COGNITIVE BEHAVIORAL THERAPY FOR TINNITUS

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FOREWORD

Tinnitus management continues to challenge patients and providers as it has for more than 2,000 years. Tinnitus affects individuals regardless of age, race, ethnicity, socioeconomic status, geographic location, and unexpectedly, hearing status. The relation between hearing sensitivity and tinnitus severity is not only weaker than one might expect, but it also is weaker than the associations between tinnitus severity and depression or anxiety. Tinnitus is both a real event, the perception of a sound corroborated by imaging studies, and an unreal event as it does not correspond to observable external stimulation. Its effects suggest that tinnitus may be the archetypical psychosomatic experience. Perhaps this is why the strongest evidence base for effective tinnitus management at present, is not hearing aids or the therapeutic use of sound, but rather Cognitive Behavioral Therapy (CBT).

Convincing arguments could be advanced suggesting that tinnitus is an audiologic disorder, as it is perceived by its host as a sound. However, a tinnitus sound that does not trigger a psychological or emotional reckoning of that sound is as bothersome as other sounds that do not provoke thought or emotion, such as a ventilation system or the sound of car tires on the road. Humans can coexist easily with sounds that are understood to have little or no value. But when a person hears a sound and believes it to be relevant and important, then coexisting with that sound may be a less reasonable proposition. Management of bothersome tinnitus must address more than the hearing of a sound; it also must consider, and oftentimes modify, the patient's evaluation of that sound's value.

The population of individuals with bothersome tinnitus is heterogeneous, as tinnitus arises from many potential causes with severity influenced by many variables. Hence, effective management requires careful accounting of a patient's experience, and intervention flexibility. Fortunately, CBT protocols are adaptable and can be tailored to a variety of applications. The authors provide historical background justifying CBT's use for tinnitus management, building upon its effectiveness for patients suffering from conditions known to influence tinnitus severity, such as depression and anxiety. CBT may be delivered in a variety of settings, from face-to-face counseling in a clinic (perhaps individually, perhaps in groups) to remote interactions between clinicians and patients employing telemedicine strategies. When people suffer from tinnitus, it is often because they conceive of tinnitus as a portentous event rife with intrusiveness and negative implications, even though tinnitus in the vast majority of cases is neither a symptom of significant pathology nor an indication of impending deafness. The long-standing objective of CBT is to support patients' coping mechanisms by ensuring that problems are accurately assessed, and productive behaviors may be practiced and implemented. Tinnitus severity may be exacerbated by inaccurate thoughts that lead to emotional engagement in response to the sound. If the sound cannot be eliminated, then the emotional response to the sound must be minimized; and, for decades, health care providers have employed CBT protocols to that end.

Issues that complicate the delivery of CBT to patients with bothersome tinnitus involve stakeholders at many different levels of health care. Psychologists are the licensed professionals most equipped to provide CBT; unfortunately, though, most psychologists do not routinely see patients specifically requesting tinnitus management, particularly those lacking a concurrent mental health diagnosis. Audiologists are most equipped to provide hearing aids, maskers, assistive devices, and counseling to support tinnitus management; and although audiologists routinely employ tenets of CBT in their rehabilitative endeavors, most would consider formal CBT to be outside an audiologist's

scope of practice. Indeed, many audiologists work in ENT offices that are not likely to offer CBT. However, the authors of this text address this issue head on, as their CBT trial in the United Kingdom demonstrates that audiologists can reasonably support patients completing Internet-delivered CBT (ICBT). The question is not "Should audiologists perform CBT for their tinnitus patients?" but rather "Can audiologists refer patients, administer, and support patient matriculation through a self-paced ICBT protocol that addresses clinical management of bothersome tinnitus?" As the authors' work demonstrates, the answer, thankfully, is "yes."

The need to standardize elements of intervention is obvious. In the United States, patients' point of contact in the health care system for tinnitus-related services include, in no particular order, otolaryngologists, chiropractors, acupuncturists, audiologists, herbalists, psychologists, psychiatrists, neurologists, not to mention the ubiquitous online supplement, vitamin, and miracle cures; in short, patients who want to do something about their tinnitus usually encounter at one time or another healers, wheelers, and dealers. The ensuing "runaround" creates confusion and frustration, raising the likelihood that needs remain unmet and hope for improvement fades.

Although it is probable that nearly as many people require tinnitus management services as require hearing aids—many millions in the United States alone—the number of audiologists providing services for tinnitus is a small fraction of those offering hearing aids. The lack of a simple cure compounds the lack of providers, particularly outside urban areas; many patients who would seek services for tinnitus lack reasonable access. The availability of CBT for patients with tinnitus is poorer still. A dearth of providers ensures that barriers such as travel cost, distance, and physical and mental health conditions that limit travel have an outsized effect on patient care. The authors correctly posit that ICBT for tinnitus is a logical addition to currently practiced Internet-based interventions employed in psychology and various rehabilitation disciplines. In the United States, tinnitus intervention using Internet-delivered Progressive Tinnitus Management is available to military veterans and reinforces the authors' experience indicating the viability of remote contact with patients. The population's experience with the COVID-19 virus suggests that health care provided remotely is likely to increase in the future.

Tinnitus management might not ever conform to a one-size-fits-all approach for even a plurality of patients; therefore, flexibility in delivery for the provider and adaptability to the patient's particular needs are crucial requirements for an intervention. The objective of this text, to support the use of CBT for tinnitus management, offers the means by which many of the broad spectrum of tinnitus-related challenges may be addressed. The transfer of research knowledge to clinical practice suffers when clinicians do not have access to interventions that were tested in research. The authors aim to make intervention materials available to practitioners to facilitate use of evidence-based materials, with the hope that, in many cases, tinnitus management can be delivered using a standardized method. Their ICBT platform provides for individual differences throughout a series of modules (presented as book chapters), mostly organized in a sequential manner reminiscent of a multi-week CBT protocol. While sequential modules address well-established notions of tinnitus mechanisms, effects, and management, optional modules consider various tinnitus symptoms that appear across patients in unique combinations and levels of severity. The authors' ongoing work conducting ICBT trials on a growing and increasingly diverse population of patients bothered by tinnitus provides the backdrop for this text, in which they build the case for CBT and its delivery through an Internet platform. Contents from the modules are discussed and demonstrate the intervention's malleability. This text addresses a consequential element of tinnitus practice: If the sound cannot be unequivocally shut off, then any negative effects of its presence on a patient must be minimized. Through the diverse inventory of CBT-related strategies and counseling, the authors offer a point from which the tinnitus interventionist can start to provide guidance and the patient can start to manage their condition.

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PREFACE

Tinnitus is one of the most distressing audiological conditions. It is a medical enigma as to why some people with tinnitus are distressed by it whereas many others are not bothered by hearing these internally generated sounds. Those who are bothered by tinnitus are known to primarily look for its cure and, after learning that there is no known cure, either go into despair or start looking for advice by searching the Internet and other resources. Some have further diagnostic tests but continue to struggle despite more knowledge about their symptoms. Others see professionals such as audiologists or psychologists for help but continue to struggle. This may be partly attributed to a lack of evidence backing some of the management strategies being used. The approach with the most evidence of effectiveness in reducing tinnitus distress at present is the use of Cognitive Behavioral Therapy (CBT; Fuller et al., 2020; Hesser, Weise, Westin, & Andersson, 2011; Hoare, Kowalkowski, Kang, & Hall, 2011). CBT also addresses other comorbidities, such as depression, anxiety, and sleep problems, and has lasting results. Its effectiveness is attributed in part to helping individuals react differently when hearing tinnitus and providing a range of strategies to better manage the tinnitus. Despite the evidence backing CBT, it is seldom provided in clinical practice. For instance, a large-scale survey in the United States showed that CBT was recommended for 0.2% of the population, whereas medications were recommended 45% of the time, despite not having been recommended in many practice guidelines (Bhatt, Lin, & Bhattacharyya, 2016). These findings suggest the discrepancy between evidence and practice (Tunkel et al., 2014).

Obstacles preventing delivery of CBT include a shortage of tinnitus experts and the high costs associated with intervention delivery. CBT is generally provided by psychologists. Audiologists are becoming interested in offering CBT-based counseling for people with tinnitus, although no formal training is provided on this in the audiological curriculum. Various audiologists and hearing researchers with an interest in tinnitus across the globe have contacted us seeking CBT materials for tinnitus. This led us to create this book with the CBT materials that have been specifically developed for the management of tinnitus and thereby to help improve access to tinnitus care. We believe this book will help audiologists, using these evidence-based CBT techniques, to facilitate habituation in their tinnitus patients.

The materials presented in this book have evolved over nearly 35 years. The original version of the CBT materials was developed in Sweden in early 2000 by a few clinical psychologists. The original Swedish version was translated and used in clinical trials in Australia and Germany. The materials were updated further by Eldré Beukes by incorporating audiological information and revising the materials based on learning strategies for a clinical trial in the United Kingdom. More recently, in a National Institutes of Health (NIH)-funded project, we had the opportunity to further revise the CBT materials to ensure that the text is below a U.S. sixth-grade reading level (Beukes et al., 2020). Moreover, various exercises were developed based on behavior change principles to ensure user engagement and promote optimal outcomes.

This book can be used by various stakeholders. Audiologists can use these materials as clinical guidelines to offer CBT-based counseling for their tinnitus patients. Tinnitus researchers can use these materials in developing evidence-based therapies for tinnitus suffers. Also, individuals with tinnitus can use this book as self-help materials to learn effective strategies in managing their condition. However, we want to stress that the strategies discussed in this book are not intended as a replacement for medical care. A thorough medical and audiological assessment is always recommended to identify the most appropriate management route to minimizing the

impact of the tinnitus. Various suggestions are made as to how this book can be used in various formats to complement clinical care or to extend care where this care is not available. We trust this book will extend access to tinnitus care for many individuals who are distressed by tinnitus.

Sincerely,
Eldré Beukes,
Gerhard Andersson,
Vinaya Manchaiah, and
Viktor Kaldo

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2001–2003, they wrote the self-help manual that since has been published as a book (in Swedish) and evaluated in numerous trials, several of which were included in Prof. Kaldo's doctoral thesis (2008). This manual has steadily developed into the current form presented here.

Section A

INTRODUCTION TO COGNITIVE BEHAVIORAL THERAPY FOR TINNITUS

Chapter 1

COGNITIVE BEHAVIORAL THERAPY PRINCIPLES AND APPLICATIONS

What This Chapter Covers

- An overview of cognitive behavioral therapy
- The uses of cognitive behavioral therapy
- The evidence supporting cognitive behavioral therapy

Introduction

Coming to terms with a health-related disorder is always difficult, and more so when the disorder or its symptoms are chronic or long-term. Depending on the disorder or problem, symptoms may be alleviated through various approaches. In most cases a medical approach is appropriate, including prescribed medication; however; medical treatments are not always possible or available, depending on the stage and type of disorder. Furthermore, because medical intervention seeks primarily to diagnose and treat the physical disorder, it does not always appropriately address the emotional distress associated with physical illness. Regardless of the medical approach taken to address the disorder, individuals may need other kinds of intervention to come to terms with the diagnosis, to understand the disorder, and to learn how to manage symptoms and lessen their impact on everyday life. Because emotional distress can negatively impact physical recovery, a holistic approach—one that combines medical and psychological treatment—offers a preferable balance. For these purposes, psychological counseling can be helpful, either in isolation or together with medical interventions. A broad range of psychological counseling-type treatments exist that can be tailored to suit individual medical conditions.

This book focuses on tinnitus and offers Cognitive Behavioral Therapy (CBT) as a form of counseling that may help tinnitus sufferers with the emotional distress accompanying the disorder. Although there are many forms of counseling, the focus of this book is on CBT because it is the most clinically evaluated and is regarded as most effective in alleviating emotional distress in relation to health problems like tinnitus.

CBT is a type of "problems-focused" and "action-orientated" psychological intervention that is based on principles from both behavioral and cognitive psychology. It helps individuals identify what behaviors and emotions are influenced by perceptions of events (Fenn & Byrne, 2013). In CBT the focus is on the influence of thought patterns, beliefs, and attitudes on behaviors, feelings, and reactions. According to CBT principles, the way people interpret a situation influences their emotions rather than just the situation per se. For instance, those who are depressed have been reported to have an excessively negative interpretation of situations or events (Beck, 1976). Another principle in CBT is that the individual's own behaviors and their concequences also influence future behaviors and thoughts; and together with the first principle, this can create negative patterns that maintain emotional distress. CBT is a treatment approach that addresses difficulties or problems and uses psychological means for the treatment of emotional and behavioral problems to improve general functioning and/or symptoms (Hughes & Pedder, 1979). This chapter provides greater understanding of CBT.

The History of CBT

CBT originated from cognitive therapy, which was developed by Aaron Beck in the 1960s (Beck, 1964). Before the development of cognitive therapy, there was an emphasis on behavior therapy. Behaviorism assumes that behavior is learned and can be unlearned or learned anew. It is also derived from the idea that behavior is driven by its consequences in specific situations, where positive consequences increase the tendency to repeat the behavior again in similar situations, while negative consequences decrease this tendency. Behavior therapy aims to find out which behavioral patterns need changing, or how the environment could be changed, and then focuses on addressing these factors consciously to achieve the desired outcome. Behavioral approaches have been successful at treating several problems and are still a fundamental part of CBT; but CBT developed around an interest in the role of cognitions in maintaining factors of psychopathology. This interest led to an evolved understanding regarding the role of thoughts and perceptions of a situation on behaviors.

Following clinical observations and some clinical studies, Beck (1976) recognized a thinking disorder at the core of problems such as depression and anxiety. He identified distorted, negative thoughts and beliefs and a bias in the individual's interpretation of particular experiences. He further found that negative automatic thoughts played a critical part in maintaining depression due to his patients' characteristically negative views of themselves, the world, and the future. He thus, developed cognitive therapy aimed at problem-solving to propose alternatives for modifying unhelpful behaviors, thoughts, and beliefs (Beck, Rush, Shaw, & Emery, 1979).

Pure cognitive therapy is seen as a first-wave psychological treatment from which CBT, often described as a second-wave psychological intervention, developed. CBT is a combination of cognitive and behavioral therapy directed toward altering problematic behaviors that maintain emotional distress and changing inaccurate and/or unhelpful thinking toward problems through behavior modifications. In terms of the focus here on tinnitus, CBT addresses the long-term emotional reaction to having tinnitus and not the sound percept itself. Third-wave interventions such as mindfulness-based stress reduction (MBSR; Kabat-Zinn, 1990) and acceptance and commitment therapy (ACT; Hayes, Strosahl, & Wilson, 2012) were introduced later.

The Scope of CBT

CBT is based on the basic principle that what we think, how we feel, and how we behave are all closely connected, and all these factors have a decisive influence on well-being, as shown in Figure 1–1. Because of this interconnectedness, addressing the thoughts and behaviors—the emotional responses and physical sensations—associated with a disorder can lead to improvement (Chawathey & Ford, 2016).

CBT helps change how people think (cognitive) and what they do (behavior) in the following manner.

Focusing on thoughts (i.e., Cognitive techniques): The term *cognitive* comes from the Latin *cognoscere*, which means "to recognize." This approach helps individuals identify distressing beliefs, dysfunctional assumptions, and negative automatic thoughts. The importance attached to these beliefs is explored by individuals getting a clear idea of their own thoughts and beliefs. Examples of negative thoughts are jumping to exaggerated conclusions, known as catastrophizing, or having thoughts such as "my life is over because of this." Individuals learn how to replace these negative thought patterns with more realistic, less harmful thoughts. This replacement is often accomplished by asking Socratic questions (Beck, 1995) to help individuals challenge the accuracy and completeness of their thinking. Questioning helps people to think more clearly and to have greater control over their thoughts.

Focusing on behaviors (i.e., Behavioral techniques): This approach identifies unhelpful behaviors, such as withdrawing, giving up hobbies, or experiencing high tension due to problems or medical conditions. When people avoid difficult situations, they are often creating more fear around these very situations (Whitfield & Davidson, 2007). Behavioral therapy includes learning methods to behave differently in certain situations. This therapy may include changing behaviors to help reduce tension and find ways of participating, becoming less isolated, or increasing activeness. Behavioral activation uses the acronym ACTION (Addis, Jacob-

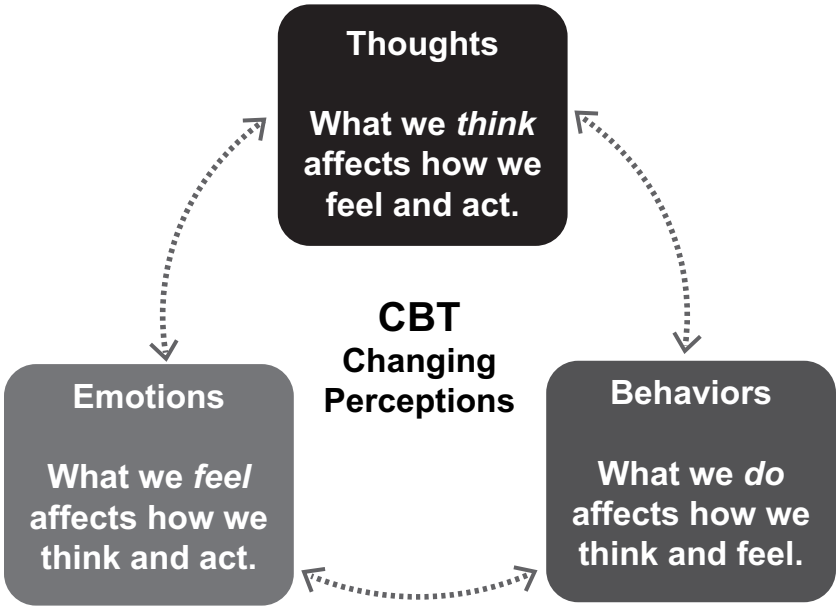

FIGURE 1–1. The relationship between thoughts, emotions, and behaviors.

son, & Martell, 2001): *Assess* mood and behavior; *Choose* alternative behaviors; *Try* out alternatives; *Integrate* these changes into life; *Observe* the results; *Now* evaluate.

By following the ACTION steps, a person can break down difficult situations into different categories. Thoughts or responses to a situation, not the situations themselves, are linked to the resulting emotions, behaviors, and bodily sensations. This process can be illustrated by the "hot cross" model (Mooney & Padesky, 1990). A simplified model is shown in Figure 1–1.

CBT Principles

The following principles form the basis of CBT and are adapted depending on the individual and the disorder.

- **Focused on the now:** CBT deals with current problems rather than focusing on issues from the past. When there is a need for deep insight into the causes of problems, analytic psychotherapy is recommended before starting CBT.
- **Short-term treatment for long-term effects:** Therapy generally runs for less than 2 to 4 months in comparison to analytic psychotherapy, which can continue for much longer. The short-term goal is to gain new insights or perspectives and learn new skills that will help individuals to maintain their improvements in the long run.
- **Problem-solving:** CBT is problem-oriented and looks for practical ways to improve problems and change behaviors.
- **Educational:** CBT aims to provide individuals with new information, knowledge, and tools to deal with their problems without the need for continued therapy.
- **Collaborative:** CBT is a collaborative approach that is directed by the therapist but requires commitment from the individual. The therapist tries to help individuals identify and address their own negative, automatic thoughts.
- **Structured:** There is a clear structure adapted for different disorders.
- **Time-sensitive:** CBT is generally time-limited, with a predefined therapy length.

- **Goal-oriented:** The individual sets goals that he or she hopes to achieve.
- **Clear rationales:** The provider identifies unambiguous explanations and reasons for the techniques selected.
- **Instills hope:** CBT aims to provide hope for improvements in future functioning.
- **Practical:** Emphasis is on putting into practice what has been learned. This may be in the form of homework that aims to create opportunities for experiences of success and a sense of mastery.
- **Skills training:** The effect of therapy is closely monitored and evaluated to assess how effective strategies have been. Homework assignments are normally set. A record of positive information is also kept to help disconfirm negative thoughts—for example, "I managed to go to work despite not sleeping last night."

The Components of CBT Therapy

Some key components of CBT therapy include thought identification, cognitive restructuring, and exposure therapy. Table 1–1 provides further details on these components.

The Uses of CBT for Different Disorders and Its Evidence-Base

CBT is one of the most popular therapeutic approaches that has been applied to a variety of health problems and conditions. CBT is commonly used to treat anxiety and depression but is also useful for many other mental and physical health conditions. A meta-analysis review performed by Hofmann, Asnaani, Vonk, Sawyer, and Fang (2012) suggested that CBT has good research evidence to illustrate its effectiveness for various conditions, including substance use disorder, schizophrenia and other psychotic disorders, depression and dysthymia, bipolar disorder, anxiety disorders, somatoform disorders, eating disorders, insomnia, personality disorders, anger and aggression, criminal behaviors, general stress, distress due to general medical conditions, chronic pain and fatigue, and distress related to pregnancy complications and female hormonal conditions. Moreover, numerous systematic reviews and meta-analyses have suggested that CBT has been effectively used for many psychological conditions such as anxiety, depression, and insomnia, as well as for related conditions such as chronic pain and chronic health conditions (see systematic reviews by Cuijpers et al., 2013; Hind et al., 2014; Hofmann et al., 2012; Michail, Birchwood, & Tait, 2017; Trauer, Qian, Doyle, Rajaratnam, & Cunnington, 2015).

Specific CBT treatments vary significantly for different disorders, as there are characteristic themes of dysfunctional behavior patterns and cognitive distortions associated with each disorder. Regardless of specific techniques, robust evidence shows that CBT-based interventions positively impact psychological and behavioral conditions; the data include observations of randomized controlled trials (RCTs), uncontrolled trials, case series, and case studies (Hofmann et al., 2012). Considering this strong and extensive evidence base supporting CBT, many health authorities and practice guidelines recommend CBT as a treatment option for specific health conditions. In the United Kingdom, the National Institute for Health and Clinical Excellence (NICE) guidelines (Clark, 2011) recommended CBT for panic disorder, generalized anxiety, depression (mild-to-moderate and severe), and obsessive-compulsive disorder (mild and moderate).

Ways of Delivering CBT

The use of CBT has flourished, partly due to the evidence base that supports its use. Traditionally, CBT was offered as a face-to-face treatment by one therapist to one client. This approach emphasizes the therapist as active and directive. This approach was largely based on the need for a strong therapeutic alliance between the therapist and the individual. More recently, this assumption has been challenged as the demand for CBT outstrips the capacity for available therapists. One of the greatest barriers to obtaining CBT is a shortage of resources, in terms of both funding and specialists, in delivering these sessions. Psychological therapies are expensive to deliver. Furthermore, there are too few CBT therapists. To try to increase the scope of provision, there

TABLE 1–1. Key Components of CBT

Concept	Explanation	Example
Thought identification	Identifying negative automatic thoughts and cognitive distortions	What is going through your mind? What are you afraid may happen? What is the worst that could happen if it were true?
Cognitive restructuring	The process of challenging the accuracy and completeness of thinking and replacing negative automatic thoughts with more balanced thoughts	Sequential thinking such as: What evidence supports the thought? What evidence contradicts this thought? Is there an alternative explanation?
Exposure therapy	Graded exposure to feared situations to habituate to the situation and diminish the fear	Becoming involved in activities that were previously enjoyed by approaching the fear using small steps; for example, initially looking at pictures of the setting, driving past the setting, staying for a short period
Behaving "as if"	Acting as if there is a favorable outcome to aid preparation for the real outcome	Identifying things required for a positive outcome and rehearsing those behaviors
Imagery	Using mental images that include all five senses	Visualizing a peaceful scene to aid relaxation, reduce emotional distress, or imagine an ideal outcome (Homes, Arntz, & Smucker, 2007)
Behavioral analysis	Mapping out behaviors and their consequences to inform a plan for behavioral change	Activating behaviors to help engage in more positive activities and be less hindered by fears and address avoidance and escape behaviors
Changing the environment	Making adaptions to minimize problems with hearing and tinnitus	Changing the positioning of furniture to optimize ease of listening and to increase environmental sounds when the tinnitus is bothersome

has been increasing evidence to show that CBT can be applied in a variety of other contexts. These include group CBT, self-help books, mobile applications, and Internet-based CBT. These additional options are often attractive to those that find the practicalities of regular meetings with a therapist difficult. These approaches are also useful where access to a suitable professional is limited.

CBT delivery methods can be broadly classified into the following four categories (British Association for Behavioral & Cognitive Psychotherapies, n.d).

- **Formulation-driven CBT:** This includes individual or group CBT for a range of people and problem areas. This method is appropriate when individuals are not able to help themselves and seek help from experts who are trained, licensed CBT therapists. The relationship between the therapist and individual plays an important role. The therapist first establishes a good therapeutic alliance with the individual and then collaboratively conducts the assessment and delivers the