hedtke, 2006b; Wood, Piacentini, Southam-Gerow, Chu, & Sigman, 2006). The Coping Cat program has been shown efficacious in many randomized control trials across different cultures (Barrett, Dadds, & Rapee, 1996; Treadwell, FlannerySchroeder, & Kendall, 1995) as well as for maintenance of treatment gains (Kendall, 1994; Kendall et al., 1997; Kendall, Safford, Flannery-Schroeder, & Webb, 2004; Kendall & Southam-Gerow, 1996). Further, there is preliminary evidence to support the effective use of adapted versions of Coping Cat for children that also have attention deficit/hyperactivity disorder, physical impairments, selective mutism and autism (Hudson, Krain, & Kendall, 2001; McNally Keehn, Lincoln, Brown, & Chavira, 2013).

The potential for CBT to decrease anxiety symptoms can be affected by multiple variables. These variables can be classified into three categories: client variables, therapist variables and organizational variables. Client variables that contribute to suboptimal treatment outcome include comorbidity (such as a secondary anxiety diagnosis or depressive disorder), early onset, severity of disorder, having Social Phobia, low socioeconomic status, inadequate family and peer support, and stigma (Kendall et al., 2012). Therapist variables moderating outcome include attitudes and perceptions of the therapist, training, access to supervision, competency, ability to be flexible and personalize treatment, and general therapeutic skills (Beidas & Kendall, 2010; Kendall et al., 2012; Nelson & Steele, 2007). Organizational variables that relate to treatment outcome consist of cost-effectiveness measures (whether an organization will provide specific treatment types and training quality for therapists), support of evidence-based treatment, resources, flexibility, theoretical orientation, team morale and openness to change (Beidas & Kendall, 2010; Gunter & Whittal, 2010; Kendall et al., 2012). Each of the above mentioned variables not only affects treatment outcome but also access to treatment. Therefore, these
variables are relevant to the understanding of knowledge translation and to the underutilization of CBT in the community.

1.2 Knowledge Translation

The Canadian Institutes of Health Research (CIHR) define 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. This process takes place within a complex system of interactions between researchers and knowledge users which may vary in intensity, complexity and level of engagement depending on the nature of the research and the findings as well as the needs of the particular knowledge user” (CIHR, 2012).

Weisz (2000) reports that there are still a limited number of therapists formally trained in CBT for childhood anxiety and numerous authors cite insufficient amounts of effective knowledge translation and implementation (Beidas & Kendall, 2010; Gunter & Whittal, 2010; Kendall et al., 2011; Kendall et al., 2012; Manassis et al., 2009). Increasing formal training in CBT and therefore helping to aid in the increase of CBT access for the public has great public health implications. Myhr and Payne (2006) indicate that the cost of providing additional CBT would be off-set by reduced health care use, with better treatment outcome.
Effective knowledge translation strategies have been largely derived from learning models. Three different but complementary models are reviewed. Beidas and Kendall (2010) seek to understand how training models affect the translation of evidence-based practices (EBP) through a systems-contextual perspective. Theirs is considered a broad, holistic approach that emphasizes that an individual works within a system. Therefore, quality of training, organizational supports, therapist variables, and client variables are thought to interact to effectively translate EBP. Provisional evidence from Beidas and Kendall’s (2010) literature review suggests that, when all levels of the systems-contextual model are addressed, therapists reach proficiency levels in competence, adherence, and skill that facilitate effective client change.

Bennett-Levy (2006) presents a cognitive model for training therapists that emphasizes changes in therapists’ information processing and reflection. In Bennett-Levy’s model there are three principal systems at work: declarative, procedural, and reflective (DPR). The declarative system consists of factual information typically learned through didactic teaching, observed learning, supervision, and reading assignments. The procedural system consists of applied skills; and the reflective system consists of metacognitive skills that include observations, interpretations, and evaluations of one’s self in the past, present, and future. Bennett-Levy demonstrates how this model accounts for a new therapist’s progressive learning until he or she becomes an expert. The new therapist begins by relying on the declarative system using didactic learning, modeling, practice, and feedback but further develops clinical expertise through the procedural system. Finally, he or she becomes an expert clinician through the reflective system. The transition to becoming an expert happens when the therapist goes from reflection-on-action (retrospective review of therapeutic interventions) to reflection-in-action (reflection that occurs during therapy sessions).
Other theoretical reviews—such as Milne, Aylott, Fitzpatrick, and Ellis (2008) and Rakovshik and McManus (2010)—emphasize the relationship between trainee changes and methods of instruction. Here it is found that trainees in CBT need supervision that provides not only didactic teaching but also experiential learning methods such as role play, co-therapy, and modeling. Further, Rakovshik and McManus (2010) provide evidence to suggest that, if supervision is removed prior to consolidation of learning, then the learned skills can deteriorate over time. For further information regarding learning models and effective knowledge translation strategies please see Appendix A.

Knowledge translation of CBT for children with anxiety is a complex process. It requires considerable knowledge about anxiety-related best practices, competency in CBT for anxiety, and an understanding of how to apply CBT for anxiety to the developing child (Sburlati, Schniering, Lyneham, & Rapee, 2011).

Having a detailed working knowledge of anxiety is important. Many physicians do not recognize anxiety in presenting clients (Rose et al., 2011). Understanding the symptoms and etiology of anxiety is a critical first step for effective treatment. This understanding is essential for physicians, as they are often the first health professional clients approach when struggling with anxiety. Once a health professional recognizes anxiety he or she must also know what the relevant ‘best practices’ are. As discussed above, SSRI’s and CBT are the most well researched evidence based treatments for anxiety.

Once health professionals recognize anxiety, they need to be competent in CBT for anxiety or be able to refer the client to a competent CBT practitioner. The Roth and Pilling (2008) model outlines therapist competency in CBT for anxiety using five competency domains: (1) Generic
Therapeutic Competencies; (2) Basic CBT Competencies; (3) Specific CBT Techniques; (4) Problem Specific Competencies; and (5) Meta-Competencies. Here, Roth and Pilling (2008) define General Therapeutic Competencies as skills and competencies needed in all psychotherapies. “Basic CBT Competencies” refers to skills needed for CBT structure and understanding, and “Specific CBT Techniques” refer to key skills needed for CBT such as gradual exposure and guided discovery. Problem Specific Competencies are defined as the ability to know which CBT manuals and skills will be most effective for different problems a client faces. Lastly, “Meta-Competencies” refers to the ability to personalize treatment by responding to individual needs while still adhering to the evidence-based CBT structure (Roth & Pilling, 2008).

Finally, health professionals must understand child development in order to adapt and implement CBT in a manner that is sensitive to the child’s developmental level. Children’s developmental level affects their social, cognitive and emotional functioning. Also, family environments play a very significant role in children’s lives, and CBT treatment success has been linked to parent involvement in treatment in pre-adolescent children (Mendlowitz et al., 1999; Sburlati et al., 2011; Stark, Arora, & Funk, 2011). Additionally, there are ethical issues that may arise in treating children that do not arise in CBT with adults. For example, maintaining balance between therapeutic trust/confidentiality and parental involvement, and age at which one can make independent choices.

Sburlati et al. (2011) reworked the Roth and Pilling (2008) model to account for child versus adult differences. They outline three domains of competency: (1) Generic Therapeutic Competencies – practicing professionally, understanding relevant child and adolescent characteristics, building positive relationships, and conducting a thorough assessment; (2) CBT
Competencies – understanding relevant CBT theory and research, devising, implementing and revising a CBT case formulation and treatment plan, collaboratively conducting CBT sessions; and (3) Specific CBT Techniques – managing negative thoughts, changing maladaptive behaviours, managing maladaptive mood and arousal, general skills training, modifying the family environment. The model by Sburlati et al. (2011) differs from that of Roth and Pilling (2008) because it takes into account knowledge of child and adolescent development, family environment and ethics, the ability to take knowledge of child development into consideration during case formulation and treatment planning, the use of Child specific CBT techniques, and the ability to adapt and be flexible in relation to child development and familial factors. Other factors that may be considered when treating children are gender sensitive therapy, making treatment creative and fun to improve client engagement, and structuring sessions effectively to maximize attention and learning (Jungbluth & Shirk, 2009; Manassis, 2009). In summary, knowledge translation of CBT for children with anxiety is a multifaceted, complex process. Each level of translation (client-directed, therapist-directed, and organizational) needs to be addressed. Adding to its complexity are many barriers that exist at each level. These will now be reviewed.

1.2.1 Barriers to Knowledge Translation of CBT for Children with Anxiety

Negative attitudes of therapists towards CBT and research based therapies is a large obstacle to effective knowledge translation (Nelson & Steele, 2007), but Bennett-Levy and Beedie (2006) show increased positive attitudes and self-perception of competence over a 1 year Cognitive Therapy Training Course. Due to the inherent structure of CBT, researchers have created manuals for CBT curriculum and implementation. In these manuals, each session is carefully outlined with instructions for the therapist. For example, one well-known manual for anxiety-focused child CBT is the Coping Cat Manual and workbook (Kendall & Hedtke, 2006a, 2006b).
This curriculum and various site-specific, adapted versions of it have been evaluated in multiple studies showing consistent efficacy (e.g. (Kendall, 1994; Kendall et al., 1997; Khanna & Kendall, 2008; Podell, Mychailyszyn, Edmunds, Puleo, & Kendall, 2010; Suveg, Sood, Comer, & Kendall, 2009).

Although CBT manuals have had great success in research and are clearly helpful in standardizing treatment, they have been criticized for limiting the personalization of treatment (Kendall et al., 2012). To address this issue, Kendall et al. (2012) explain how manuals should be implemented. They advocate employing flexibility as long as the underlying principles of CBT treatment are maintained, such as having session goals, using a CBT perspective, staying action oriented, and using social learning theory. Specific exercises and activities, however, can be modified and individualized to address individual client needs. These researchers believe that the mark of a competent therapist is one who is able to use good clinical judgment to work flexibly within the framework of an evidence based treatment manual.

Another approach to increasing flexibility within treatment is the modular approach to CBT. This approach breaks down CBT into basic modules such as self-calming and cognitive reframing (Chorpita, Taylor, Francis, Moffitt, & Austin, 2004). While this approach to treatment can be effective it does require a high level of expertise and clinical judgment to select, organize and apply the most appropriate modules in a given case (Weisz et al., 2012).

Therapist attitudes about exposure tasks can be particularly problematic in CBT for anxiety (Kendall et al., 2009). Therapists may fear that exposure may be traumatic to the child and detrimental to the therapeutic alliance, and therefore be hesitant to guide their clients through fearful situations (Kendall et al., 2009). These preconceived ideas about exposure are often due
to misinformation. Kendall et al. (2009) studied the effect of exposure tasks on the therapist-client alliance. Alliance was reported by both the client and the therapist independently after every session, and it was found that exposure had no harmful effect on the therapeutic relationship. Also, Hedtke et al. (2009) studied the effects of exposure tasks and characteristics of exposure tasks used in CBT for children with anxiety and found exposure tasks to be one of the more integral parts of effectively treating anxiety disorders. Despite these findings, some therapists fear unpredictable client reactions to exposure, as they may not have been trained to address these challenging reactions (Kendall et al., 2009; Hedtke et al., 2009). This problem underscores a further barrier to knowledge translation of CBT – access to effective training and supervision.

Lack of access to effective therapist training and supervision can impede knowledge translation. CBT training methods have been discussed above, and generally support the inclusion of role-plays, modeling, reflective practice and other forms of experiential learning in addition to didactic teaching (Bennett-Levy, McManus, Westling, & Fennell, 2009). Further, programs that provide ongoing supervision with an expert have been found to result in higher levels of therapist satisfaction and competence than those programs that do not (Bennett-Levy et al., 2009; Herschell, Kolko, Baumann, & Davis, 2010; Rakovshik & McManus, 2010; Sholomskas et al., 2005). Expert supervision is not available in all jurisdictions, however, and is often costly and time consuming. Group supervision, including supervision via tele-health, has the potential to increase training access (Manassis et al., 2009). Although sophisticated training models that include case conceptualization and adoption of fidelity measures may further increase knowledge translation, such training models require even greater time commitments and cost.
Karlin et al. (2010) show how limiting eligibility for therapists in training programs to those that have prior experience and high general competence skills in psychotherapy may be worthwhile, if such experienced, competent trainees are available. They found increased completion and success rates post-training among trainees meeting predefined pre-training competence levels. Consistent with these findings Manassis et al. (2009) found that more experienced therapists reported greater CBT training benefits than less experienced therapists.

Organizational barriers to knowledge translation also exist. Agencies are confronted daily with questions regarding the cost-effectiveness of training therapists in different treatments and of implementing new treatments (Olmstead et al., 2011). An organization’s ability to flexibly support coverage for staff attending training, peer supervision opportunities, funding for training, private therapy space, and other requirements for evidence-based training and practice often determine the success of knowledge translation efforts. Certain organizational mandates can also play a large role in the implementation of new treatments such as CBT. For example, the mandate to see clients on a first come/first serve basis may result in low availability of clients suitable for CBT when a CBT supervision opportunity arises. In summary, being able to reduce the cost of training and treatment without sacrificing their quality is vital if organizations are to implement CBT effectively.

In order to anticipate obstacles to implementing CBT in an organization, it is important to assess potential knowledge translation challenges. Assessment tools such as the Texas Christina University Organizational Readiness for Change (ORC; (Lehman, Greener, & Simpson, 2002), the EBPAS and Attitudes Toward Treatment Manuals (Bartholomew, Joe, Rowan-Szal, & Simpson, 2007) have been developed to identify possible barriers to implementing new programs. These measures have shown positive results, helping leaders identify areas of need so
that they can be proactive in overcoming barriers. Further research in this area is needed, however, particularly regarding measures that are specific to use within children’s mental health organizations.

In summary, effective knowledge translation must address all levels of mental health care. Training programs should educate therapists and organizations in the principles and evidence base of CBT, provide active learning styles, promote flexibility in treatment, and provide support to both the therapist and the organization. Further, knowledge translation should aid organizations in developing their own support system for sustainability of CBT practice, whether through peer supervision, train-the-trainer models, or ongoing consultation with experts. Assessment of obstacles to implementing evidence-based care may be beneficial when taking a proactive approach to knowledge translation.

1.2.2 Knowledge Translation to Rural Northern Ontario

As the present study involves the knowledge translation of child CBT to rural communities in Northern Ontario, it is important to reflect upon challenges specific to this geographic context. Rural communities make up one third of the Canadian population (Pong, 2000) and have their own unique barriers to mental health treatment. Barriers include stigma and privacy concerns, lack of access to services and expertise, transportation difficulties and increased cost for services (Boydell et al., 2006; Hall et al., 2008; Oser, Biebel, Pullen, & Harp, 2011; Pullmann, Van Hooser, Hoffman, & Heflinger, 2009; Robinson et al., 2012; Ryan-Nicholls & Haggarty, 2007). Stigma and privacy concerns often go hand in hand for rural communities due to the small population of many rural communities. Many clients struggle to maintain anonymity when seeking services (Pullmann et al., 2009; Robinson et al., 2012). Also, access to services and expertise is scarce as many communities cannot support fulltime practitioners, and available
practitioners often have to be generalists rather than treatment specialists (Ryan-Nicholls & Haggarty, 2007). Further, with the clients’ increased distance for travel to receive services, commitment to treatment and financial viability of treatment are at risk (Boydell et al., 2006; Hall et al., 2008). In addition, rural cultural norms have traditionally placed a high value on self-sufficiency and independence in comparison to urban culture (Hall et al., 2008; Oser et al., 2011), potentially reducing help-seeking behaviour.

Another difference between urban and rural communities is ethnic composition. Urban centers in Canada are ethnically and culturally diverse due to immigration whereas most rural communities are more homogeneous. Some rural areas such as Northern Ontario are more diverse, with the diversity involving language (English/French) and aboriginal background.

Urban and rural communities also differ in their mental health service organization. In urban communities many services are provided by large training centers such as universities and hospitals. In these settings trainees and therapists have access to experts and high-level training on an on-going basis. In rural communities most services are provided by community practitioners and access to supervision and expert training is sparse.

1.3 Summary

Childhood anxiety is one of the most prevalent forms of psychopathology. Currently, Selective Serotonin Reuptake Inhibitors (SSRIs) and Cognitive Behavioural Therapy (CBT) are the only evidence-based treatments for anxiety, with CBT having the least known risks. CBT has been shown to be efficacious within child and adolescent populations. While CBT has a considerable evidence-base it is still underutilized in the community and there are still a limited number of
therapists formally trained in it. Training programs and implementation must address all levels of mental health care. Increasing effective knowledge translation and implementation of CBT would have great public health implications, with costs being offset by reduced health care costs. To be effective programs should include educating both therapists and organizations in the principles of and evidence for CBT, making use of active learning, encouraging flexibility within treatment, and helping to provide support systems within organizations. Further, areas such as rural Canada should be included. These areas account for one third of Canada’s population and have their own challenges in the treatment of mental illness. Client, therapist, and organizational variables must be researched so knowledge translation to these areas can be adapted appropriately.

1.4 Research Aims and Hypotheses

The need for effective knowledge translation specifically in rural areas of Canada was addressed by providing training in CBT to Northern Ontario mental health agencies. This training was an adapted version of a 20 week group-supervision model used in Manassis et al. (2009). This study and training model addresses key principles of knowledge translation by setting out the following objectives: (1) addressing organizational variables by providing a cost-effective training option through Tele-Psychiatry and helping agencies to implement and support CBT use, (2) addressing therapist variables by providing high quality training through case-based supervision and ease of access to training by use of Tele-Psychiatry, and (3) addressing client variables specific to Northern Ontario, such as integrating aboriginal culture and norms into treatment by adapting the urban training model to include culture-specific components.
To extend findings of CBTs benefits for children with anxiety, paper one, entitled *Implementing Cognitive Behavioural Therapy in Rural-Community versus Urban-Academic Settings* (Chapter 2), will examine child outcome when treated by a therapist participating in supervised training. To address differences in child variables and child treatment outcome between rural-community and urban-academic settings, this paper will also compare a group of anxious children in Northern Ontario with a group in Toronto, Ontario receiving the same CBT treatment for anxiety. This study aims to examine differences in child anxiety symptom change, demographics, and clinical differences between these two groups. It further aims to explore the relationship between demographic and clinical differences and child anxiety symptom change.

Based on previous research (Kendall, 1994; Kendall et al., 1997) it is expected that there will be a significant decrease in child anxiety from pre-treatment to post-treatment across both groups. It is also expected that there will be significant differences in demographics between Northern Ontario children and Toronto children, given the differences between urban versus rural communities and between community practice (seen more in rural communities) and academic practice (primarily in urban communities). Finally, if there are significant clinical and demographic differences between children it is expected that differences in anxiety symptom change will be reduced when these variables are controlled for.

To measure effectiveness of knowledge translation in the second paper, entitled *Translating Cognitive Behavioral Therapy for Anxious Youth to Rural-Community Settings via Telepsychiatry* (see Chapter 3), therapists’ level of knowledge competence for CBT will be examined in relation to child outcome. Therapists’ level of knowledge competence for CBT was chosen as the primary measure of training outcome as it is the foundational first stage of
achieving competence in CBT (Roth & Pilling, 2008; Bennett-Levy, 2006). This paper will explore effects of knowledge competence and training on child outcome.

Based on a pilot study done by Manassis et al. (2009), it is expected that therapists will have a significant improvement in CBT knowledge competence. It is also expected that therapist post-training CBT knowledge competence will be predictive of child change as seen in prior research (Simons et al., 2010). Further it is expected that both child and therapist variables will be moderators to this relationship. This is expected because child demographics and clinical differences such as Social Economic Status and case complexity have been shown to affect treatment response. Difference in therapist pre-training experience and competence is expected to be a moderator of outcome as prior research has shown that high levels of general therapist competence have a significant positive impact on child treatment (Beidas & Kendall, 2010; Siqueland et al., 2000).

In chapter 4, broader implications of these two papers will be discussed by reflecting on clinical implications and on how findings from these two papers will aid in further knowledge translation to rural communities. As well, study limitations are discussed. Conclusions and future research needs will be addressed in the final two chapters.
Chapter 2: Implementing Cognitive Behavioural Therapy in Rural-Community versus Urban-Academic Settings

2.1 Introduction

Over 10% of children are affected by an anxiety disorder by the age of 16 years, and childhood anxiety disorders are often associated with severe concurrent and long term morbidity (Esbjorn et al., 2010). There are two evidence based treatments for childhood anxiety – Selective Serotonin Reuptake Inhibitors (SSRIs) and Cognitive Behavioural Therapy (CBT). Although both of these treatments have substantial research support, CBT has fewer attendant risks (Compton et al., 2010). The most well-known format of CBT for childhood anxiety is the “Coping Cat” program for children and youth (Kendall & Hedtke, 2006b; Wood et al., 2006). This program teaches young clients to recognize their anxiety, reframe their thinking, manage somatic feelings, develop plans and rewards, and then engage in systematic exposure to fearful situations.

There are many factors that can affect the ability of CBT to decrease anxiety symptoms. These factors can be organized into three groups: client factors, therapist factors, and organizational factors. Client factors can be defined as any variable specific to clients and their environment such as demographics and case complexity. Therapist factors can be defined as variables specific to therapists and their attitudes towards treatment such as competency, discipline training area, and perception of CBT. Organizational factors can be defined as variables specific to an organization or agency that might affect CBT such as intake procedures, team morale and flexibility. Client factors and their differences across geographic regions will be the focus of this study.
The present study involves the evaluation of CBT in rural communities of Ontario in comparison to urban-academic Ontario. Therefore differences between these geographic areas will be discussed. Although most anxiety, CBT, and knowledge translation research evaluates populations in an urban context, one third of the Canadian population resides in rural communities (Pong, 2000). Therefore, the applicability of CBT in this population is of significant concern. Rural communities have unique characteristics and challenges for mental health treatment. These include stigma, privacy concerns, lack of access to services and expertise, transportation difficulties and increased cost of service (Boydell et al., 2006; Hall et al., 2008; Oser et al., 2011; Pullmann et al., 2009; Robinson et al., 2012; Ryan-Nicholls & Haggarty, 2007). Other factors that affect rural communities’ amenability to mental health treatment include traditional cultural norms such as self-sufficiency and independence (Hall et al., 2008; Oser et al., 2011). Also, urban and rural communities have different ethnic compositions and types of mental health organization. In Ontario urban communities there is substantial ethnic diversity whereas rural areas are generally more homogeneous, albeit with more Aboriginal representation than in urban areas. As well, urban-academic mental health agencies are often larger training centers that have access to many specialists whereas rural community mental health agencies are usually smaller and have therapists who are less specialized, treating and providing a wide range of services.

The purpose of the current study is to examine child anxiety symptom change within and between urban-academic and rural community participant groups. More specifically, this study will examine differences in child anxiety symptom change and child characteristics (demographics and case complexity) between Northern Ontario children and children seen at the
Anxiety Disorders Clinic, Hospital for Sick Children, Toronto. It is expected that differences in child characteristics will account for any group differences in child anxiety symptom change.

Therapists treating children in Northern Ontario were participating in a 20-week CBT group supervision training offered via Tele-Psychiatry. Therapists treating children at the Hospital for Sick Children were psychiatry residents receiving the same 20-week group supervision training offered to the trainees in Northern Ontario. Although residents received their training face to face rather than via Tele-Psychiatry, prior research has found no difference in efficacy between these training modalities (Manassis et al., 2009).

To examine differences in client variables (demographic and case complexity) and client outcome between children in Northern Ontario and children at Hospital for Sick Children, Toronto there are four research questions: (1) do children show a significant decrease in anxiety symptoms from pre-treatment to post-treatment within the Northern Ontario group and the Toronto group, (2) do children show between-group differences in the change of anxiety symptoms from pre-treatment to post-treatment (i.e., a group by time interaction), (3) are there significant demographic or clinical differences between groups, and (4) are between group differences in anxiety symptom change maintained when controlling for significant demographic or clinical group differences. Based on previous research (Kendall, 1994; Kendall et al., 1997) it is expected that there will be a significant decrease in child anxiety from pre-treatment to post-treatment. It is also hypothesized that there will be significant differences in demographics between Northern Ontario children and children at Hospital for Sick Children, given the differences between urban versus rural communities and between community practice (seen more in rural communities) and academic practice (primarily in urban communities). Finally, if there are significant clinical and demographic differences between children it is expected that
differences in anxiety symptom change will not be maintained when these variables are controlled for.

2.2 Methods

2.2.1 Participants

2.2.1.1 Northern Ontario Group

Once institutional review board approval was obtained at the Hospital for Sick Children, therapists where connected with the Toronto hub of Tele-Psychiatry through their participating agency (10 agencies in total). All therapists came from a variety of child therapy backgrounds, but were predominantly social workers and child and youth counselors. Therapists were required to have at least two years of prior child therapy experience. Each therapist was required to treat at least one anxious child using CBT (Coping Bear – an adapted version of Coping Cat; Kendall & Hedtke, 2006b; Manassis & Mendelwitz, 2008) and bring that case for group-supervision during training sessions. Therapists picked clients from their case-load that had never received CBT before. Although clients had never received CBT, most had received prior mental health treatment. One 20-session group supervision training series was provided per agency, with didactic content based on the book “Cognitive Behavioral Therapy with Children, A Guide for the Community Practitioner.” There were a total of 71 clients, 36 males and 35 females with an average age of 11.75 years, treated in the Northern Ontario group.

2.2.1.2 Toronto Group

This study capitalized on the availability of an existing data set. The Toronto group consisted of 100 anxious children being treated with CBT (Coping Bear – an adapted version of Coping Cat;
Kendall & Hedtke, 2006b; Manassis & Mendlovitz, 2008) by trainees in a Toronto teaching hospital using the same training model as the Northern Ontario group. Thus, therapists received the same 20-sessions of group supervision. Although therapists did not receive the book “Cognitive Behavioral Therapy with Children, A Guide for the Community Practitioner” as it had not yet been published at the time, the training was taught by the author and therefore the same didactic content was received in lecture form. Therapist trainees were all psychiatry residents at The Hospital for Sick Children, Toronto. Clients were referred from a physician and had no prior CBT or other mental health treatment. Of the 100 clients, 54 were males and 46 females with an average age of 10.0 years.

2.2.2 Measures

After providing informed consent (or assent in the case of young children), clients were required to complete pre-treatment and post-treatment questionnaire packages. Packages consisted of both child-specific and parent-specific measures. The child-specific package comprised the Multidimensional Anxiety Scale for Children (March, Parker, Sullivan, Stallings, & Conners, 1997). The parent-specific package comprised a demographic questionnaire (Family & Household Form from the Ontario Child Health Study; (L. Boyle, Offord, & Racine, 1987; M. H. Boyle et al., 1993), a family history form, and the Child Behaviour Checklist for the Northern Ontario group (Achenbach & Rescorla, 2007). In the Toronto group (existing data), the Conners’ Rating Scales-Revised (Conners, 1997) had been collected instead of the Child Behaviour Checklist.

2.2.2.1 Multidimensional Anxiety Scale for Children.

The Multidimensional Anxiety Scale for Children (MASC) was developed by March et al. (1997) to measure severity of child anxiety symptoms from age 8 to 19 years. This measure has
39 items, each rated on a four point Likert scale ranging from “Never true about me” to “Often true about me”. Items on the MASC are categorized into four scales: (1) physical symptoms (tense/restless and somatic/autonomic), (2) social anxiety (humiliation/rejection and public performance fears), (3) harm avoidance (perfectionism and anxious coping), and (4) separation anxiety. There is also a Total Anxiety Scale, Anxiety Disorders Scale and an Inconsistency Index. This measure shows excellent internal reliability (r=.82-.9), satisfactory to excellent test-retest reliability (ICC scores = .785-.933), and adequate convergent and divergent validity (March et al., 1997). Parent child agreement is only fair to poor (child-mother r=.394, p<.051, child-father r=.182, p<.428), but this finding is consistent with other child anxiety measures (Weems, Feaster, Horigian, & Robbins, 2011). The MASC was chosen to measure self-reported anxiety as it has a wide standardized age range and captures anxiety symptoms specifically in comparison to other measurements. Within this study the Total MASC scale will be used to measure self-reported anxiety symptoms in children. This scale was chosen as children in this study represent a diverse population of anxious children and therefore specific subscales would not be representative of the entire population.

2.2.2.2 Achenbach System –Child Behaviour Checklist.

The Achenbach System (Achenbach & Rescorla, 2007) was developed to be an integrative, multi-informant assessment of various syndromes and disorders as described in the Diagnostic Statistical Manual 4th ed. (DSM-IV; (APA American Psychiatric Association, 2000). The Child Behaviour Checklist (CBCL) is a combination of qualitative and quantitative questions. The Qualitative questions require a descriptive response regarding positive behaviours and attributes, and concerns that cannot be captured within quantitative questions. The Quantitative questions consist of 112 items that make up eight empirically based syndrome scales: (1)
Anxious/Depressed, (2) Withdrawn/Depressed, (3) Somatic Complaints, (4) Social Problems, (5) Thought Problems, (6) Attention Problems, (7) Rule-Breaking Behaviour, and (8) Aggressive Behaviour. Subtotal scales for (1) Internalizing Problems, (2) Externalizing Problems, and (3) Total Problems are generated. As well, nine DSM-IV oriented scales exist: (1) Affective Problems, (2) Anxiety Problems, (3) Somatic Problems, (4) Attention Deficit/Hyperactivity Problems, (5) Oppositional Defiant Problems, (6) Conduct Problems, (7) Sluggish Cognitive Tempo, (8) Obsessive-Compulsive Problems, and (9) Post-traumatic Stress Problems. For each item, parents rate their child on a 3 point likert scale with 0 being not true, 1 being somewhat or sometimes true and 2 being very true or often true. The CBCL has very high test-retest reliability (r=.90), high internal consistency (r=.63-.79), and there is empirical support for content validity, criterion-related validity and construct validity (Achenbach & Rescorla, 2007). Within this study the CBCL Syndrome Scale – Anxious/Depressed will be used to measure anxiety. Other subscales will be used to measure comorbid symptomology.

2.2.2.3 Conners’ Parent Rating Scales-Revised (CPRS-R:L)

The Conners’ Rating Scales were developed to be an integrative measure of problem behaviours (Conners, 1997). The parent report form consists of 80-items where parents indicate on a 4 point Likert scale whether a statement is “not true at all”, “just a little true”, “pretty true” and “very much true”. Items make up 14 subscales: (1) Oppositional, (2) Cognitive Problems/Inattention, (3) Hyperactivity, (4) Anxious-Shy, (5) Perfectionism, (6) Social Problems, (7) Psychosomatic, (8) Conner’s Global Index, (9) Restless-Impulsive, (10) Emotional Lability, (11) ADHD Index, (12) DSM-IV Symptoms subscales, (13) DSM-IV Inattentive, and (14) DSM-IV Hyperactive-Impulsive. The CPRS-R:L had moderate to high test-retest reliability across subscales (r=.47-.88), high internal consistency (r=.728-.942), and there is empirical support for content validity,
criterion-related validity and construct validity (Conners, 1997). Within this study the CPRS-R:L Anxious-Shy subscale will be used to measure anxiety. Other subscales will be used to measure comorbid symptomatology.

2.2.3 Data Analysis

Statistical consultation was received from Annie Dupuis, Ph.D., from the Dalla Lana School of Public Health at University of Toronto. All data were checked for normality and outliers. All assumptions of normality were met so no transformations or removal of outliers was needed. In the event of a small number of individual missing items, the mean value for the relevant subscale was imputed, within the valid scoring parameters of the measure (Shrive, Stuart, Quan, & Ghali, 2006). If a larger number of items was missing or entire measures were missing, corrections were not made but potential biases related to these issues are detailed in the discussion.

To determine if children show a significant decrease in anxiety symptoms from pre-treatment to post-treatment, a repeated measures ANOVA was conducted separately for child report and parent report. The group by time interaction effect was used to examine between-group differences in the change of anxiety symptoms from pre-treatment to post-treatment. An ANCOVA controlling for pre-treatment scores was not used as data did not meet the assumption of regression homogeneity. Chi-square tests were used to examine categorical differences in child characteristics between groups, and t-tests were used for continuous measures. To determine whether or not between group differences in anxiety symptom change were maintained when controlling for significant demographical or clinical group differences, these variables were entered as covariates in a repeated measures ANCOVA.
2.3 Results

We predicted that children within the Northern Ontario and Toronto group would show a significant decrease in anxiety symptoms from pre-treatment to post-treatment. Scores for both groups were combined for this analysis. The Toronto comparison was based on existing data, which happened to have a different parent report measure. It is recognized that this is less than ideal as there are some differences between measures. Nevertheless, given this discrepancy, T-scores from each measure were used to allow parent report comparisons. The CBCL – Anxious/Depressed subscale was chosen over the CBCL DSM – Anxious subscale as it more closely resembled the CPRS-R:L Anxious-Shy subscale.

The hypothesis was supported showing a significant decrease in anxiety symptoms from pre-treatment to post-treatment (see Table 1 for means and standard deviations) for both child and parent report: MASC ($F_{(1,128)} = 249.78$, $p<.001$), and CBCL/ CPRS-R:L ($F_{(1,126)} = 37.98$, $p<.001$).

<table>
<thead>
<tr>
<th></th>
<th>Toronto Group</th>
<th>Northern Ontario Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-Treatment</td>
<td>Post-Treatment</td>
</tr>
<tr>
<td></td>
<td>Pre-Treatment</td>
<td>Post-Treatment</td>
</tr>
<tr>
<td>MASC Total</td>
<td>52.53 (N=87)</td>
<td>50.18 (N=87)</td>
</tr>
<tr>
<td>Mean</td>
<td>10.14</td>
<td>13.06</td>
</tr>
<tr>
<td>CBCL/CPRS-R:L</td>
<td>68.31 (N=91)</td>
<td>60.79 (N=91)</td>
</tr>
<tr>
<td>Mean</td>
<td>12.48</td>
<td>12.11</td>
</tr>
</tbody>
</table>

Note. MASC Total and CBCL/CPRS-R:L data are reported in T scores, MASC = Multidimensional Anxiety Scale for Children, CBCL = Children’s Behavioural Checklist and CPRS-R:L = Conners’ Parent Rating Scale – Revised (Long Form).
Next, we examined group differences in the change of anxiety symptoms from pre-treatment to post-treatment. In the repeated measures ANOVAs, a significant group by time interaction was found for child report but not parent report (MASC: \( F_{(1,128)} = 183.44, p < .001 \), CBCL/CPRS-R:L: \( F_{(1,126)} = .473, p > .05 \)). For child report, the Northern Ontario group showed a significantly larger decrease in anxiety symptoms than the Toronto group.

Next, demographic and clinical differences between the Northern Ontario and Toronto group were examined (see Table 2 for means, frequencies and rates). Regarding demographic characteristics, it was found that: (1) the Northern Ontario children were significantly older than the Toronto children (\( t_{(167)} = -5.299, p < .001 \)), (2) The Toronto group had a significantly higher Socioeconomic status as measured by combined parent education level than the Northern Ontario group (\( \chi^2 = 7.490, p < .05 \)); when mother and father scores were compared separately, only mothers’ education level was significantly different between groups (\( \chi^2_{\text{mothers}} = 8.358, p < .05 \), \( \chi^2_{\text{fathers}} = 3.220, p > .05 \)) and, (3) there was no significant difference between the proportion of males and females between groups. Regarding clinical characteristics, it was found that: (1) there were significantly higher rates of children with a non-anxiety related comorbid conditions as reported on the CBCL and CPRS-R:L in Northern Ontario than in the Toronto group (\( \chi^2 = 4.947, p < .05 \)), (2) there were significantly higher rates of children on medication in the Northern Ontario group than in the Toronto group (\( \chi^2 = 15.178, p < .001 \)), (3) there were significantly higher rates of children with a known family history of anxiety in the Toronto group than in the Northern Ontario group (\( \chi^2 = 8.129, p < .01 \)), (4) the Northern Ontario group had significantly higher reports of anxiety symptoms as reported on the MASC at the beginning of treatment than the Toronto group (\( t_{(155)} = -6.427, p < .001 \)), and (5) there were no significant differences in
learning problems or anxiety symptoms at the beginning of treatment as reported on the CBCL and CPRS-R:L anxiety scales.

Table 2

Demographic & Clinical Variable Means & Rates Between Groups

<table>
<thead>
<tr>
<th>Variable</th>
<th>Toronto Group</th>
<th>Northern Ontario Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of children</td>
<td>10.00yrs(^a)</td>
<td>11.75yrs(^b)</td>
</tr>
<tr>
<td>Males</td>
<td>54.0%</td>
<td>50.7%</td>
</tr>
<tr>
<td>Females</td>
<td>46.0%</td>
<td>49.3%</td>
</tr>
<tr>
<td>Mothers with at least some post-secondary education</td>
<td>91.9(^a)%</td>
<td>75.4(^b)%</td>
</tr>
<tr>
<td>Fathers with at least some post-secondary education</td>
<td>87.8%</td>
<td>76.4%</td>
</tr>
<tr>
<td>Rate of children with a non-anxiety comorbid condition</td>
<td>57.0(^a)%</td>
<td>74.6(^b)%</td>
</tr>
<tr>
<td>Rate of children on medication</td>
<td>18.6(^a)%</td>
<td>48.4(^b)%</td>
</tr>
<tr>
<td>Rate of children with known family history of anxiety</td>
<td>83.9(^a)%</td>
<td>63.3(^b)%</td>
</tr>
<tr>
<td>Rate of children with a known learning problem</td>
<td>29.0%</td>
<td>37.1%</td>
</tr>
</tbody>
</table>

Note: Values in the same row and sub-table not sharing the same subscript are significantly different (\(p<.05\)).

Lastly, it was hypothesized that when controlling for demographic and clinical differences, significant group by time interactions would be diminished. The group by time interaction effect did not change much for child report when entering significant group differences (\(F_{(1,97)} = 167.441, p<.001, \eta^2_{\text{partial}}=.633\)), and the interaction remained significant.

2.3.1 Secondary Analyses

Due to differential completion rates for client post-packages by therapists, a secondary analysis was done comparing pre-treatment anxiety symptoms of children as well as pre-training CBT knowledge of therapists between those cases where complete post-packages were provided and those cases where only pre-packages were provided. This was done to examine possible sample bias in analyses that were based only on cases with complete pre- and post-information (for descriptive statistics see Table 3). However, no significant differences were found.
Anxiety symptom change differences were examined by agency for the Northern Ontario group to check for any possible agency differences. No significant differences were found for client anxiety symptom change for child or parent report by agency (MASC: $F_{(7,35)} = .181, p>.05$; CBCL: $F_{(7,29)} = 1.909, p>.05$).

Table 3

<table>
<thead>
<tr>
<th></th>
<th>Completers</th>
<th>Non-Completers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre CQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>14.84 (N=45)</td>
<td>14.00 (N=35)</td>
</tr>
<tr>
<td>SD</td>
<td>3.208</td>
<td>3.208</td>
</tr>
<tr>
<td>Pre CBCL Anx/Dep</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>68.95 (N=38)</td>
<td>71.05 (N=21)</td>
</tr>
<tr>
<td>SD</td>
<td>9.398</td>
<td>11.307</td>
</tr>
<tr>
<td>Pre CBCL DSM Anx</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>68.00 (N=38)</td>
<td>68.29 (N=21)</td>
</tr>
<tr>
<td>SD</td>
<td>8.618</td>
<td>9.317</td>
</tr>
<tr>
<td>Pre MASC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>63.159 (N=44)</td>
<td>66.250 (N=20)</td>
</tr>
<tr>
<td>SD</td>
<td>10.876</td>
<td>12.888</td>
</tr>
<tr>
<td>Co Dx</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>.79 (N=38)</td>
<td>.67 (N=21)</td>
</tr>
<tr>
<td>SD</td>
<td>.413</td>
<td>.483</td>
</tr>
</tbody>
</table>

Note: Pre CQ = Pre-treatment Child CBT Multiple Choice Test Score, Pre CBCL Anx/Dep = Pre-treatment Children’s Behaviour Checklist Anxiety/Depression Scale Score, Pre CBCL DSM Anx = Pre-treatment Children’s Behaviour Checklist DSM Anxiety Scale Score, Pre-treatment Multidimensional Anxiety Scale for Children Total Score, Co Dx = Pre-treatment Non-anxiety Comorbid Diagnosis.

2.4 Discussion

The present study replicates previous findings regarding the benefits of CBT in reducing child anxiety symptoms, and extends them to situations where therapists are trainees under
supervision. All participating therapists had experience in other child therapy modalities, but were actively involved in a 20-week group-supervision training program for CBT. It appears from these findings that CBT can be successful even with new and learning therapists. It should be noted that an integral part of therapists’ training was group supervision by an expert in CBT, who providing oversight and direction for treatment. Therapist benefits from supervision-based training have been previously reported (Manassis et al., 2009), but our study confirms therapeutic effects for children as well.

The current study consisted of two distinctly different geographical and cultural groups: one from an urban-academic center in Toronto and the other from rural community organizations in Northern Ontario. The Northern Ontario children showed a larger decrease in anxiety symptoms than the Toronto group by child report. The Northern Ontario and Toronto group were found to have some demographic and clinical differences that are known to impact treatment success (Kendall et al., 2012). Potentially impacting treatment success, the Northern Ontario children were found to be older on average, be more likely to be on medication, be more likely to have a known non-anxiety comorbid issue, have less reports of known family history of anxiety, have mothers that were less educated and have higher self-reported anxiety symptoms at pre-treatment (Kendall et al., 2012) than those in Toronto. There were also group differences in non-anxiety comorbidity by parent report, but these may have related to the use of different parent report measures in the two groups, with different sensitivity for detecting certain comorbid conditions. Although each of these factors is known to have an effect on treatment outcome, group differences in outcome remained even when controlling for them, with the Northern Ontario group still showing a significantly larger decrease in anxiety symptoms than the Toronto group by child report.
One possible explanation for the Toronto group not showing as large a decrease in anxiety symptoms is the presence of floor effects. When examining child report of anxiety at pre-treatment for the Toronto group, it can be seen that the average T score was not much above the population average. This leaves little room for improvement by child report. In the Toronto group, children are often seen based on parental concerns, demonstrated by higher anxiety symptoms on parent report. By contrast, Northern Ontario children have higher self-reported anxiety symptoms at pre-treatment than the Toronto group. These differences support the possibility of floor effects in Toronto.

In addition, clients in the Toronto and Northern Ontario groups differ in their overall stage of treatment. For most clients in the Toronto group CBT would have been their first course of treatment for mental health problems whereas the Northern Ontario group was selected from therapists’ ongoing caseload. This represents a possible bias, in that children in the Northern Ontario group may have been more aware of their problems than the Toronto children. This difference could account for the Toronto children’s low report of anxiety at treatment onset relative to both their parents’ report and that of the Northern Ontario children.

Secondary analyses were done to rule out agency differences and differential research completion rates between groups as factors contributing to these findings. These analyses confirmed no agency differences for child anxiety symptom change within the Northern Ontario group. There were group differences in rates of completion of research measures, however.

Completion of measures post-treatment was very consistent in Toronto, but less so in Northern Ontario. To determine if cases in Northern Ontario with complete post-treatment data were representative of the whole group, cases with and without complete post-treatment data were
compared on severity of child’s initial anxiety and therapist’s initial level of CBT knowledge competence. No significant differences were found. Although not measured in this study, other possible differences between therapists who provided complete post-treatment data on their cases and those who did not may still present a bias. For example, therapists who were more organized and accustomed to research measures or who felt they were more successful may have been more inclined to hand in their packages than their colleagues. Although this possible bias is a limitation to this study, these challenges are expected when dealing with community sampling, especially at large geographic distances.

The present findings support the success of training therapists and implementing CBT for children with anxiety in rural communities of Northern Ontario. Although treatment was successful, there were a number of client characteristics that differed between our rural community and urban-academic samples. These did not appear to affect outcome, but future research should investigate additional client variables as well as therapist and organizational variables that could moderate treatment success.
Chapter 3: Translating Cognitive Behavioral Therapy for Anxious Youth to Rural-Community Settings via Telepsychiatry

3.1 Introduction

Outcomes for cognitive behavioral therapy (CBT) and other evidence-based psychotherapies have been evaluated extensively, but the research literature on methods of training and disseminating these therapies is relatively sparse (Beidas & Kendall, 2010; Gunter & Whittal, 2010; Kendall et al., 2011; Kendall et al., 2012; Manassis et al., 2009) (Beidas & Kendall, 2010; Gunter & Whittal, 2010; Kendall et al., 2011; Kendall et al., 2012; Manassis et al., 2009). Recent changes in the mandates of governments, mental health agencies, and research associations, however, have sharpened the focus on knowledge translation and evidence-based practices. Therefore, research has started to examine what constitutes effective training for CBT and how to best help trainees implement CBT in real-world conditions of practice when working with clients of various ages who suffer from internalizing disorders.

Knowledge translation of CBT for children with anxiety disorders is a particularly important mental health concern, in that childhood anxiety is a highly prevalent condition associated with a high burden of suffering (Esbjorn et al., 2010), and community access to CBT is limited for affected children (Kendall et al., 2012). Such knowledge translation is a multifaceted process that includes knowledge of anxiety-related best practices, competence in CBT for anxiety, and an understanding of the application of CBT to the developing child (Sburlati et al., 2011). Further knowledge translation and implementation needs to be directed at client, therapist and organizational levels. Each of these levels has its own barriers to translation. Effective training programs educate both the therapist and organization on principles and best practices, use active
learning styles, encourage flexibility within treatment, and establish a support system for both the therapist and the organization (Bennett-Levy et al., 2009; Herschell et al., 2010; Kendall et al., 2012; Rakovshik & McManus, 2010).

Manassis et al. (2009) developed and piloted a 20-session group-supervision training model for treating child anxiety with CBT in an urban setting. There were four groups from different children’s mental health agencies in the Greater Toronto Area that participated. Trainees had diverse child therapy backgrounds. Each trainee selected one case to treat with CBT and follow during training. Treatment was guided by the anxiety-focused CBT manual “Coping Bear” (Manassis & Mendelowitz, 2008), a well-researched local adaptation of Kendall’s “Coping Cat” (Kendall & Hedtke, 2006b). This model’s key objectives were to increase: (1) knowledge of child CBT by offering a didactic component that focused on CBT principles, working with children, appropriate case selection, using CBT manuals, working with parents, introduction to CBT with other childhood disorders, and termination of therapy; (2) confidence in using child CBT by offering case-based supervision; (3) desire to continue doing child CBT by providing ongoing supervision and helping each agency implement and support CBT use; (4) training satisfaction by providing high quality training that addressed barriers such as access to training (by using Tele-Psychiatry and group supervision), trainees’ need to have ongoing support while learning, and by providing both didactic and case-based training; and (5) to explore trainee and organizational barriers through group discussion.

The Manassis et al. (2009) training model was successful in each of the key objectives. A significant increase in knowledge of child CBT was found on a multiple-choice test developed for the study (t = -4.374, p < 0.001). Also, on a self-report five point Likert scale, trainees
reported a high level of confidence in using child CBT (M = 4.47, SD = 0.84), desire to continue doing child CBT (M = 4.55, SD = 0.69) and high satisfaction with training (M = 4.61, SD = 0.35). There was a slightly lower rating on satisfaction of training content (M = 4.40, SD = 0.55) and qualitatively participants reported, “more systematic teaching needed”. Finally, exploratory measures found that older, more experienced therapists reported greater benefit from training than younger therapists, and that trainees at agencies that used a diagnostic screening at the beginning of treatment found it very beneficial in selecting and treating children. In summary, the Manassis et al. (2009) pilot study results were promising but indicated that careful trainee selection, providing trainees with relevant information in a systematic fashion, and diagnostic screening for case selection might be beneficial for future training programs.

The current study will expand upon the Manassis et al. (2009) pilot study and investigate its applicability to a rural community context by offering the same 20-session group-supervision training model for child CBT through Tele-Psychiatry to ten different agencies in Northern Ontario. Moreover, unlike the pilot study, it will measure outcomes by child report and parent report, in addition to therapist report. Training will be the same as in the pilot study with the addition of a small didactic section on how trainees can, in turn, train others (a “train the trainer” module) and consistent use of the resource “CBT with Children: A Guide for Community Practitioners” (Manassis, 2009) to address previous participants’ request for “more systematic teaching”. In addition, it is expected that CBT adaptations to rural community parameters of practice will receive greater emphasis than in the pilot study, as participating agencies in the current study are more remote from Toronto.
The current study aims to examine the efficacy of the 20-session group-supervision training model used in the pilot study when delivered to therapists in Northern Ontario via Tele-Psychiatry. It will look at how effective the training was in increasing therapists’ CBT knowledge competence and in reducing children’s anxiety symptoms. To measure change in CBT knowledge competence, therapist competence in child CBT will be measured pre-training and post-training. Based on the Manassis et al. (2009) pilot study, it is expected that there will be a significant improvement in CBT knowledge competence. Essentially, this analysis will replicate the pilot study (Manassis et al., 2009) findings in a rural community sample, with the addition of child outcome measures.

Secondly, this study will explore the relationship between therapists’ CBT knowledge competence and child outcome. In order to address this aim there are two additional research questions (see Figure 1): (1) Is therapist post-training CBT knowledge competence predictive of change in child anxiety from pre-treatment to post-treatment, and if so; (2) Are differences in client variables (Social Economic Status of clients and Case complexity of child) or therapist variables (number of years of prior experience and pre-training knowledge competence) moderators of this relationship. It is expected that therapist post-training CBT knowledge competence will be predictive of child change as seen in prior research (Simons et al., 2010). It is also expected that both variables mentioned will be moderators to this relationship (see Figure 1). This is expected because client demographics such as Social Economic Status play a role in support or lack of support for treatment. Also, clinical differences of clients are anticipated to be moderators of outcome as higher case complexity presents increased complexity of treatment, affecting treatment response. Difference in therapist pre-training experience and competence is expected to be a moderator of outcome as prior research has shown that high levels of general
therapist competence have a significant positive impact on client treatment (Beidas & Kendall, 2010; Siqueland et al., 2000).

Figure 1. Model of Proposed Relationship Between Therapist Knowledge Competence and Change in Child Anxiety

3.2 Methods

Once institutional review board approval was obtained at the Hospital for Sick Children, agencies connected with the Toronto hub of the Tele-Psychiatry program were contacted regarding participation in this study. Twelve agencies out of thirteen responded and ten agreed to participate. A minimum of four therapists per agency was requested in order to allow for peer support post-training and a maximum of ten to ensure adequate time for therapist participation during training. All therapists came from a variety of child therapy backgrounds, but were predominantly social workers and child and youth counselors. Therapists were required to have at least two years of prior child therapy experience. There were a total of 65 therapists that completed all training and 55 therapists that completed measures for themselves and the
participating child, out of 84 recruited. There were 8 men and 75 women. Therapists had an average of 10.4 years of past child therapy experience. The ten agencies made up the ten different training groups. Using the model described in Manassis et al. (2009), the training occurred weekly for 20 weeks. Each training session was one and a half hours long. Each trainee was required to have a child anxiety CBT case to follow during the 20-week training. Although all trainees had a case, their start dates were staggered with most starting in the second half of training and continuing treatment with their client beyond the completion of training. There were a total of 71 children treated, 36 males and 35 females, with an average age of 11.75 years. Each trainee was provided with two books to read “Keys to Parenting Your Anxious Child” and “CBT with Children: A Guide for the Community Practitioner”. Trainees also received anxiety-focused CBT manuals to use with their child and adolescent clients and standardized guidelines for working with parents in CBT.

3.3 Measures

Based on the research aims of this study, trainees and their clients were required to complete both a pre-training package and post-training package. As well, trainees had to keep detailed notes of each of their client sessions and complete a CBT fidelity checklist (Manassis & Mendlowitz, 2011) after each session. The pre-training package for therapists consisted of a Practitioners Consent Form and a Child CBT Multiple Choice Test (developed for Manassis et al. 2009; see Appendix B). However, practitioners were given the opportunity to discuss their
research participation at the first training session to ensure truly informed consent. The post-training therapist package included the same multiple choice test.

The pre-treatment and post-treatment packages for clients included both child specific and parent-specific measures, and were administered after obtaining informed consent and assent (in the case of younger children) from all participants. The child-specific package comprised the Multidimensional Anxiety Scale for Children (March et al., 1997). The parent-specific package was comprised of a demographic questionnaire (Family & Household Form from the Ontario Child Health Study; (L. Boyle et al., 1987; M. H. Boyle et al., 1993)), a family history form, and the Child Behaviour Checklist (Achenbach & Rescorla, 2007).

3.3.1 Child CBT Multiple Choice Test

The Child CBT Multiple Choice test (CQ) was designed to evaluate trainees’ knowledge of anxiety-focused child CBT. Manassis et al. (2009) developed this measure based on the learning objectives of the 20-week training program used in the pilot study and the CBT content of “Coping Bear”, the anxiety-specific CBT program used. In the pilot study, the CQ demonstrated face validity in this context, and was responsive to training-related changes in therapist knowledge (Manassis et al., 2009). Other psychometric properties await further evaluation. The CQ consists of 20 multiple-choice questions pertaining to childhood anxiety, cognitive behavioral principles, and clinical vignettes illustrating common treatment challenges. Each question has only one correct answer, so scores range from 0 to 20. The CQ can be found in Appendix B.
3.3.2 Multidimensional Anxiety Scale for Children

The Multidimensional Anxiety Scale for Children (MASC) was developed by March et al. (1997) to measure severity of child anxiety symptoms from age 8 to 19 years. This measure has 39 items, each rated on a four point Likert scale ranging from “Never true about me” to “Often true about me”. Items on the MASC are categorized into four scales: (1) physical symptoms (tense/restless and somatic/autonomic), (2) social anxiety (humiliation/rejection and public performance fears), (3) harm avoidance (perfectionism and anxious coping), and (4) separation anxiety. There is also a Total Anxiety Scale, Anxiety Disorders Scale and an Inconsistency Index. This measure shows excellent internal reliability (r=.82-.9), satisfactory to excellent test-retest reliability (ICC scores=.785-.933), and adequate convergent and divergent validity (March et al., 1997). Parent child agreement is only fair to poor (child-mother r=.394, p<.051, child-father r=.182, p<.428), but this finding is consistent with other child anxiety measures (Weems et al., 2011). The MASC was chosen to measure self-reported anxiety as it has a wide standardized age range and captures anxiety symptoms specifically in comparison to other measurements. Within this study the Total MASC scale will be used to measure self-reported anxiety symptoms in children. This scale was chosen as children in this study represent a diverse population of anxious children and therefore specific subscales would not be representative of the entire population.

3.3.3 Achenbach System –Child Behaviour Checklist.

The Achenbach System (Achenbach & Rescorla, 2007) was developed to be an integrative, multi-informant assessment of various syndromes and disorders as described in the Diagnostic Statistical Manual 4th ed. (DSM-IV; (APA American Psychiatric Association, 2000). The Child Behaviour Checklist (CBCL) is a combination of qualitative and quantitative questions. The
Qualitative questions require a descriptive response regarding positive behaviours and attributes, and concerns that cannot be captured within quantitative questions. The Quantitative questions consist of 112 items that make up eight empirically based syndrome scales: (1) Anxious/Depressed, (2) Withdrawn/Depressed, (3) Somatic Complaints, (4) Social Problems, (5) Thought Problems, (6) Attention Problems, (7) Rule-Breaking Behaviour, and (8) Aggressive Behaviour. Subtotal scales for (1) Internalizing Problems, (2) Externalizing Problems, and (3) Total Problems are generated. As well, nine DSM-IV oriented scales: (1) Affective Problems, (2) Anxiety Problems, (3) Somatic Problems, (4) Attention Deficit/Hyperactivity Problems, (5) Oppositional Defiant Problems, (6) Conduct Problems, (7) Sluggish Cognitive Tempo, (8) Obsessive-Compulsive Problems, and (9) Post-traumatic Stress Problems. The CBCL has very high test-retest reliability ($r=.90$), high internal consistency ($r=.63-.79$), and there is empirical support for content validity, criterion-related validity and construct validity (Achenbach & Rescorla, 2007). Within this study the CBCL Syndrome Scale – Anxious/Depressed and CBCL DSM – Anxious Scale will be used to measure anxiety by parent report. Other CBCL subscales will be used to measure comorbid symptomology.

### 3.4 Data Analysis

Statistical consultation was received from Annie Dupuis, Ph.D., from the Dalla Lana School of Public Health at University of Toronto. All data were checked for normality and outliers. All assumptions of normality were met so no transformations or removal of outliers was needed. In the event of a small number of individual missing items, the mean value for the relevant subscale was imputed, within the valid scoring parameters of the measure (Shrive, Stuart, Quan, & Ghali, 2006). If a larger number of items was missing or entire measures were missing, corrections were not made but potential biases related to these issues are detailed in the discussion.
Paired samples t-tests were used to investigate changes in therapist knowledge competence and in child anxiety symptoms (examined separately by child-report and parent-report). Regression analysis was used to examine the relationship between therapist post-training CBT knowledge competence and change in child anxiety from pre-treatment to post-treatment. The predictive variable was post-training knowledge competence as measured by post-CQ scores. Post-CQ scores were used as treatment with clients began in second half of training and continued beyond end of training. Therefore Post-CQ scores would most closely measure CBT Knowledge competence at time of treatment. Dependent variables were change in anxiety symptoms from pre to post-treatment as measured by difference scores on child (MASC Total scores) and parent (CBCL-Anx/Dep and CBCL DSM-Anx) reports.

Where CBT knowledge competence was predictive of change in child anxiety, client variables and therapist variables were explored as potential moderators of this relationship. To explore moderator variables separate regression analysis for each variable was conducted with post CBT knowledge competence, the variable of interest, and their interaction being entered. Significant interaction terms were used to indicate variables that had moderating effects on the relationship. Prior to entering variables, continuous variables were centered by using the difference of the variable and its mean. By centering variables multicollinearity effects are reduced. Indicator variables were used for categorical variables. Client variables of interest that were explored included service agency location (10 agencies, so 10 indicator variables used), socioeconomic status as measured by parent education, pre-treatment MASC total scores, pre-treatment CBCL Anx/Dep scores, pre-treatment CBCL DSM Anx scores, and whether or not the child had a comorbid non-anxiety related diagnosis (this was defined by a T score > 65 on subscales of the CBCL). Therapist variables of interest included years of prior child therapy experience,
percentage of time using CBT in practice, pre CBT knowledge competence, change in CBT knowledge competence, post confidence in CBT, post use of collaboration with colleagues, post use of efficient time and pacing of sessions, post use of eliciting feedback from clients, post use of guided discovery in sessions, post use of homework, and post case conceptualization.

3.5 Results

To examine child anxiety symptom change, paired samples t-tests compared pre and post treatment MASC total scale results, CBCL results for the Anxious/Depressive scale and, CBCL results for the DSM Anxiety scale (See Table 1 for means and standard deviations across time). These results supported our initial hypothesis, showing a significant decrease in child anxiety symptoms pre to post treatment on child and parent reports: MASC Total \((t_{(42)}=17.152, p<.001)\), CBCL Anx/Dep \((t_{(36)}=3.773, p=.001)\) and CBCL DSM Anx \((t_{(36)}=3.061, p<.01)\).

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Means &amp; Standard Deviations Across Time for Child Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-Treatment</td>
</tr>
<tr>
<td>MASC Total</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>63.63(^a) (N=43)</td>
</tr>
<tr>
<td>SD</td>
<td>10.54</td>
</tr>
<tr>
<td>CBCL Anx/Dep</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>69.63(^a) (N=37)</td>
</tr>
<tr>
<td>SD</td>
<td>10.00</td>
</tr>
<tr>
<td>CBCL DSM Anx</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>68.27(^a) (N=37)</td>
</tr>
<tr>
<td>SD</td>
<td>8.840</td>
</tr>
</tbody>
</table>

Note. MASC Total and CBCL data are reported in T scores, MASC = Multidimensional Anxiety Scale for Children. Values in the same row and sub-table not sharing the same subscript are significantly different at least a \(p<.01\).
A significant improvement in therapist CBT knowledge competence was also predicted, as seen in Manassis et al. (2009) pilot study. A paired samples t-test was used to compare test results on the CQ pre and post training (see Table 2 for means and standard deviations across time). The hypothesis was supported showing a significant increase in therapist CBT knowledge competence \( (t_{52}=-4.641, p<.001) \). Since therapists did have fairly high levels of knowledge at the beginning of training and the mean change in scores was only 1.35 the effect size was calculated to determine if significance indicated a meaningful change. There was a meaningful difference, in that the effect size was 0.62.

Secondly, it was thought that therapist post-training CBT knowledge competence would be predictive of change in child anxiety from pre-treatment to post-treatment, and if so then differences in client and therapist variables would be moderators of this relationship. More specifically, the more CBT knowledge the therapist had the more their client’s anxiety symptoms would decrease. Regression analysis results partially supported this hypothesis, with post-training CBT knowledge competence being significantly predictive of anxiety symptom change as measured by the CBCL DSM Anx subscale \( (R^2 = .138; \text{see Table } 3) \), but not for the CBCL Anx/Dep or MASC Total scale scores.

### Table 2

<table>
<thead>
<tr>
<th></th>
<th>Pre-Training</th>
<th>Post-Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>CQ Mean</td>
<td>15.08(^a) (N=53)</td>
<td>16.43(^b) (N=53)</td>
</tr>
<tr>
<td>SD</td>
<td>2.578</td>
<td>3.196</td>
</tr>
</tbody>
</table>

Note. CQ = Child CBT Multiple Choice Test. Values in the same row and sub-table not sharing the same subscript are significantly different at a \( p<.001 \).
Post-training CBT knowledge competence also accounted for a significant amount of variance in anxiety symptom change as measured by the change in CBCL’s DSM anxiety subscale score pre-treatment to post-treatment (see Table 4).

Next, client variables and therapist variables were explored as potential moderators of this relationship. To explore moderator variables, a separate regression analysis for each variable was conducted with post CBT knowledge competence, the variable of interest, and their interaction being entered. Client variables of interest that were explored included service agency location (see Table 4), socioeconomic status as measured by parent education (see Table 5), pre-treatment MASC total scores (see Table 6), pre-treatment CBCL Anx/Dep scores (see Table 7), pre-treatment CBCL DSM Anx scores (see Table 8) and whether or not the child had a comorbid

| Table 3 |
|-----------------|----------|---------|--|--------|
| **Summary of Regression Analysis for Anxiety Symptom change (CBCL DSM Anx)** |
| **Variable**   | **B**    | **SE**  | **β** | **t** |
| Constant       | 5.121    | 1.441   | -3.555*|
| Post-CQ scores | -0.969   | 0.467   | -0.371 | -2.077* |

*Note. Post CQ = Post-training Child CBT Multiple Choice Test Score. R²=.138 *p<.05.

| Table 4 |
|-----------------|----------|---------|--|--------|
| **Summary of Regression Analysis for Anxiety Symptom change (CBCL DSM Anx) & Client Variable - Location** |
| **Variable**   | **B**    | **SE**  | **β** | **t** |
| Constant       | 4.147    | 2.971   | 1.396 |
| Post-CQ scores | -0.032   | 1.057   | -0.012 | -0.031 |
| Location       | 0.170    | 0.502   | 0.062 | 0.339 |
| Post-CQ*Location | -0.174  | 0.178   | -0.397 | -0.982 |

*Note. Post CQ = Post-training Child CBT Multiple Choice Test Score. Location = Agency location. R²=.174 *p<.05.
non-anxiety related diagnosis (this was defined by a T score > 65 on subscales of the CBCL; see Table 9). No client variables of interest were found to be significant moderators.

### Table 5

*Summary of Regression Analysis for Anxiety Symptom change (CBCL DSM Anx) & Client Variable – Socioeconomic Status by Parent Education*

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE</th>
<th>β</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>2.855</td>
<td>3.043</td>
<td>.938</td>
<td></td>
</tr>
<tr>
<td>Post-CQ scores</td>
<td>-.846</td>
<td>.963</td>
<td>-.320</td>
<td>-.879</td>
</tr>
<tr>
<td>SES</td>
<td>3.244</td>
<td>3.516</td>
<td>.171</td>
<td>.922</td>
</tr>
<tr>
<td>Post-CQ*SES</td>
<td>-.258</td>
<td>1.120</td>
<td>-.084</td>
<td>-.231</td>
</tr>
</tbody>
</table>

*Note.* Post CQ = Post-training Child CBT Multiple Choice Test Score. SES = Socioeconomic Status by Parent Education. R²=.176
*p<.05.

### Table 6

*Summary of Regression Analysis for Anxiety Symptom change (CBCL DSM Anx) & Client Variable – Pre Treatment Anxiety Symptoms by Client Report*

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE</th>
<th>β</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>5.155</td>
<td>1.744</td>
<td>2.957*</td>
<td></td>
</tr>
<tr>
<td>Post-CQ scores</td>
<td>-1.026</td>
<td>.555</td>
<td>-.368</td>
<td>-1.849</td>
</tr>
<tr>
<td>MASC Total</td>
<td>-.056</td>
<td>.192</td>
<td>-.058</td>
<td>-.295</td>
</tr>
<tr>
<td>Post-CQ*MASC Total</td>
<td>.014</td>
<td>.086</td>
<td>.033</td>
<td>.166</td>
</tr>
</tbody>
</table>

*Note.* Post CQ = Post-training Child CBT Multiple Choice Test Score. MASC Total = Multidimensional Anxiety Scale for Children Total Score. R²=.144
*p<.05.

### Table 7

*Summary of Regression Analysis for Anxiety Symptom change (CBCL DSM Anx) & Client Variable – Pre Treatment Anxiety Symptoms by Parent Report (CBCL-Anx/Dep)*

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE</th>
<th>β</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>4.915</td>
<td>1.436</td>
<td>3.424*</td>
<td></td>
</tr>
<tr>
<td>Post-CQ scores</td>
<td>-.701</td>
<td>.507</td>
<td>-.268</td>
<td>-1.382</td>
</tr>
<tr>
<td>CBCL-Anx/Dep</td>
<td>.267</td>
<td>.155</td>
<td>.321</td>
<td>1.725</td>
</tr>
<tr>
<td>Post-CQ*CBCL-Anx/Dep</td>
<td>-.011</td>
<td>.041</td>
<td>-.054</td>
<td>-.272</td>
</tr>
</tbody>
</table>

*Note.* Post CQ = Post-training Child CBT Multiple Choice Test Score. CBCL-Anx/Dep = Children’s Behavior Checklist – Anxious/Depressed Scale score. R²=.245
*p<.05.*
Table 8
Summary of Regression Analysis for Anxiety Symptom change (CBCL DSM-Anx) & Client Variable – Pre Treatment Anxiety Symptoms by Parent Report (CBCL DSM-Anx)

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE</th>
<th>( \beta )</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>4.655</td>
<td>1.480</td>
<td>3.146*</td>
<td></td>
</tr>
<tr>
<td>Post-CQ scores</td>
<td>-.799</td>
<td>.507</td>
<td>-.306</td>
<td>-1.575</td>
</tr>
<tr>
<td>CBCL DSM-Anx</td>
<td>.246</td>
<td>.172</td>
<td>.258</td>
<td>1.433</td>
</tr>
<tr>
<td>Post-CQ*CBCL DSM-Anx</td>
<td>-.020</td>
<td>.058</td>
<td>-.065</td>
<td>-3.400</td>
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</tbody>
</table>

Note. Post CQ = Post-training Child CBT Multiple Choice Test Score. CBCL DSM-Anx = Children’s Behavior Checklist Diagnostic Statistical Manual Anxiety Scale score. 
\( R^2 = .207 \)  
*p<.05.

Table 9
Summary of Regression Analysis for Anxiety Symptom change (CBCL DSM-Anx) & Client Variable – Comorbid Non-Anxiety Disorder

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE</th>
<th>( \beta )</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>4.955</td>
<td>3.847</td>
<td>1.288</td>
<td></td>
</tr>
<tr>
<td>Post-CQ scores</td>
<td>-.355</td>
<td>1.392</td>
<td>-.136</td>
<td>-.255</td>
</tr>
<tr>
<td>Comorbid Dx</td>
<td>.063</td>
<td>4.181</td>
<td>.003</td>
<td>.015</td>
</tr>
<tr>
<td>Post-CQ*Comorbid Dx</td>
<td>-.710</td>
<td>1.486</td>
<td>-.252</td>
<td>-.478</td>
</tr>
</tbody>
</table>

Note. Post CQ = Post-training Child CBT Multiple Choice Test Score. Comorbid Dx = Comorbid Non-Anxiety Diagnosis. 
\( R^2 = .146 \)  
*p<.05.

Therapist variables of interest that were explored included years of prior child therapy experience (see Table 10), percentage of time using CBT in practice (see Table 11), pre CBT knowledge competence (see Table 12), change in CBT knowledge competence (see Table 13), post confidence in CBT (see Table 14), post use of collaboration with colleagues (see Table 15), post use of efficient time and pacing of sessions (see Table 16), post use of eliciting feedback from clients (see Table 17), post use of guided discovery in sessions (see Table 18), post use of homework (see Table 19), and post case conceptualization (see Table 20). Significant interactions were found for therapists’ use of collaboration with colleagues and use of eliciting
feedback from clients, which would indicate these variables were moderators of the relationship between post therapist CBT knowledge competence and client symptom change by parent report.

An increase in therapist’s use of collaboration with colleagues and/or eliciting feedback from clients would strengthen the relationship between therapist knowledge competence and client anxiety change by parent report. As well, eliciting feedback from clients and use of guided discovery in sessions were found to have significant main effects.

Table 10
Summary of Regression Analysis for Anxiety Symptom change (CBCL DSM Anx) & Therapist Variable – Prior Child Therapy Experience

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE</th>
<th>β</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>4.595</td>
<td>1.586</td>
<td>2.898*</td>
<td></td>
</tr>
<tr>
<td>Post-CQ scores</td>
<td>-1.366</td>
<td>.539</td>
<td>-.522</td>
<td>-2.534*</td>
</tr>
<tr>
<td>Therapy Exp</td>
<td>.024</td>
<td>.192</td>
<td>.024</td>
<td>.126</td>
</tr>
<tr>
<td>Post-CQ*Therapy</td>
<td>.069</td>
<td>.059</td>
<td>.236</td>
<td>1.157</td>
</tr>
</tbody>
</table>

Note. Post CQ = Post-training Child CBT Multiple Choice Test Score. Therapy Exp = Prior number of years of Therapy Experience. R²=.221
*p<.05.

Table 11
Summary of Regression Analysis for Anxiety Symptom change (CBCL DSM Anx) & Therapist Variable – Post Training Percentage of Time Using CBT

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE</th>
<th>β</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>5.356</td>
<td>1.667</td>
<td>3.214*</td>
<td></td>
</tr>
<tr>
<td>Post-CQ scores</td>
<td>-.826</td>
<td>.568</td>
<td>-.308</td>
<td>-1.456</td>
</tr>
<tr>
<td>%CBT</td>
<td>-.084</td>
<td>.096</td>
<td>-.185</td>
<td>-.868</td>
</tr>
<tr>
<td>Post-CQ*%CBT</td>
<td>-.005</td>
<td>.032</td>
<td>-.035</td>
<td>-.160</td>
</tr>
</tbody>
</table>

Note. Post CQ = Post-training Child CBT Multiple Choice Test Score. %CBT = Post Training Percentage of Time Using CBT. R²=.151
*p<.05.
Table 12

Summary of Regression Analysis for Anxiety Symptom change (CBCL DSM Anx) & Therapist Variable – Pre CBT Knowledge Competence

<table>
<thead>
<tr>
<th>B</th>
<th>SE</th>
<th>β</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>4.118</td>
<td>2.027</td>
<td>2.032</td>
</tr>
<tr>
<td>Post-CQ scores</td>
<td>-1.338</td>
<td>.692</td>
<td>-.511</td>
</tr>
<tr>
<td>Pre-CQ</td>
<td>.531</td>
<td>.786</td>
<td>.178</td>
</tr>
<tr>
<td>Post-CQ*Pre-CQ</td>
<td>.099</td>
<td>.197</td>
<td>.096</td>
</tr>
</tbody>
</table>

*Note*. Post CQ = Post-training Child CBT Multiple Choice Test Score. Pre-CQ = Pre-training Child CBT Multiple Choice Test Score. 
R²=.163
*p<.05.

Table 13

Summary of Regression Analysis for Anxiety Symptom change (CBCL DSM Anx) & Therapist Variable – Change in CBT Knowledge Competence

<table>
<thead>
<tr>
<th>B</th>
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<tbody>
<tr>
<td>Constant</td>
<td>4.339</td>
<td>1.747</td>
<td>2.484*</td>
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<tr>
<td>Post-CQ scores</td>
<td>-.746</td>
<td>.574</td>
<td>-.285</td>
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<tr>
<td>ΔCQ</td>
<td>-.095</td>
<td>.981</td>
<td>-.027</td>
</tr>
<tr>
<td>Post-CQ*ΔCQ</td>
<td>-.163</td>
<td>.181</td>
<td>-.238</td>
</tr>
</tbody>
</table>

*Note*. Post CQ = Post-training Child CBT Multiple Choice Test Score. ΔCQ = Difference score from Pre to Post-training on Child CBT Multiple Choice Test Score. 
R²=.182
*p<.05.

Table 14

Summary of Regression Analysis for Anxiety Symptom change (CBCL DSM Anx) & Therapist Variable – Post Training Confidence Using CBT

<table>
<thead>
<tr>
<th>B</th>
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</thead>
<tbody>
<tr>
<td>Constant</td>
<td>5.131</td>
<td>1.487</td>
<td>3.450*</td>
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<tr>
<td>Post-CQ scores</td>
<td>-.871</td>
<td>.490</td>
<td>-.333</td>
</tr>
<tr>
<td>Post-Conf</td>
<td>-1.828</td>
<td>1.312</td>
<td>-.256</td>
</tr>
<tr>
<td>Post-CQ*Post-Conf</td>
<td>.344</td>
<td>.377</td>
<td>.164</td>
</tr>
</tbody>
</table>

*Note*. Post CQ = Post-training Child CBT Multiple Choice Test Score. Post-Conf = Post Training Confidence of therapist using CBT. 
R²=.229
*p<.05.
### Table 15

**Summary of Regression Analysis for Anxiety Symptom change (CBCL DSM Anx) & Therapist Variable – Post Training Collaboration with Other Colleagues**

<table>
<thead>
<tr>
<th></th>
<th>B</th>
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<th>t</th>
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</thead>
<tbody>
<tr>
<td>Constant</td>
<td>3.956</td>
<td>1.401</td>
<td>-.270</td>
<td>2.824*</td>
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<tr>
<td>Post-CQ scores</td>
<td>-.705</td>
<td>.428</td>
<td>-1.648</td>
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<tr>
<td>Post-Collab</td>
<td>-2.398</td>
<td>1.374</td>
<td>-.288</td>
<td>-1.745</td>
</tr>
<tr>
<td>Post-CQ*Post-Collab</td>
<td>1.459</td>
<td>.536</td>
<td>.420</td>
<td>2.724*</td>
</tr>
</tbody>
</table>

*Note.* Post CQ = Post-training Child CBT Multiple Choice Test Score. Post-Collab = Post training Collaboration with Other Colleagues. R²= .418

*p<.05.

### Table 16

**Summary of Regression Analysis for Anxiety Symptom change (CBCL DSM Anx) & Therapist Variable – Post Training Efficient Use of Time and Pacing of Sessions**

<table>
<thead>
<tr>
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<th>β</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>4.788</td>
<td>1.435</td>
<td>-1.669</td>
<td>-1.904</td>
</tr>
<tr>
<td>Post-CQ scores</td>
<td>-.770</td>
<td>.462</td>
<td>-2.158*</td>
<td></td>
</tr>
<tr>
<td>Post-Time</td>
<td>-1.964</td>
<td>1.031</td>
<td>-2.919*</td>
<td></td>
</tr>
<tr>
<td>Post-CQ*Post-Time</td>
<td>.447</td>
<td>.372</td>
<td>2.963*</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Post CQ = Post-training Child CBT Multiple Choice Test Score. Post-Time = Post Training Efficient Use of Time and Pacing of Sessions. R²= .267

*p<.05.

### Table 17

**Summary of Regression Analysis for Anxiety Symptom change (CBCL DSM Anx) & Therapist Variable – Post Training Use of Eliciting Feedback from Clients**

<table>
<thead>
<tr>
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<th>β</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>5.136</td>
<td>1.252</td>
<td>4.102*</td>
<td></td>
</tr>
<tr>
<td>Post-CQ scores</td>
<td>-.875</td>
<td>.406</td>
<td>-2.158*</td>
<td></td>
</tr>
<tr>
<td>Post-FeedB</td>
<td>-3.387</td>
<td>1.161</td>
<td>-2.919*</td>
<td></td>
</tr>
<tr>
<td>Post-CQ*Post-FeedB</td>
<td>1.283</td>
<td>.433</td>
<td>2.963*</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Post CQ = Post-training Child CBT Multiple Choice Test Score. Post-FeedB = Post Training Use of Eliciting Feedback from Clients. R²= .400

*p<.05.
### Table 18

**Summary of Regression Analysis for Anxiety Symptom change (CBCL DSM Anx) & Therapist Variable – Post Training Use of Guided Discovery in Sessions**

<table>
<thead>
<tr>
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<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>5.565</td>
<td>1.422</td>
<td>-3.915*</td>
<td>3.915*</td>
</tr>
<tr>
<td>Post-CQ scores</td>
<td>-.845</td>
<td>.465</td>
<td>-.324</td>
<td>-1.817</td>
</tr>
<tr>
<td>Post-Guide</td>
<td>-2.586</td>
<td>1.234</td>
<td>-.373</td>
<td>-2.095*</td>
</tr>
<tr>
<td>Post-CQ*Post-Guide</td>
<td>.196</td>
<td>.426</td>
<td>.083</td>
<td>.460</td>
</tr>
</tbody>
</table>

*Note.* Post CQ = Post-training Child CBT Multiple Choice Test Score. Post-Guide = Post Training Use of Guided Discovery in Sessions. 

$R^2=.296$ 

*p<.05.

### Table 19

**Summary of Regression Analysis for Anxiety Symptom change (CBCL DSM Anx) & Therapist Variable – Post Training Use of Homework in Session**

<table>
<thead>
<tr>
<th></th>
<th>B</th>
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<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>5.011</td>
<td>1.465</td>
<td>3.421*</td>
<td>3.421*</td>
</tr>
<tr>
<td>Post-CQ scores</td>
<td>-.793</td>
<td>.470</td>
<td>-.304</td>
<td>-1.688</td>
</tr>
<tr>
<td>Post-Hwk</td>
<td>-2.033</td>
<td>.992</td>
<td>-.360</td>
<td>-2.049</td>
</tr>
<tr>
<td>Post-CQ*Post-Hwk</td>
<td>.479</td>
<td>.358</td>
<td>.228</td>
<td>1.337</td>
</tr>
</tbody>
</table>

*Note.* Post CQ = Post-training Child CBT Multiple Choice Test Score. Post-Conf = Post Training Use of Homework in Session. 

$R^2=.310$ 

*p<.05.

### Table 20

**Summary of Regression Analysis for Anxiety Symptom change (CBCL DSM Anx) & Therapist Variable – Post Training Ability to Conceptualize a CBT Case**

<table>
<thead>
<tr>
<th></th>
<th>B</th>
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<th>β</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>4.438</td>
<td>1.631</td>
<td>2.721*</td>
<td>2.721*</td>
</tr>
<tr>
<td>Post-CQ scores</td>
<td>-.683</td>
<td>.533</td>
<td>-.262</td>
<td>-1.282</td>
</tr>
<tr>
<td>Post-Concept</td>
<td>-1.476</td>
<td>1.522</td>
<td>-.198</td>
<td>-.970</td>
</tr>
<tr>
<td>Post-CQ*Post-Concept</td>
<td>.607</td>
<td>.433</td>
<td>.248</td>
<td>1.403</td>
</tr>
</tbody>
</table>

*Note.* Post CQ = Post-training Child CBT Multiple Choice Test Score. Post-Concept = Post Training Ability to Conceptualize a CBT Case. 

$R^2=.224$ 

*p<.05.*
3.5.1 Secondary Analyses

A secondary analysis was done to examine client symptom change and therapist CBT knowledge competence change by agency location. A repeated measures ANOVA was used looking at the anxiety measure by location interaction and the therapist CBT knowledge competence change by location interaction. No significant differences were found for client report by location (MASC: $F(7,32) = .372, p>.05$) or parent report (CBCL-Anx/Dep: $F(7,25) = 1.695, p>.05$; CBCL DSM-Anx: $F(7,25) = 1.464, p>.05$). No significant differences were found for therapist CBT knowledge competence change by location (CQ: $F(8,43) = .433, p>.05$).

A secondary analysis was also done comparing pre-treatment anxiety symptoms of children as well as pre-training knowledge competence of therapists between those cases where complete post-training packages were provided and those cases where only pre-training packages were provided. This was done to examine possible sample bias in analyses that were based only on cases with complete pre- and post-information (for descriptive statistics see Table 21). However, no significant differences were found.
Table 21

*Means & Standard Deviations between Completers and Non-Completers of Training and Post-Packages*

<table>
<thead>
<tr>
<th></th>
<th>Completers</th>
<th>Non-Completers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre CQ</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>14.84 (N=45)</td>
<td>14.00 (N=35)</td>
<td>14.84 (N=45)</td>
</tr>
<tr>
<td>SD</td>
<td>3.208</td>
<td>3.208</td>
<td>3.208</td>
</tr>
<tr>
<td><strong>Pre CBCL Anx/Dep</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>68.95 (N=38)</td>
<td>71.05 (N=21)</td>
<td>68.95 (N=38)</td>
</tr>
<tr>
<td>SD</td>
<td>9.398</td>
<td>11.307</td>
<td>9.398</td>
</tr>
<tr>
<td><strong>Pre CBCL DSM Anx</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>68.00 (N=38)</td>
<td>68.29 (N=21)</td>
<td>68.00 (N=38)</td>
</tr>
<tr>
<td>SD</td>
<td>8.618</td>
<td>9.317</td>
<td>8.618</td>
</tr>
<tr>
<td><strong>Pre MASC</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>63.159 (N=44)</td>
<td>66.250 (N=20)</td>
<td>63.159 (N=44)</td>
</tr>
<tr>
<td>SD</td>
<td>10.876</td>
<td>12.888</td>
<td>10.876</td>
</tr>
<tr>
<td><strong>Co Dx</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>.79 (N=38)</td>
<td>.67 (N=21)</td>
<td>.79 (N=38)</td>
</tr>
<tr>
<td>SD</td>
<td>.413</td>
<td>.483</td>
<td>.413</td>
</tr>
</tbody>
</table>

Note: Pre CQ = Pre-treatment Child CBT Multiple Choice Test Score, Pre CBCL Anx/Dep = Pre-treatment Children’s Behaviour Checklist Anxiety/Depression Scale Score, Pre CBCL DSM Anx = Pre-treatment Children’s Behaviour Checklist DSM Anxiety Scale Score, Pre-treatment Multidimensional Anxiety Scale for Children Total Score, Co Dx = Pre-treatment Non-anxiety Comorbid Diagnosis.

3.6 Discussion

Knowledge translation of CBT for children with anxiety appears to be efficacious when applied to rural community areas such as Northern Ontario. The present study examined the effects of a 20-week group supervision training model for therapists in rural communities of Northern Ontario via Tele-Psychiatry on therapist CBT knowledge competence and child treatment gains.
Findings support the efficacy of this training program in increasing therapist competence as well as reducing children’s anxiety symptoms as reported by both children and their parents.

Factors such as videoconferencing via Tele-Psychiatry did not seem to hinder training effects. This is an important finding as offering training through the use of such technology provides those in remote areas a cost-effective and easily accessible option. As well, this training model provides trainees with active learning styles, access to experts not available in rural areas, and encourages agency teams to create peer supervision groups to continue to support trainees in their learning after completion of training.

The current study also investigated whether knowledge competence of therapists predicted child anxiety symptom change as seen in past research (Strunk, Brotman, DeRubeis, & Hollon, 2010). In this study, post-training knowledge competence was found to be related to one measure of anxiety change by parent report. More knowledgeable and competent therapists had larger changes in anxiety symptoms of children by parent report. This relationship could be explained by highly competent therapists forming stronger connections with parents than less competent therapists, or perhaps by highly competent therapists placing emphasis on helping parents become attuned to their children’s anxiety symptoms and changes. Emphasis was placed in training on utilizing parent support and engaging parents in the treatment process where possible.

Interestingly, therapist post-training knowledge competence was not related to child reported anxiety symptom change. This finding might relate to non-specific therapeutic effects. Roth and Pilling (2008) as well as Sburlati et al. (2011) describe Generic Therapeutic Competencies that include skills and competencies needed in all forms of psychotherapy such as therapeutic alliance and relationship building. Further, Marker, Comer, Abramova, and Kendall (2013)
found that therapeutic alliance was predictive of change in child anxiety in the latter stages of treatment. Therefore it is possible that elements of the therapeutic relationship that children had with their therapists may have had profound effects on their treatment outcomes, superseding the effects of therapist knowledge competence of CBT for anxiety.

Client and therapist variables were also examined as potential moderators of the relationship between therapist knowledge competence and child anxiety symptom change, as reported previously in Strunk et al. (2010). In the present study, no client variables were found to be moderators. This result is contrary to the findings in Strunk et al. (2010) and Kendall et al. (2012) that comorbidity and severity of disorder can contribute to the decreased efficacy of CBT. This result may be due to only looking at parent report in this study. It is possible that child characteristics are not as salient when parents have a good relationship with their child’s therapist.

Therapist variables were also explored as moderators of the relationship. Only therapists’ post-training use of collaboration with colleagues and use of eliciting feedback from clients were found to be therapist-related moderators. When therapists used collaboration and feedback their level of CBT knowledge became even more predictive of large changes in client symptoms by parent report. As mentioned above, therapists often engage parents in treatment to educate them and help to attune them to their child’s challenges. By collaborating with colleagues to better understand their case and obtaining feedback from the client, therapists would inherently increase their knowledge and understanding of CBT and of their case. In this way, these two moderators may further support the relationship between therapist knowledge competence and client symptom change by parent report. Further, findings from this study showed larger changes
in anxiety symptom change by parent report when therapists used guided discovery techniques and elicited more feedback from clients. These results show that client’s most likely feel more validated and engaged with their therapist when these techniques are used.

This study is limited by modest sample size, and by only measuring CBT knowledge competence based on a questionnaire versus direct observation of therapists’ CBT skill competence. Differences between agencies could also have influenced results. However, when exploring the relationship between child change and specific agency, no significant findings emerged. Also, there were a number of therapists that did not complete training or neglected to submit their post-training packages. This is an unfortunate reality of community based research, particularly at great geographical distances, but it introduced a potential bias. It is possible that only therapists confident in their treatment gains and learning handed in their post-packages. Future research should address these limitations, and further examine barriers to knowledge translation and ways to increase trainee follow through. As well, follow up measurements of knowledge competence for therapists and child treatment gains would be beneficial in examining long-term effects of knowledge translation. Studies of knowledge translation of CBT for disorders other than childhood anxiety are also warranted, particularly for mental health conditions prevalent in rural communities.
Chapter 4: General Discussion

Over one in ten children will be affected by an anxiety disorder by the time they reach 16 years of age (Esbjorn et al., 2010). If left untreated it may lead to a continuation of anxiety throughout adulthood and/or other adult disorders (Compton et al., 2010; Kessler et al., 2005; Wittchen, Stein & Kessler, 1999). One of the most efficacious treatments with the least attendant risks is Cognitive Behavioural Therapy (CBT; Compton et al., 2010). Unfortunately, CBT is still being underutilized and many therapists still are not trained in providing CBT to clients (Weisz, 2000). The current research is an effort to support the increased use of CBT by illustrating the effectiveness of providing a training program to therapists who have never been formally trained in CBT. Rural community areas were targeted, providing a 20-week group supervision model for training in CBT.

Effective knowledge translation is much needed in order to increase awareness and formal training for those in community mental health services and in particular for the effective provision of CBT treatment of anxiety disorders. Knowledge translation as defined by the Canadian Institutes of Health Research (CIHR) and outlined in more detail in Chapter one is, “a dynamic and iterative process that includes synthesis, dissemination, exchange and ethically-sound application of knowledge to improve the health of Canadians” (CHIR, 2012). The current research aimed to expand the research base for knowledge translation of CBT to rural community populations. When considering knowledge translation for the implementation of effective CBT treatment, all levels of treatment delivery including client, therapist, and organization must be addressed.
Rural community areas of Canada pose particular challenges to knowledge translation. In mental health research, treatment and services are often researched utilizing populations and services offered in large training centers and hospitals. This is distinctly different from services and populations in rural communities of Canada that generally receive treatment through community organizations. In rural areas access to supervision and expert training is sparse (Ryan-Nicholls & Haggerty, 2007). Other barriers to knowledge translation and implementation of mental health treatments for rural communities include: stigma and privacy concerns due to inherent small populations, increased distance to travel and therefore increase costs for service (Boydell et al., 2006; Hall et al., 2008; Pullmann et al., 2009; Robinson et al., 2012). Variables specific to these regions must be understood in order to effectively adapt knowledge translation and implementation of CBT.

The following discusses in more detail the overall research and its findings starting with: (1) how the training model in this study addresses barriers to knowledge translation, (2) the effectiveness of supervision based training, (3) the differences between urban-academic and rural community clientele, (4) knowledge translation to therapists in rural communities, (5) effect of therapist CBT knowledge competence on child outcomes, (6) moderators of treatment outcome, and (7) study limitations.

### 4.1 Addressing Barriers to Knowledge Translation

In the current research, an adapted version of a 20 week group-supervision model from Manassis et al. (2009) was implemented. This training model sought to address all key levels of potential knowledge translation barriers by setting out the following goals: (1) address organizational variables by providing a cost-effective training option through the use of Tele-Psychiatry, helping agencies to implement and support CBT use, and helping agencies to maintain the
ongoing fidelity of CBT treatment; (2) address therapist variables by providing high quality training through case-based supervision, and ease of access to training by use of an expert in CBT via Tele-Psychiatry; and (3) address client variables specific to rural communities of Northern Ontario by integrating aboriginal cultures and norms into treatment through inclusion of culture specific components/adaptations.

It is also important to note that by use of outside expert consultation and training via Tele-Psychiatry there is an increase in privacy for clients and therapists in small rural communities. By increasing privacy, Tele-Psychiatry further helps to address rural specific barriers and reduce treatment stigma. Other specific barriers to knowledge translation are addressed through this study’s model of training which uses ongoing supervision and expert training. The training offered in this study consists of 20 weeks which is much longer than the typical two or three day workshops offered to train providers in CBT. The use of treatment manuals also helps to guide learning therapists while they implement CBT for the first time. Ongoing supervision and access to an expert in the field helps to increase therapists’ confidence (Manassis et al., 2009) and additionally allows trainers to guide training therapists through more challenging processes of treatment such as personalizing treatment (Kendall et al., 2012) and designing exposure tasks (Kendall et al., 2009).

As well, research shows that training programs should include active learning and education for therapists and organizations on core principles and research supporting the use of CBT (Beidas & Kendall, 2010). In this study, each week’s session was divided to include both a didactic lesson and case-base discussion. The didactic section of the training program was reserved for educating therapists on the principles and research of CBT while the case-based discussion
allowed for active experiential learning and use of treatment protocols. In summary, the nature of
the training program and its implementation via Telepsychiatry addressed a number of potential
barriers to knowledge translation in this study.

4.2 Supervised Training
In the current study, an adapted version of Kendall and Hedtke (2006a) “Coping Cat” protocol
was used called “Coping Bear” (Manassis & Mendlowitz, 2008). The Coping Cat protocol is a
manual based CBT program that has been shown efficacious in many random control trials and
different cultures (Barrett, Dadds, & Rapee, 1996; Treadwell, Flannery-Schroeder, & Kendall,
1995). There is also significant evidence showing maintenance of treatment gains across time
(Kendall, 1994; Kendall et al., 1997; Kendall, Safford, Flannery-Schroeder, & Webb, 2004;

The current study was successful in replicating the benefits of the CBT “Coping Cat” program
for children with anxiety and extending the findings to those receiving treatment with a
supervised trainee therapist. This finding is important as it shows that supervision-based training
is not only beneficial for the therapist as seen in Manassis et al., (2009), but that clients also
benefit from the therapeutic effects. Therefore, children receiving CBT through a manual based
program are still successful in reducing their anxiety symptoms even with a new, learning
therapist under supervision.

4.3 Urban-Academic Versus Rural-Community Clientele
Clients from Northern Ontario and Toronto, Ontario who were all receiving the same treatment
from a trainee therapist under similar supervision programs were compared. These two samples
of clients and therapists consist of two distinctly different geographic and cultural groups, with
Northern Ontario representing a rural-community group and Toronto an urban-academic group. It was expected that there would be differences in client variables across these populations. Many client variables have been shown to have an effect on treatment outcome (Kendall et al., 2012), and therefore understanding differences in rural communities is essential in adapting treatment for optimal benefit.

This study aimed to explore client variables between urban-academic and rural communities in order to better inform knowledge translation initiatives. Clients in Northern Ontario were found to be older on average, more likely to be on medication, and more likely to have a non-anxiety related comorbid disorder. They also had fewer reports of known family history of anxiety, mothers that were less educated, and higher self-reported anxiety symptoms at pre-treatment. Understanding these client demographic and clinical differences is important when considering knowledge translation and training programs. Knowing how clients differ between rural communities and urban-academic populations, knowledge translation initiatives can target training programs to address population-relevant topics. For example, trainers can discuss medication use in combination with CBT in detail if relevant to that population.

When comparing group differences in anxiety symptom change the Northern Ontario group was found to have larger decreases in anxiety symptoms by child report but not by parent report. Group differences in outcome remained even when controlling for known demographic and clinical differences, with the Northern Ontario group still showing a significantly larger decrease in anxiety symptoms than the Toronto group by child report. Such differences may be due to floor effects and clients’ stage in the overall treatment process when beginning CBT.
4.4 Knowledge Translation to Therapists in Rural Communities

The current study also was successful in translating knowledge of CBT for children with anxiety to therapists in rural areas, as shown by benefits to both children and therapists. More didactic teaching was incorporated into the training model than in Manassis et al. (2009) to address feedback in that study requesting more direct instruction. Therapists’ knowledge base competence was seen to increase significantly in the current study.

One of the key objectives of the training program was to make sure it was affordable, easy to access and provided expert quality training not often seen in rural communities. To do this, videoconferencing technology via Tele-Psychiatry was utilized. Tele-psychiatry opens the doors for expert training to be provided without the expert or the therapist ever leaving their agency facilities. For remote areas and larger agencies this option becomes significantly cheaper as the cost of travel increases. Further, Tele-Psychiatry provides the opportunity for agencies with remote sister sites to link in and form a training group. It is important to note that in this study multiple site locations did not affect client change and that this study replicates Manassis et al.’s (2009) finding that use of this technology did not seem to hinder training effects.

4.5 Effect of Therapist Knowledge Competence on Child Outcomes

With respect to therapist competence in CBT, Roth and Pilling (2008) present a model that outlines five competency domains: (1) Generic Therapeutic Competencies – skills and competencies needed in all psychotherapies, (2) Basic CBT Competencies – skills needed for CBT structure and understanding, (3) Specific CBT Techniques – key skills needed for CBT such as gradual exposure and guided discovery, (4) Problem Specific Competencies – the ability to know which CBT manual and skills will effectively work with different problems, and (5)
Meta-Competencies – ability to personalize and response to individual needs while maintaining fidelity of treatment. Level of knowledge competence measured in this study would therefore fall under the Basic CBT Competencies.

To further understand training effects of knowledge translation the present study investigated the relationship between knowledge competence of CBT and client change in anxiety symptoms. Client change in anxiety symptoms was measured by parent and client report. Interestingly, only parent report of child anxiety change was related to and predicted by knowledge competence of CBT. It is thought that this discrepancy may be due to parents’ perception of therapist competence. In CBT, parent engagement consists of the therapist educating the parent on their child’s anxiety, and helping them to become more attuned to it, and facilitating the child’s use of new coping strategies. If so, then a therapist’s ability to effectively frame the child’s anxiety within the theoretical structure of CBT would be vital. Therefore it is reasonable to see how therapist knowledge competence in CBT might be predictive of parent report of child anxiety symptom change.

In contrast, it is possible that from a child’s perspective one of the other competency domains from Roth and Pilling (2008) not measured in this study may have had more of a profound effect. This supports previous findings of Generic Therapeutic Competencies such as the therapeutic relationship and Meta-Competencies such as personalizing treatment as moderators of CBT treatment outcome (Beidas & Kendall, 2010; Kendall et al., 2012; Nelson & Steele, 2007).

4.6 Moderators of Treatment Outcome
Client variables have been found to be moderators of treatment outcome. Kendall et al. (2012) and Strunk et al. (2010) describe comorbid disorders, severity of symptoms, low socioeconomic
status, inadequate family or peer support and stigma to be related to CBT treatment outcome. In this study, no client variables and two therapist variables were found to be moderators of the relationship between knowledge competence and change in client anxiety symptoms. Findings regarding client variables do not support results in Strunk et al. (2010) and Kendall at al. (2012) showing that comorbid non-anxiety related diagnosis and severity of anxiety can decrease the efficacy of CBT.

Therapists’ post-training use of collaboration with colleagues and eliciting feedback from clients were found to be significant moderators. These moderators support the explanation for the relationship between therapist CBT knowledge competence and parent report of symptom change, but not child report, presented above. Through collaboration with colleagues, therapists’ ability to verbalize and build a theoretical framework for their cases would increase. Thus, parents’ perceptions of therapist competence would increase. Further, by eliciting feedback therapists would be able to understand what parents may or may not be grasping and could incorporate such information into their treatment plan for educating parents.

4.7 Study Limitations
Limitations to the current study include modest sample size and measuring only CBT knowledge competence in therapists. Direct observation of CBT skills or other therapeutic skills were not measured. Therefore this study can only make conclusions based on therapist’s knowledge of CBT and not the other domains of competence (Roth & Pilling, 2008). Although direct observation of CBT skills or other therapeutic skills would be beneficial, these methods do present challenges to participant recruitment and confidentiality.
Clients in the Northern Ontario versus Toronto groups may also have been at different stages of their overall treatment process. This could present a bias for children’s self-awareness of their feelings. Differences between Northern Ontario and Toronto therapists present another limiting factor. Although all therapists underwent the same 20-week group supervision training program, this program was offered at different times and had different trainers. Furthermore, the Toronto group did not receive the training book “Cognitive Behavioral Therapy with Children, A Guide for the Community Practitioner” as it had not been written at the time of training. As well, therapists in Northern Ontario were mostly social workers and therapists from Toronto were mostly psychiatry residents. Differences in practitioners’ disciplines may have presented biases between treatment groups, although these differences are representative of therapists offering treatment in these different geographic areas. Multiple service locations across Northern Ontario also presented training challenges, although this was not found to affect client change.

Further, a number of therapists in Northern Ontario either did not complete training or did not turn in their post-training packages. These events introduce a possible bias. Although completion did not relate to severity of client symptoms or initial therapist CBT knowledge competence, therapists that were more organized and accustomed to research measures or had high confidence of success may have preferentially returned their post-training packages. All of these issues constitute limitations to this study, but they are reflective of the challenges of dealing with community sampling across large geographic distances.

This study also contains some measurement limitations. Parent measures between the Northern Ontario and Toronto groups were different. Although the subscales chosen from the Child Behaviour Checklist (CBCL) and the Conners’ Parent Rating Scales-Revised (CPRS-R:L) were
chosen as the best match for analysis, they still lack comparability. The Anxious/Depressed subscale used from the CBCL taps both anxious and depressive symptoms whereas the Anxious/Shy subscale used on the CPRS-R:L does not include depressive symptoms. Due to the inclusion of depressive symptoms in the CBCL, the Northern Ontario group could represent a diagnostically broader population of children than the Toronto group.

Another challenge present in this study is the lack of standardized measures for therapists’ child CBT knowledge competence. Therefore, this study used a non-standardized test of necessity. Testing moderators individually in study two also posed a risk of increased Type 1 Error. Finally, in study two the train the trainer effect was not evaluated, even though a module focusing on this skill was provided. Such evaluation awaits further study.
Chapter 5: Conclusions

In conclusion, knowledge translation and implementation of CBT for children with anxiety can be effective in rural areas such as Northern Ontario. The current study successfully increased therapists’ knowledge competence for CBT. Treatment outcomes of trainees’ clients were also successful. The results replicate Manassis et al.’s (2009) finding that therapists can benefit from supervision based training in child CBT, and demonstrate additional benefit for clients treated. Further, the use of Tele-Psychiatry to address geographical and cost barriers to knowledge translation did not seem to hinder training.

Rural communities and urban-academic organizations have significantly different clients with respect to demographic and clinical variables. Northern Ontario clients were found to be older on average, more likely to be on medication, and more likely to have a known non-anxiety related comorbid diagnosis than Toronto clients. They also had fewer reports of known family history of anxiety, mothers that were less educated, and higher self-reported levels of anxiety symptoms at beginning of treatment. Although these differences did exist between groups, controlling for these variables did not affect outcome of treatment.

Finally, this study explored the relationship between post-training knowledge competence of therapist and client anxiety symptom change. It was found that post training knowledge competence of therapists was predictive of client anxiety symptom change by parent report but not child report. No client variables were found to be moderators of this relationship but therapist use of collaboration with colleagues and eliciting feedback from clients were found to be significant moderators.
Chapter 6: Future Directions

In the present study, demographic and clinical differences between urban-academic and rural community client populations were explored. Future research and knowledge translation initiatives should continue to look at the effects of further adapting urban-academic training for rural areas to include significant client and therapist differences. Not only would this help in the continued efforts to increase CBT knowledge translation and implementation but it would also be beneficial for rural areas by helping to provide the highest quality training and services possible.

The current study explored the relationship between CBT knowledge competence with client outcome. Here, only one domain of competence was measured. It was found to predict client outcome differently based on parent versus child report. Further research is needed to look at the relationship between different therapist competency domains as described by Roth and Pilling (2008) and client outcome report.

Additionally, this study also explored client and therapist variables as moderators to treatment success. Future research should continue to investigate additional client and therapist variables as well as organizational variables (such as intake procedures, management organization and theoretical orientation of organization) that could moderate treatment success.

Future research could also improve upon some of the methodological problems encountered in the present work. Development and use of a standardized measure for therapist child CBT knowledge competence and increase in overall research design consistency, which were unavoidable in this research, would be beneficial. This study did use a non-standardized test for
measuring therapist child CBT knowledge competence as one has not been developed yet. By developing, formally validating and standardizing and/or formally validating and standardizing the child multiple choice test used in this study research can assure the test is really measuring therapist’s child CBT knowledge competence and make fair comparisons. Overall consistency in research design would also increase rigor of research. Future research should aim to use groups developed specifically for their present research and therefore avoid inconsistencies encountered in use of pre-existing data sets. Consistent parent measures across groups and inclusion of the same resources for trainees across training groups should be established in future research.

Future research is also needed to further examine barriers to knowledge translation and ways to increase trainee follow through. As well, follow up measurements of knowledge competence for therapists and client treatment gains would be beneficial in examining long-term effects of knowledge translation. Studies of knowledge translation of CBT for disorders other than childhood anxiety are also warranted, particularly for mental health conditions prevalent in rural communities.

Finally, this study only examined Northern Ontario’s rural communities. Therefore, future research should look at replicating the present study in other rural areas of Canada as Canada’s geography and culture are vastly different by region.
References


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Appendix A: CHAPTER 2: EFFECTIVE TRAINING METHODS

Abstract

This chapter reviews effective ways of training therapists to competency. Adult learning models from which training methods have been derived are outlined. Methods combining both didactic and active learning styles such as case-based supervision, role-plays and reflection have been found to be most effective. Training competencies specific to the use of Cognitive Behavioral Therapy (CBT) in depression, anxiety, and children are examined. Finally, obstacles to effective training and to sustainable implementation of CBT in non-academic settings are discussed. Attitudes of therapists toward CBT, lack of access to training and supervisors, lack of organizational support for implementation, and therapists’ level of competence can all pose challenges.

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Keywords: psychotherapy training, Cognitive Behavioral Therapy, CBT, therapist competency, knowledge translation, depression treatment, anxiety treatment, train the trainer

Outcomes for cognitive behavioral therapy (CBT) and other evidence-based psychotherapies have been evaluated extensively, but the research literature on methods of training and disseminating these therapies is relatively sparse. Recent changes in the mandates of governments, mental health agencies, and research associations, however, have sharpened the focus on knowledge translation and evidence-based practices. Therefore, research has started to examine what constitutes effective training for CBT and how to best help trainees implement CBT in real-world conditions of practice when working with clients of various ages who suffer
from internalizing disorders. This chapter examines training methods generally, then more specifically in relation to the treatment of anxiety disorders, depression, children and adolescents. It concludes with a review of obstacles to effective training.

Presenting Training Material Using Effective Strategies

Effective strategies for presenting training material have been derived from learning models. Three different but complementary models are reviewed and then linked to specific training methods. Beidas and Kendall (2010) seek to understand how training models affect the translation of evidence-based practices (EBP) through a systems-contextual perspective. Theirs is considered a broad, holistic approach that emphasizes that an individual works within a system and thus quality of training, organizational supports, therapist variables and client variables interact to effectively translate EBP. Provisional evidence from Beidas and Kendall’s (2010) literature review suggests that when all levels of the systems contextual model are addressed, therapists reach proficiency levels in competence, adherence, and skill, which facilitate effective client change.

Bennett-Levy (2006) presents a cognitive model for training therapists that emphasizes changes in therapists’ information processing and reflection. In Bennett-Levy’s (2006) model there are three principal systems at work: declarative, procedural, and reflective (DPR). The declarative system consists of factual information typically learned through didactic teaching, observed learning, supervision and reading assignments. The procedural system consists of applied skills and the reflective system consists of metacognitive skills that include observations, interpretations and evaluations of one’s self in the past, present and future. Bennett-Levy (2006) demonstrates how this model accounts for the progressive learning of a new therapist until he or she becomes an expert. The new therapist begins by relying on the declarative system using didactic learning, modeling, practice and feedback but further develops clinical expertise through the procedural system. Finally, he or she moves into the clinician as a teacher/expert stage through the reflective system. The transition to expert happens when the therapist goes from
reflection-on-action (i.e., retrospective review of therapeutic interventions) to reflection-in-action (i.e., reflection that occurs during therapy sessions).

Other theoretical reviews such as Milne et al. (2008) and Rakovshik and McManus (2010) emphasize the relationship between trainee changes and methods of instruction. Here it is found that trainees in CBT need supervision that provides not only didactic teaching but also experiential learning methods such as role-plays, co-therapy and modeling. Further, Rakovshik and McManus (2010) provide evidence to suggest that if supervision is removed prior to consolidation then the learned skills can deteriorate over time.

Based on these learning models, many types of training have emerged. Bennett-Levy, McManus, Westling and Fennell (2009) examine which training methods are most effective, testing the didactic versus experiential distinction described above. Although this study relies on therapist’s perceptions, it does allow for predictions to be made about the effect of training methods on CBT skills and competency. In this study, 120 therapists were surveyed regarding the effectiveness of 6 popular training methods and 11 different CBT skills. Bennett-Levy and colleagues (2009) found that different methods of learning were perceived to be effective across different CBT skills. Passive training strategies such as reading manuals and books, attending lectures and workshops, and completing non-interactive online training increased declarative knowledge and some conceptual and technical skills. Active training strategies such as role play, reflective practice, self experiential work, graded training and supervision were found to increase therapist and client change, and increase technical, interpersonal, procedural and reflective skills.

Herschell, Kolko, Baumann & Davis (2010) reviewed 55 different studies on training therapists in psychosocial treatments. Their review found that passive training, such as reading and workshops, develop knowledge but are not sufficient to achieving competency as skills learnt through these methods do not reliably persist over time. The addition of skill feedback and short-term consultation/supervision after a workshop was shown to increase both knowledge and skills. In particular clinical supervision and consultation with field experts consistently produced superior training outcomes despite the difficulties with cost and availability that arise. Overall, Herschell and colleagues concluded that multi-component training programs are superior to other (single component) training methods.
With the advent of online training, new hybrid training methods that incorporate both passive and active learning methods have become popular (Dimeff, et al., 2009; Granpeesheh, et al., 2010; Sholomskas & Carroll, 2006; Sholoskas, et al. 2005; Weingardt, 2004; Weingardt, Cucciare, Bellotti & Lai, 2009). For example, Dimeff, et al. (2009) investigated the efficacy of three different training methods for dialectical behavior therapy (DBT): (1) a 20 hour interactive online training (OLT), (2) a two-day instructor led training (ILT), and (3) reading two treatment manuals. These researchers made sure the OLT was interactive and sophisticated, as they felt that variable results in other studies might be due to OLT being presented like a book on a screen. Specifically the OLT included audio and visual presentation as well as a fictional DBT skills group for participants to observe and learn from, expert insights, practical exercises and knowledge quizzes. Participants were evaluated pre- and post- training, and at 90 days follow up regarding knowledge of DBT, satisfaction with training, referencing of materials and clinical performance in role-plays. Dimeff, et al. (2009) found that OLT significantly out-performed both the ILT and manual training methods.

Training duration is a potential factor to be considered when investigating effective training methods. However conclusions on duration are difficult to establish, as the majority of studies do not speak to this topic. Those studies that do specify training duration only specify broad temporal descriptions and vary widely in approach, making them difficult to compare. In Rakovshik & McManus (2010), 37 different training programs are compared but researchers explain a lack of agreement on terminology describing training. For example, they argue that a comparison of a “workshop” that had didactic, interactive, role-play and case discussion to a “workshop” that was strictly didactic would be imprecise. Finally, specifying the nature of competence and its measurement presents its own challenges (see below). Therefore, further research on measuring competence and on the optimal duration of training is needed. Nevertheless, most training studies reviewed above support multi-component programs that include active learning methods as well as didactic teaching.

Training Approaches for Treating Anxiety and Depressive Disorders
Training models in cognitive behavioral therapy (CBT) vary (see previous section), and competencies achieved by trainees are not clearly defined in all studies. Roth and Pilling (2008), however, developed a systematic model of therapist competencies needed to treat anxiety and depression in adult populations using a Delphi technique that draws on sharing and refining of contributions from individual field experts to arrive at a consensus. Roth and Pilling’s model describes five increasingly specific domains of competency: general psychotherapeutic competencies, basic CBT competencies (related to structure and content of CBT), specific CBT techniques, problem-specific competencies, and competencies that allow adaptation to individual client needs while maintaining treatment fidelity (termed meta-competencies). They highlight that meta-competencies generally require the most CBT expertise and experience to achieve, making them the most challenging to impart to trainees.

Studies in anxious and depressed clients generally emphasize treatment methods and client outcomes (chiefly symptomatic improvement, but also client perceptions of therapy in some studies e.g. Hepner et al., 2011). Direct evaluation of therapist competency is not consistently measured, and when measured is usually a side issue to client outcomes rather than representing a separate goal. Training methods in most relevant studies reflect the multi-component approach recommended more broadly in the training literature including a blend of didactic teaching, interactive learning, and supervision. Computer-assisted training that incorporates didactic seminars with skills practice, role plays, and videos of “bad” therapy techniques, and training via tele-health are becoming increasingly popular and participants show positive gains in competence and adherence (Rose et al., 2011; Reese & Gillam, 2001). Individual supervision in particular focused on ongoing refinement of trainee skills based on supervisor input has shown superiority to other training methods in some studies (e.g., Mannix et al., 2006). Further to this Karlin et al. (2010) in work with PTSD therapists found that incorporating collaborative consultation on actual cases in a training program increased therapist competency and helped enhance adoption of therapy into practice. It is, however, more time-consuming than other learning methods. As an alternative, group supervision models have the potential to optimize the use of supervisor time, but have received limited evaluation (Manassis et al., 2009; Newton & Yardley, 2007).
An approach that diverts from the multi-component recommendation is that of training through participation in co-therapy. For example, Hepner and colleagues (2011) trained addiction counselors in depression-focused group CBT using a co-therapy model where an inexperienced therapist conducted a treatment program with an experienced therapist prior to implementing the program independently. They were able to demonstrate trainees’ ability to lead depression-focused CBT groups with high fidelity to treatment protocols without first training in individual CBT methods. This co-therapy option may be a viable addition to other multi-component recommended approaches.

When direct evaluation of therapist competence has been incorporated in studies of CBT, the Cognitive Therapy Scale (Dobson, Shaw & Vallis, 1985) has been the most frequently reported measure of competence. In this measure, expert raters evaluate videotapes of CBT sessions using an 11-item scale. Reliability of ratings increases with the number of raters and number of videotapes rated. Other measures of therapist competence include the Cognitive Formulation Rating Scale, the Cognitive Therapy Awareness Scale, and the CBT Supervision Checklist (Sudak, Beck & Wright, 2003). Nevertheless, there is a paucity of research into standardized measures of therapist competence.

In the depression and anxiety literature, CBT skills and the ability to structure sessions are the aspects of competence that have been regularly linked to therapeutic change (Simons et al., 2010). The literature is not entirely consistent, however, possibly due to difficulty separating the effects of therapist competence from other client and therapist related factors. For example, Trepka and colleagues (2004) found that the relationship between competence and depression outcome was no longer significant when controlling for therapeutic alliance and Strunk and colleagues (2010) found that the relationship between therapist competence and depressive symptom change was moderated by client factors, with client anxiety, early onset of depression, and chronic course predicting lower levels of change. Kuyken and Tsivrikos (2009), however, found that high therapist competence was associated with improved depression outcomes regardless of clients’ comorbid diagnoses. Therapist factors such as positive therapist attitudes towards empirically supported treatments resulted in better implementation of depression-focused CBT in community settings (Lewis and Simons, 2011) and previous cognitive therapy
experience and careful case selection was linked to therapist competence in a sample of 20 postgraduate trainees working with depressed clients (James et al., 2001).

The anxiety and depressive disorders each pose unique challenges to training due to the nature of the disorders themselves. Trainees need to acquire knowledge and experience related to internalizing psychopathology (see chapter 8). Within the training context some difficulties may arise from the multiple explanations for a single behavior that can occur in anxiety and depression. For example, inconsistent attendance at appointments can occur for different reasons: depressive clients may be fatigued and hopeless about the possibility of improvement; anxious clients may wish to avoid the exposure to anxious situations that is integral to therapy. Helping trainees consider multiple alternatives and explanations is likely crucial to effective training. Similarly, the psychological treatment of mood disorders is more regularly combined with medication than the psychological treatment of anxiety disorders in youth (Treatment for Adolescents with Depression Study Team, 2004). Familiarity with psychotropic medications and regular communication with the prescribing physician is therefore essential to the successful treatment of depressed clients, but not always to the treatment of anxious clients.

The nature of the skills required to treat anxiety and depression may be challenging for novice therapists. For example, encouraging client exposure to feared situations causes discomfort in many training therapists, and can thus be a potential barrier to dissemination of CBT (further described below in the section on obstacles to competent practices). Harned and colleagues (2011) investigated a solution to this potential barrier by comparing the use of an interactive, online CBT training program with and without motivational interviewing. They found that both groups of training therapists gained knowledge, but the group receiving motivational interviewing developed more positive attitudes towards exposure, suggesting that motivational interviewing may aid dissemination through improved therapist attitude.
Competence in CBT with anxious or depressed children and adolescents presupposes an understanding of children’s social, cognitive, and emotional development and an appreciation of the impact of environmental factors on children’s well-being, as these are relatively more salient in child than adult care (see chapter 5). As outlined in the introduction to this book, a more sophisticated understanding of competencies needed for child and adolescent CBT has been published by Sburlati and colleagues (2011). Ideally, a therapist will flexibly and skillfully integrate these various competencies to tailor CBT to the needs of each child or adolescent treated (see chapter 10 for detailed discussion). In addition competence in child CBT generally entails the ability to effectively engage and collaborate with the client’s parents. CBT protocols vary in the extent of parental involvement in therapy, but all are predicated on some parental engagement, at minimum enough for parents to bring the child to sessions consistently (see chapter 6). Research into the effectiveness of training programs targeting those who work with children and adolescents is lacking. Logically however successful training programs need to incorporate a large variety of case examples that not only vary the presenting problem but the developmental and environmental variations that naturally occur within each age group.

Therapists training in child and adolescent CBT often find themselves in a larger variety of settings than those training to treat adults. CBT with youth is not limited to the health care sector, as schools and social service agencies provide psychotherapy as well. School- and community-based CBT training programs are among the best evaluated. ACTION is a gender-sensitive CBT program for depressed youth, originally developed based on studies of depression in early teen girls (Stark et al., 2007). It now contains separate workbooks for each gender (20 sessions), as well as gender-specific parent workbooks (8 sessions). Weisz and colleagues (2009) trained community clinic therapists in this program with 6 hours of teaching followed by weekly supervision, and compared its effectiveness to treatment as usual. Both groups of adolescents improved symptomatically, but CBT-treated youth required fewer sessions and fewer additional services than those receiving treatment as usual. The program is currently being adapted for use by school psychologists (Stark et al., 2011).

Manassis and colleagues (2009) also focused on community mental health providers in their child-focused training program to disseminate CBT for children with anxiety disorders. Training consisted of a 20-session group supervision model that included some didactic teaching, either
face to face or by videoconference. Trainees showed increased knowledge of child CBT and increased confidence in their ability to do child CBT post-training. Experienced therapists and therapists working in agencies that used a diagnostic screen at intake (increasing the chances of working with children suitable for CBT) reported the greatest confidence.

The most extensive investigation into training in child CBT has been undertaken by Barrett and colleagues in their dissemination of the FRIENDS program for child anxiety (2006). Largely a prevention program, FRIENDS is a group CBT intended for use as a universal intervention for all students in a classroom that can be conducted by teachers or qualified mental health staff. A single day of group training is required, and implementation occurs via manuals specific to various age groups. In several randomized trials, high risk students (i.e. those scoring above clinical cut-off for anxiety or depression on standardized measures) showed greater symptomatic improvements following intervention, with some maintenance of gains up to 36 months post-intervention (Barrett et al., 2006). Moreover, benefits were evident regardless of whether psychologists or teachers led the CBT groups.

In summary, although studies that formally evaluate therapist competence are lacking in the child CBT training literature, there is accumulating evidence that community- and school-based practitioners can learn and successfully implement this therapeutic modality.

Common Obstacles to Training Therapists & Potential Solutions

Knowledge translation of CBT is a multifaceted, complex process. Each level of translation (client-directed, therapist-directed, and organizational) needs to be addressed. Adding to its complexity are many barriers that exist at each level. Barriers that relate to knowledge translation of CBT can include attitudes of therapists toward CBT and research based therapies, lack of access to training and supervisors, lack of organizational support for implementation, and therapists’ level of competence.
Attitudes of therapists towards CBT and research based therapies in general has been identified as a large obstacle to effective knowledge translation (Nelson & Steele, 2007). Training, however, appears to effectively improve these attitudes. For example Bennett and Beedie (2007) show increased positive attitudes and self-perception of competence over a 1 year Cognitive Therapy Training Course. An empirical approach to training (i.e., inviting trainees to observe and comment upon their training experience) has also been linked to improved attitudes towards CBT (Sudak, Beck, and Wright, 2003).

Due to the inherent structure of CBT, manuals are considered critical to implementation. In these manuals, each session is carefully outlined with instructions for the therapist. For example, one well-known manual for anxiety-focused child CBT is the Coping Cat Manual and workbook (Kendall & Hedtke, 2006a/2006b). This program and various site-specific, adapted versions of it have been evaluated in multiple studies showing consistent efficacy (e.g. Compton et al., 2004, Kendall, 1994; Kendall et al., 1997; Khanna & Kendall, 2008; Podell et al., 2010; Suveg, Sood, Comer & Kendall, 2009). Although CBT manuals have had great success in research and are clearly helpful in standardizing treatment, they have been criticized by therapists in routine clinical settings for limiting the personalization of treatment and the ability of the therapist to respond to client needs. To address this issue, Kendall, Settipani & Cummings (2012) explain how manuals should be implemented. They advocate employing flexibility as long as the underlying principles of CBT treatment are maintained, such as having session goals, using a CBT perspective, staying action oriented, and using social learning theory. Specific exercises and activities, however, can be modified and individualized to address individual client needs. These researchers believe that the mark of a competent therapist is one who is able to use good clinical judgment to work flexibly within the framework of an evidence based treatment manual.

Another approach to increasing flexibility within treatment manuals is the modular approach to CBT. This approach breaks down CBT into basic modules such as self-calming and cognitive reframing (Chorpita, 2004). While this approach to treatment can be effective it does require a high level of expertise and clinical judgment to select, organize and apply the most appropriate modules in a given case (Weisz et al., 2012) and consequently may be more appropriate for experienced clinicians and/or may require specialized training.
As mentioned above, therapist attitudes about specific techniques such as exposure tasks can be particularly problematic in CBT. Therapists may fear that exposure may be traumatic to the child and detrimental to the therapeutic alliance, and therefore be hesitant to guide their clients through fearful situations. These preconceived ideas about exposure are often due to misinformation. Kendall et. al. (2009) studied the effect of exposure tasks on the therapist-client alliance. Alliance was reported by both the client and the therapist independently after every session, and it was found that exposure had no harmful effect on the therapeutic relationship. Also, Hedtke, Kendal & Tiwari (2009) studied the effects of exposure tasks and characteristics of exposure tasks used in CBT for children with anxiety and found exposure tasks to be one of the more integral parts of effectively treating anxiety disorders. Despite these findings, some therapists fear unpredictable client reactions to exposure, as they may not have been trained to address these challenging reactions. This problem underscores a further barrier to knowledge translation of CBT – access to effective training and supervision.

Lack of access to effective therapist training and supervision can impede knowledge translation. CBT training methods have been discussed above, and generally support the inclusion of role-plays, modeling, reflective practice and other forms of experiential learning in addition to didactic teaching (Bennett-Levy, McManus, Westling, & Fennell, 2009). Further, programs that provide ongoing supervision with an expert have been found to result in higher levels of therapist satisfaction and competence than those that do not (Bennett-Levy, McManus, Westling, & Fennell, 2009; Herschell, Kolk, Baumann & Davis 2010; Rakovshik & McManus 2010; Sholomkas, Syacuse-Siewert, Rounaville, Ball, Nuro & Carroll, 2005). Expert supervision is not available in all jurisdictions, however, and is often costly and time consuming. Group supervision, including supervision via tele-health, has the potential to increase training access (Manassisi et al., 2009). Although sophisticated training models that include case conceptualization and adoption of fidelity measures may further increase knowledge translation, such training models require even greater time commitments and cost.

Karlin et al. (2010) show how limiting eligibility for therapists in training programs to those that have prior experience and high general competence skills in psychotherapy may be worthwhile, if such experienced, competent trainees are available. They found increased completion and success rates post-training among trainees meeting predefined competence levels pre-training.
Consistent with these findings, Manassis and colleagues (2009) found that more experienced therapists reported greater CBT training benefits than less experienced therapists.

Organizational barriers to knowledge translation also exist. Agencies are confronted daily with questions regarding the cost-effectiveness of training therapists in different treatments and of implementing new treatments. An organization’s ability to flexibly support coverage for staff attending training, peer supervision opportunities, funding for training, private therapy space, and other requirements for evidence-based training and practice often determines the success of knowledge translation efforts there. Certain organizational mandates can also play a large role in the implementation of new treatments such as CBT. For example, the mandate to see clients on a first come/first serve basis may result in low availability of clients suitable for CBT when a CBT supervision opportunity arises. In summary, being able to reduce the cost of training and treatment without sacrificing their quality is vital if organizations are to implement CBT effectively.

In order to anticipate obstacles to implementing CBT in an organization, it is important to assess potential knowledge translation challenges. Assessment tools such as the Texas Christina University Organizational Readiness for Change (ORC; Lehman et al., 2002), the EBPAS and Attitudes Toward Treatment Manuals (Bartholomew et al., 2007) have been developed to identify possible barriers to implementing new programs. These measures have shown positive results, helping leaders identify areas of need so that they can be proactive in overcoming barriers. Further research in this area is needed, however, particularly regarding measures that are specific to use within children’s mental health organizations.

In conclusion, effective knowledge translation must address all levels of mental health care. Training programs should educate therapists and organizations in the principles and evidence base of CBT, provide active learning styles, promote flexibility in treatment, and provide support to both the therapist and the organization. Further, knowledge translation should aid organizations in developing their own support system for sustainability of CBT practice, whether through peer supervision, train-the-trainer models, or ongoing consultation with experts. Assessment of obstacles to implementing evidence-based care may be beneficial when taking a proactive approach to knowledge translation.
References


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Biographical Note

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Emily Jones is a student in the Master’s of Medical Science program at University of Toronto and a research student at the Hospital for Sick Children in Toronto. She completed her Bachelor of Science in Psychology at Trent University. Emily is an experienced child and youth therapist and Director of Summer Youth Camp at Dr. Fountain’s in Oshawa, a day treatment camp for children with mental health issues.

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Dr. Manassis is a child psychiatrist and Senior Associate Scientist at the Hospital for Sick Children in Toronto. She is a Professor of Psychiatry and a member of the Ontario Institute for Studies in Education at the University of Toronto. Dr. Manassis has published over 70 papers in the fields of childhood anxiety disorders and cognitive behavioral therapy. She has authored books for parents of anxious children, and for professionals treating these children.
Appendix B: Child CBT Multiple Choice Test

A girl in Grade 2 has not yet spoken in class by October, after normal class participation in SK & Grade 1. You:

a) Suggest the teacher ask her specific questions with one-word answers
b) Investigate for possible trauma/abuse
c) Suggest the teacher ask her open-ended questions
d) Do not intervene

A 8 yr. boy who hyperventilates every morning Mon-Fri is unlikely to have:

a) Social Phobia
b) Generalized Anxiety Disorder
c) Panic Disorder
d) Separation Anxiety Disorder

Behavioral Inhibition:

- a) Is associated with higher rates of social phobia in adolescence
- b) Is associated with high parasympathetic arousal
- c) Is a permanent aspect of personality
- d) Is completely independent of attachment classification

Who has the better prognosis?

Child A:
- Two anxiety disorders
  - Onset age 9
  - Now age 11
  - Supportive family
  - Mild impairment

Child B:
- One anxiety disorder + depression
  - Onset age 7
  - Now age 11
  - Supportive family
  - Moderate impairment

When assessing child anxiety:

- a) You only need to interview the child
- b) Children with the same diagnosis all benefit from the same treatment
- c) Change over time is easy to detect
- d) All of the above
- e) All of the above are false

Behavioral strategies require more emphasis if:

- a) The child is young
- b) The child is cognitively impaired
- c) The child is high functioning
- d) All of the above
- e) Only a) and b)
Poor candidates for group CBT include:
- a) Children with disruptive behavior
- b) Children with superior intelligence
- c) Children with severe social anxiety
- d) All of the above
- e) Only a) and c)

The order of steps in cognitive restructuring (from 1 to 5) is:
- Re-rating negative affect
- Identifying negative affect
- Modifying maladaptive thoughts
- Self-reward
- Identifying maladaptive thoughts

A girl in Grade 2 has never spoken out loud in class. She occasionally whispers to peers. You:

- a) Suggest the teacher ask her specific questions with one-word answers
- b) Investigate for possible trauma/abuse
- c) Suggest the teacher ask her open-ended questions
- d) Do not intervene

The vice principal informs you that a child with persistent school refusal will attend one class/day this week, two classes/day next week, etc. until fully integrated. You:

- a) Laugh uncontrollably
- b) Commend her initiative, but suggest greater flexibility dependent on progress
- c) Suggest home instruction
- d) Suggest the child be kept in a “sterile environment” at home

A child with a dog phobia is promised a bicycle if he can briefly pet the Doberman next door. Changes to this plan should include:

- a) Smaller, more frequent rewards
- b) Repeating exposure at frequent intervals
- c) “Baby steps” leading up to the Doberman
- d) Exposure sessions that last at least 20 minutes
- e) All of the above

Relaxed breathing should be:

- a) Slow
- b) Used only in anxiety-provoking situations
- c) Deep
- d) Shallow
- e) Correct answers are a), b) and c)
- f) Correct answers are a), c)
A 6-year-old with OCD has intrusive thoughts of hurting her baby brother, and prays repeatedly to prevent this. Helpful interventions may include:

- Labelling OCD and charting how much of her life is controlled by it
- Distinguishing between thoughts and actions
- Reinforcing reduced number of prayers when the thoughts occur
- SSRI's
- All of the above

Which is not true about parents of anxious children:

- a) They can model effective coping strategies for their child
- b) They can identify reinforcers that will motivate their child
- c) They are always anxious themselves
- d) They can communicate with the school regarding behavioral strategies

Helpful attitudes can include:

- a) Looking at the Probabilities
- b) Finding alternatives to a catastrophic outcome
- c) Planning for the worst
- d) Telling the child to "grow up"
- e) Correct answers are a), b), and c)

Helpful actions can include:

- a) Relaxation
- b) Slipping an SSRI into the child's breakfast cereal
- c) Preparation
- d) Exposure to what is feared
- e) Correct answers are a), c), and d)

Normal people attribute:

- a) Success to themselves
- b) Success to others or to circumstances
- c) Failure to themselves
- d) Failure to others or to circumstances
- e) Correct answers are b) and c)
- f) Correct answers are a) and d)

Which is not an anxious assumption?

- a) I am incompetent
- b) Others are incompetent
- c) The world is dangerous
- d) You can never tell what's coming next
The best indication for combining CBT with medication is:
- a) Large number of anxiety symptoms
- b) High degree of anxiety-related impairment
- c) Very anxious family
- d) Presence of Panic Disorder

Anxious children always:
- a) Have an anxious temperament
- b) Have suffered trauma
- c) Tell you they are anxious
- d) Need empathic encouragement to face what they fear
Hi Emily,

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Best wishes,

Darren.

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