

An Estimated Prevalence of Cognitive Behavioral Therapy for Psychosis (CBTp) Providers in the U.S. and
Canada

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Abstract

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Introduction: Cognitive Behavioral Therapy for psychosis (CBTp) is an evidence-based treatment for psychotic disorders. Despite its evidence base, CBTp is estimated to be widely unavailable in the U.S. and Canada. Previous research suggests that there is variation in CBTp training for mental health professionals.

Methods: We designed a questionnaire to assess the prevalence of CBTp trained providers in the U.S. and Canada and to assess the characteristics of trainers and their training methods to better understand the state of the field with regard to CBTp training. Providers who train others in CBTp were sampled from professional networks, and a further snowball sample was collected from these trainers.

Data Analysis: Descriptive statistics were used to analyze responses, and the frequency and percent of the sample were calculated for each answer option. Means, standard deviations, and ranges were calculated for numerical responses. The prevalence of CBTp trained mental health providers was calculated using the total number of trainees as provided by respondents added with the number of respondents currently practicing CBTp, and U.S. and Canadian employment statistics for mental health

provider occupations. An accessibility estimate was calculated using our CBTp trained provider total, prevalence of psychotic disorders in the U.S. and Canada from other studies, and population data for each country.

Results: Based on questionnaire results, we estimate that a combined 0.54% of mental health providers in the U.S. and Canada are trained in CBTp. We estimate there are 10.8 – 21.4 CBTp trained providers for every 10,000 people with a psychotic disorder in the U.S. and Canada. Survey results showed several differences in training approaches, settings, funding sources, and geographic location.

Discussion: This prevalence suggests that there is very little penetration of CBTp into the mental health provider community in the U.S. and Canada. Accessibility is low among individuals with psychotic disorders, and trainings are largely dependent on location, suggesting that CBTp accessibility is limited in rural areas.

Conclusion: This estimate is higher than previous estimates of prevalence of CBTp trained providers, but still suggests little penetration of CBTp in the mental health workforce. Future studies should focus on country and regional differences in trainings and employ more rigorous sampling methods to provide a more robust prevalence estimate.

Introduction

Since 1994, Cognitive Behavioral Therapy for psychosis (CBTp) has gained traction as a recommended evidence-based form of psychotherapy to treat individuals experiencing symptoms of psychosis (Garety et al., 1994). While the evidence base for this therapy is strong, CBTp remains widely unavailable in U.S. and Canada to many who could benefit from it. In addition to its unavailability, CBTp treatment types vary between therapists, and training methods for practitioners have no standardized form, resulting in inconsistent implementation of CBTp practices. Truly understanding the nature of how CBTp is administered and providing best practice care to individuals with psychotic symptoms is made more difficult by the lack of comprehensive research in U.S. and Canada on this topic, along with no licensure or standardized training for the practice.

Cognitive Behavioral Therapy, or CBT, is an evidence-based form of psychotherapy that aims to help individuals better manage stressful life situations (Mayo Clinic, 2019). While this form of therapy is widely used, one version that has received less attention is CBT for psychosis, or CBTp. This form of CBT, also an evidence-based type of psychotherapy, is used to reduce distress from symptoms of psychosis specifically and improve functioning in individuals experiencing them (Beck, 2009). Psychosis is a symptom associated with a variety of mental health disorders during which an individual loses some contact with reality, which may include hallucinations and/or delusions (National Institute of Mental Health [NIMH], n.d.). National estimates in the U.S. and Canada suggest that 3% of each population will experience psychosis at some point in their lives (NIMH, n.d.; Schizophrenia Society of Canada [SSC], 2018). Psychotic disorders, the most common of which is schizophrenia, are characterized by one or more episodes of psychosis that impact the individual's functioning. Schizophrenia alone was considered one of the top 15 global causes of disability in 2016 (GBD 2016 Disease and Injury Incidence and Prevalence Collaborators, 2017) and—without proper and timely care—the burdens of psychotic disorders, such as the need for in-patient hospitalization and/or the inability to support oneself through

employment, can increase and lead to more functional deficits later in life (Wyatt, 1991; Loebel et al., 1992).

American psychiatrist Dr. Aaron Beck first published his use of cognitive approaches on a patient with schizophrenia in 1952 (Beck, 1952) which was used as the basis for cognitive models and manualized treatment for depression. For the next several decades, however, CBT was used primarily on anxiety and depressive disorders, while antipsychotic medication became the primary treatment for psychotic disorders. The first clinical trial of CBTp was published in 1994 by the Institute of Psychiatry in London, UK (Garety et al., 1994). Since then, CBTp has gained traction as a therapeutic orientation for patients experiencing psychosis, both in addition to and as an alternative to traditional medication treatments for individuals who do not elect to take medication or for whom medication is ineffective. While medication is considered front-line treatment for psychosis, meta-analyses demonstrate that CBTp is effective at alleviating mood and psychotic symptoms among individuals whose symptoms have not been responsive to medication (Burns, et al., 2014), and it is recommended by institutions such as the UK's National Institute for Healthcare and Excellence (NICE, 2014) and by the American Psychological Association's Schizophrenia Treatment Guidelines (American Psychiatric Association, 2010) as an effective treatment and recommended standard of care for psychosis symptoms.

CBTp addresses an individual's thought and behavior patterns to reduce the distress and impairment associated with psychosis symptoms. This works through several mechanisms, and the CBTp guidebook from the United States Department of Veteran's Affairs outlines two conceptual models that CBTp draws from (Landa, 2017). The first is the ABC model of Rational Emotive Behavior Therapy (Ellis, 1957), which has individuals look at the cognitive process of an Activating (A) event, their Beliefs (B) and thoughts about that event, and the emotional and behavioral Consequences (C) of these thoughts and beliefs, with the goal being to try new ways of thinking and behaving to find processes that work best

for the individual. The second model is the Stress-Vulnerability Model (Zubin & Spring, 1977), which suggests that a person's genetics may predispose and make them more vulnerable to mental illness, but that this needs to be combined with psychosocial stressors such as life crises before psychotic symptoms develop. This model considers various predispositions and stressors throughout a person's life and acknowledges that psychotic symptoms cause stress themselves, creating a cycle. CBTp aims to reduce the stress caused by psychotic symptoms by changing interpretations and beliefs about these symptoms (Zubin & Spring, 1997).

Since the first clinical trial in 1994, studies on CBTp effectiveness have been conducted by several researchers. This therapy has shown effectiveness in reducing symptoms of psychosis and improving functioning in several trials (Kuipers et al., 1998; Haddock et al., 1998; Gould et al., 2001; Pilling et al., 2002; Wykes et al., 2008; Zimmermann et al., 2005; Barbieri & Visco-Comandini, 2019), particularly in individuals with treatment resistant symptoms (Pilling et al., 2002; Zimmermann et al., 2005; Barbieri & Visco-Comandini, 2019). However, the effectiveness of CBTp can vary widely between individuals and groups, and researchers suggest that this may be due to varying treatment types within CBTp (Haddock et al., 1998; Wykes et al., 2008; Zimmermann et al., 2005; Barbieri & Visco-Comandini, 2019). Researchers have called for standardized interventions to be able to truly study CBTp's effects (Gould et al., 2001; Barbieri & Visco-Comandini, 2019).

One reason behind the variation in clinical outcomes in the literature is the variation in types of CBTp care. Within this therapy, treatment typically falls into one of four types: individual formulation-driven CBTp, group-administered CBTp, targeted CBTp interventions, and CBTp-informed care. Individual CBTp is conducted one-to-one, and is recommended in the UK to be implemented across at least 16 sessions with a CBTp certified therapist. There is no recommendation in the U.S. or Canada regarding length or therapist certification. Formulation-driven refers to therapists conducting an assessment to create a formulation or conceptualization of each individual's unique vulnerabilities, stressors, and the

cognitive and behavioral patterns that are perpetuating distress. This formulation is used to develop a treatment plan, select treatment techniques, and evaluate progress (Jacqueline et al., 2015). Individual therapy can also be manualized, manual-assisted, or formulation-driven. Formulation-driven CBTp approaches can be helpful for clients who present with psychiatric complexities such as long-standing, entrenched beliefs or behaviors; one or more psychiatric comorbidities that interact with psychotic symptoms; or are difficult to engage in treatment (American Psychological Association). Group-administered CBTp refers to the use of CBTp practices within a group setting rather than one-to-one. Targeted interventions use CBTp practices but focus on specific mechanisms or symptoms of psychosis, such as worry, hallucinations, or resiliency; they therefore often tend to be brief, manual-driven interventions, and can often be administered by providers with less training in psychotherapy (Hardy, n.d.). CBTp-informed care is treatment that draws from CBTp practices but is not considered full CBTp treatment and/or is implemented by someone who does not meet full criteria of a CBTp therapist (Turkington, Kingdon, & Turner, 2002). This can also be referred to as brief or low-intensity CBTp, meaning that treatment is given less frequently than the 16 or more session recommendation, and is often an option when formulation-driven CBTp is unavailable. Despite there being several different types of treatment, there has been little research examining the differences in effectiveness between types. What research has been done suggests that even brief CBTp can be effective in reducing hallucinations and delusions associated with psychosis (Hazell et al., 2016).

In addition to variation in treatment types, there is variation in practitioners who are candidates to administer CBTp interventions. Practitioners of CBTp exist with varying professions, degrees of education, and work settings. Methods used to train practitioners have no standardized form and, in the U.S., coursework and training in CBTp often occurs in the field rather than during academic or pre-service training. This means that many practitioners don't have a good foundation in CBT or psychotic disorders when they are trained in CBTp (Richardson, 2019). Training methods can include components

such as academic coursework, formal practica and internships, workshops, supervision, online trainings, and self-guided learning. In addition, fidelity reviews can be a helpful means of assessing the degree to which therapists are adherent to the elements of CBTp sessions and are delivering the treatment with competence. Because there is no standardized training or licensure for CBTp, fidelity reviews are not required for every therapist, but many training programs require providers to complete a certain number over a set competency score. Several fidelity reviews for CBTp exist, the most common being the Revised Cognitive Therapy for Psychosis Adherence Scale (R-CTPAS), Cognitive Therapy Rating Scale (CTR-S), Revised Cognitive Therapy Scale (CTS-R), and the Therapy of Psychosis Scale (TOPKAT).

Recent estimates suggest that 0.1% of the mental health workforce in the United States is trained in CBTp practices (Mueser et al., 2015). However, this estimate is imprecise and based on a convenience sample of providers. While CBTp is estimated to be inaccessible in the U.S., a more methodologically rigorous estimate has yet to be collected. Based on this estimate, out of approximately 5 million people in the United States with a primary psychotic disorder, 0.3% have access to CBTp (Kopelovich et al., 2018), indicating that this form of treatment is unavailable to many who could benefit from it. Other countries such as Australia and the United Kingdom have integrated CBTp into mental health care to a larger extent, with one 2017 UK study estimating that 30-35% of psychosis patients who used services received at least one session of CBTp (Colling et al., 2017). The reasons why U.S. and Canada has such lower accessibility of CBTp have been suggested to be skepticism towards psychotherapy to address psychosis rooted in a predominantly biomedical view of psychosis etiology, as well as greater medical support for anti-psychotic medications as a primary source of treatment in the U.S. (Mueser & Glynn, 2014).

Methods

Research Question and Aims

To ascertain a more precise point prevalence of CBTp trained providers and better understand the training methods and variability of methods used, we conducted a single cross-sectional study to answer this question: what is the point prevalence of providers in the United States and Canada who have been trained in Cognitive Behavioral Therapy for psychosis?

Primary Aim: Estimate the point prevalence of CBTp-trained providers in the U.S. and Canada.

Exploratory Aim: Assess the characteristics of trainers, their qualifications to train behavioral health providers in the intervention, and their training methods to better understand the state of the field with regard to CBTp training.

Study Design and Sample Population

This study was approved by the University of Washington Institutional Review Board. To address the specified aims and answer this research question, we designed a single cross-sectional study targeting individuals in the U.S. and Canada who self-identify as CBTp trainers. For the purposes of this study, a CBTp trainer was defined as a CBT for psychosis practitioner who currently trains or has, in the past 15 years, trained other mental health practitioners in CBTp with the express aim that trainees will be able to deliver the intervention to clients. This method of targeting trainers of CBTp rather than CBTp practitioners was used in a 2013 study that aimed to assess CBTp training methods, in which the research team contacted academic training institutions (Kimhy et al., 2013). Because there is no standardized certification or licensure for CBTp practitioners, there is no current database through which to contact CBTp providers or to directly estimate point prevalence of CBTp practitioners. We estimated that there are far fewer CBTp trainers than there are practitioners, making this a more reasonable population to target. Rather than use academic training institutions, we opted to sample from a CBTp professional organization serving the U.S. and Canada as our initial sampling frame, because we believed this would give us the most accurate estimate and representation of training

methods being used. Graduate school training in a specialized intervention is rare and unlikely to correlate to post-graduate job duties, and recent research suggests that most CBTp training happens in the field rather than in academic settings (Richardson, 2019). Our study population consisted of professional listservs of individuals involved in training others in CBTp practices.

The study was limited to adults over age 18 and over of any gender who could read English, had been trained in CBTp themselves, and had trained others in CBTp in the last 15 years. Participants recruited were primarily part of a CBTp professional organization, the North American CBT for Psychosis (NACBTp) Network, which consists of 32 members. The NACBTp Network that works to advance and disseminate CBTp in U.S. and Canada. Membership in this organization is available to individuals interested in CBTp with license-eligible degrees in clinical mental health or related fields. Because many trainers incorporate a Train-the-Trainer model, or are professionally connected to eligible practitioners who are not affiliated with NACBTpN, we also relied on snowball sampling and purposive sampling of known CBTp trainers. To enhance publicity about the study, we advertised on the Early Psychosis Network email listserv of approximately 700 members, which consists of a variety of practitioners, individuals with psychosis and their family members, and academics who study early psychosis prevention and treatment.

An email with a link to a web-based questionnaire was sent to listservs and known trainers to recruit participants. Interested participants self-screened via instructions both in the email text and in the beginning of the questionnaire. An additional screening measure was taken by asking participants to answer questions assessing if they are trained in CBTp and have trained, or currently train, practitioners in CBTp. Those who answered either of these questions as “no” had their data excluded from analysis. The questionnaire included a request at the end that served as recruitment for a further snowball sample: CBTp trainers were asked to forward the questionnaire to their trainees and colleagues who also train practitioners in CBTp, allowing the same screening measure to be in place for this snowball

sample. Individuals known by the research team who train in CBTp were reached out to individually with a request to complete the questionnaire and forward it to colleagues. Questions regarding the study or participation screening were directed to and answered by the research team.

Measures

The questionnaire used in this study was developed by the research team. After drafting within the team and receiving edits from thesis committee members, the questionnaire was presented to the Steering Committee of the NACBTp Network for further edits and suggestions to ensure the questionnaire was appropriate for the intended audience.

The questionnaire included 24 items with 19 follow-up items to further qualify answers or ask participants to further explain “yes” or “other” answer options (Appendix A). After demographic information, participants were asked about their own training and the training they provide to others. Training questions addressed the style of training, supervision and fidelity reviews, funding, protocol, and training settings. Participants were also asked to estimate the total number of people they have trained, the disciplines and work settings of the providers they have trained, and the number of clients to whom trainees administer CBTp annually, if known. All questionnaires were confidential, and no identifying information was required. Participants had the option to include their email address if they wanted to be contacted with the results of the study. These email addresses were stored in a separate log from the answers, along with their unique participant ID. The survey was open for 14 weeks, and reminder emails were sent to the NACBTpN listserv 3 weeks, 7 weeks, and 13 weeks after the initial email. Targeted outreach to known CBTp trainers occurred on a rolling basis.

Data Analysis

Study data were collected and managed using REDCap (Research Electronic Data Capture) tools hosted at the University of Washington (Harris et al., 2009; Harris et al., 2019; ITHS). REDCap is a secure,

web-based software platform designed to support data capture for research studies, providing 1) an intuitive interface for validated data capture; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for data integration and interoperability with external sources. Participant survey data was downloaded from REDCap and analyzed with Stata 16 statistical analysis software.

Because the aims of this study were hypothesis generating versus hypothesis testing, data was analyzed using descriptive statistics and by searching for common themes in open ended responses. Frequency and percentages for each answer were calculated and reported. The percentage of the sample that selected more than one answer for questions was also calculated. For responses that asked for a numerical value, such as the length of workshops, the mean, standard deviation, and range of the provided responses was calculated. Open ended responses were limited to explaining “other” answer choices and providing states and provinces where respondents have conducted trainings. “Other” answers are reported in their corresponding tables where available, and states and provinces are reported using a geographical figure.

To calculate the prevalence of CBTp-trained mental health providers in the U.S. and Canada, we used the total number of providers each respondent reported training in the past 15 years, added with the number of survey respondents who reported that they currently carry a CBTp caseload, to calculate our numerator. The denominator (total number of licensed practitioners eligible to administer CBTp) was calculated using U.S. and Canadian government employment data for mental health provider occupations that treat individuals with serious mental illness. A detailed breakdown of the data is provided below.

We estimated the accessibility of CBTp by persons with psychotic disorders by calculating the number of CBTp-trained mental health providers in the U.S. and Canada per 10,000 people with

psychotic disorders in these countries. We used our estimated total of CBTp-trained mental health providers for this calculation as well. The number of people with psychotic disorders in the U.S. and Canada was ascertained by using prevalence estimates from empirical studies and population data from each country. There is discrepancy in recent literature about the prevalence of psychotic disorders, so these calculations are reported in ranges.

Results

The sampling frame for this study was calculated using only the NACBTp Network and the purposive sample of known trainers who are not on the NACBTp listserv, which is 32 individuals in total, yielding a response rate of 59.4%. The Early Psychosis Network was not included when calculating response rate, because it is unknown how many, if any, members of this listserv met the criteria for inclusion. Nineteen individuals completed the questionnaire.

Sample characteristics

The demographics of the sample are reported in Table 1. The sample consisted of mostly women (73.7%), four men (21.0%), and one non-binary (5.3%) respondent. The races represented were limited to White/Caucasian and Asian, and most respondents held a Doctorate degree (73.7%) while the remaining held a Master's degree (26.3%). Most worked as psychologists (73.7%), and the remaining were split between counseling and social work. The primary work setting of the sample population was in a hospital or medical center, or University or College, with private practice, community mental health center, and outpatient clinic represented as well.

Demographics	N	Percent
Gender		
Woman	14	73.7%
Man	4	21.0%
Non-Binary	1	5.3%
Race		
Asian	2	10.5%
White/Caucasian	17	89.5%
Highest Level of Education		
Master's Degree	5	26.3%
Doctorate Degree (e.g. PhD or PsyD)	14	73.7%
Profession		
Psychologist	14	73.7%
Counselor	3	15.8%
Other: Social Worker	2	10.5%
Work Setting		
Hospital or Medical Center	9	47.3%
University or College	7	36.8%
Private Practice	1	5.3%
Other: Outpatient Clinic	1	5.3%
Other: Community Mental Health	1	5.3%

Table 1: Sample demographics

It was common for respondents to receive training through multiple avenues, and respondents could select all options that applied to them in the questionnaire. Most respondents (63.2%) selected two or more options, 36.8% selected three or more options, and 26.3% selected four or more options. The most common training that respondents received was a multi-day workshop without ongoing supervision. The next most common trainings were coursework in post-doctoral training, formal internships, multi-day workshops with ongoing supervision, and self-training. Formal practicum, online training and single-day workshops were also reported, though less commonly. Twenty-six percent of respondents reported receiving training in another way, and these additional trainings were listed as books, postdoctoral training and development of treatment, formal clinical psychology placement for 12

months, coursework in a graduate program, and training and supervision from their training institution.

A detailed breakdown of trainings received is presented in Table 2.

Training Received	N	Percent
Multi-day workshop without ongoing supervision	8	42.1%
Multi-day workshop with ongoing supervision	7	36.8%
Self-trained	7	36.8%
Coursework in post-doctoral training	6	31.6%
Formal internship	6	31.6%
Formal practicum	3	15.8%
Online training	3	15.8%
Single-day workshop	2	10.5%
Other	5	26.3%

Table 2: Training received by respondents

Out of the total sample, 89.5% reported that they currently practice CBTp, 57.9% have at some point received fidelity reviews on their own CBTp sessions, and 47.4% have at some point received expert supervision on their CBTp practice. Eleven percent currently receive periodic fidelity reviews; of those, half receive them every 6 months to a year, and half receive them every 6 months or less. All respondents have trained others in CBTp, and 78.9% are currently engaged in CBTp training.

Primary Aim: Point Prevalence of CBTp Providers

Survey respondents reported the number of providers they have trained in CBTp in the last 15 years by their trainee's practice settings. Trainees practiced in an array of clinical settings, and a breakdown of the total number trained by profession is in Figure 1. Cumulatively, respondents estimated that they trained a total of 6,489 providers in CBTp in the past 15 years. Including the 17 respondents who currently practice CBTp, the estimate of providers trained is 6,506 in the U.S. and Canada.

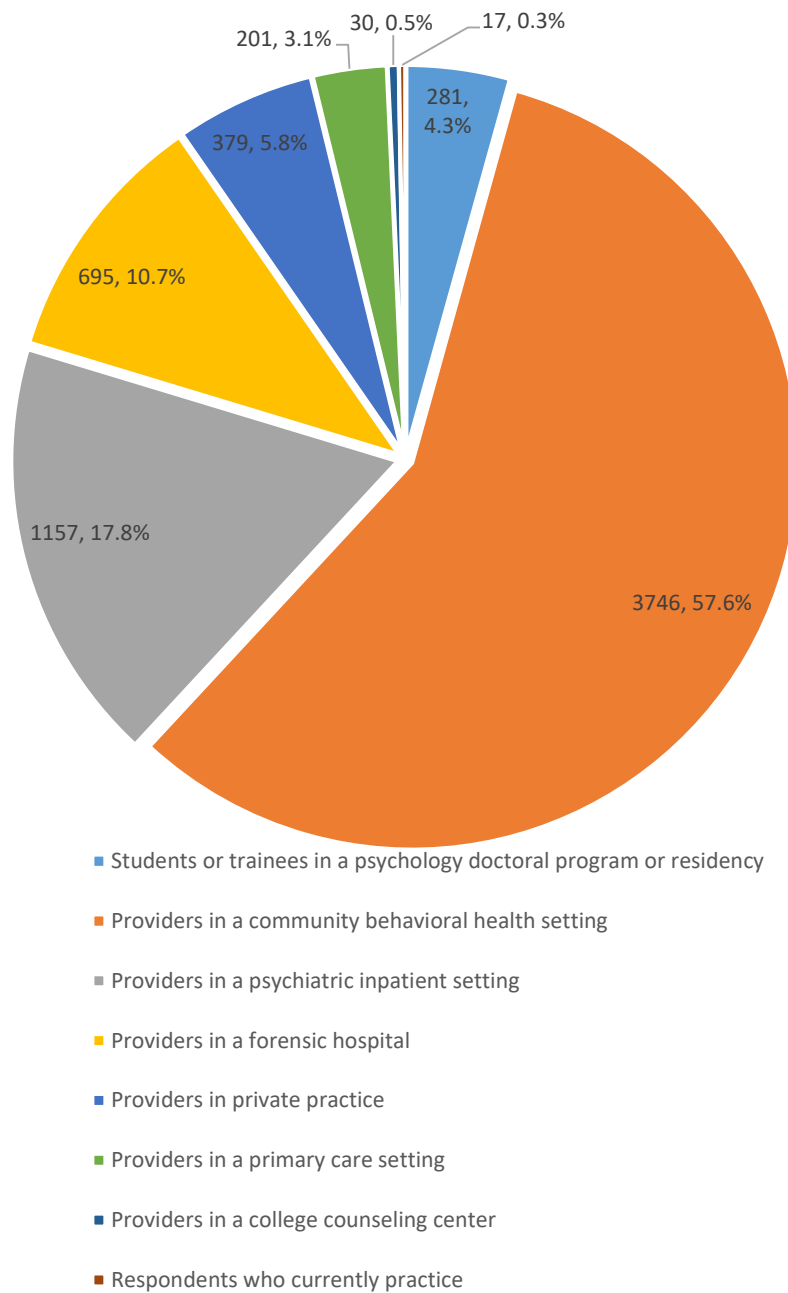


Figure 1: Providers trained by respondents, by practice setting of trainee

To estimate the point prevalence of the mental health workforce in the U.S. and Canada who are trained in CBTp, we obtained employment numbers by profession from the Bureau of Labor Statistics (BLS) Occupational Employment Statistics (OES) for U.S. numbers and from the Canadian Institute for Health Information (CIHI) for Canada numbers. Professions that commonly treat patients

with psychotic disorders were chosen to calculate the base mental health workforce population. Data on the number of trainees trained by respondents was not differentiated by country, so a single, combined prevalence estimate for the U.S. and Canada was calculated.

We estimate that the total number of mental health workers in the U.S. is 1,126,870. This consists of U.S. BLS numbers for all professions under the designation “Counselors, Social Workers, and Other Community and Social Service Specialists”, excluding disciplines that don’t provide this treatment or work with this population (“Health Education Specialists”, “Social and Human Service Assistants”, “Child, Family, and School Social Workers”, “Marriage and Family Therapists”, and “Educational, Guidance, and Career Counselors and Advisors”) (1,013,600), and under “Clinical, Counseling, and School Psychologists” (113,270).

We estimate that there are 78,703 mental health workers in Canada. The CIHI breaks down the mental health workforce into Social Workers, Psychologists, and Psychiatrists, estimating that there are 54,269 Social Workers, 19,171 Psychologists, and 5,263 Psychiatrists in the publicly funded health care system in 2017, the most recently available data.

With this combined mental health workforce of 1,205,573, our study estimates that the prevalence of CBTp trained mental health workers is 0.54% of the total mental health workforce in the U.S. and Canada.

With the estimate of trained CBTp providers, we also estimated the accessibility of CBTp for persons affected with primary psychotic disorders. Estimates on the prevalence of psychotic disorders in the U.S. and Canada vary significantly between studies, so a range was used to estimate prevalence. Country population data was used from U.S. Census Bureau and Statistics Canada 2019 reports, which estimated the country’s population to be 328.2 million and 37.6 million, respectively. Prevalence of psychotic disorders, including schizophrenia, schizoaffective disorder, delusional disorder, and psychosis

not otherwise specified, is estimated to be between 0.8% to 1.6% (Bourdon et al., 1992; DSM-V American Psychiatric Association, 2013; Kessler et al., 2005), or 2,625,600 – 5,251,200 people. In Canada, prevalence of psychotic disorders is estimated to be between 1.1% to 2.1% (DSM-V American Psychiatric Association, 2013; Vanasse et al., 2012; Hafner & Heiden, 1997), or 413,600 – 789,600 people. This gives a combined estimate of 3,039,200 – 6,040,800 people in the U.S. and Canada with a psychotic disorder. With our estimate of 6,506 trained providers, this means that we estimate there are 10.8 – 21.4 CBTp-trained providers for every 10,000 people with a psychotic disorder in the U.S. and Canada.

Exploratory Aim: Characteristics of Trainers and Training Methods

Fifteen (78.9%) respondents indicated the states and provinces where they have conducted CBTp trainings. Figure 2 provides a map of these provided states and provinces, which includes 21 U.S. states and eight Canadian provinces. Thirteen (68.4%) respondents provided the postal code of their primary work site and, of those, they resided in California, Massachusetts, Michigan, Pennsylvania, and Washington. Work settings where respondents have conducted trainings vary and are broken down in Table 3.

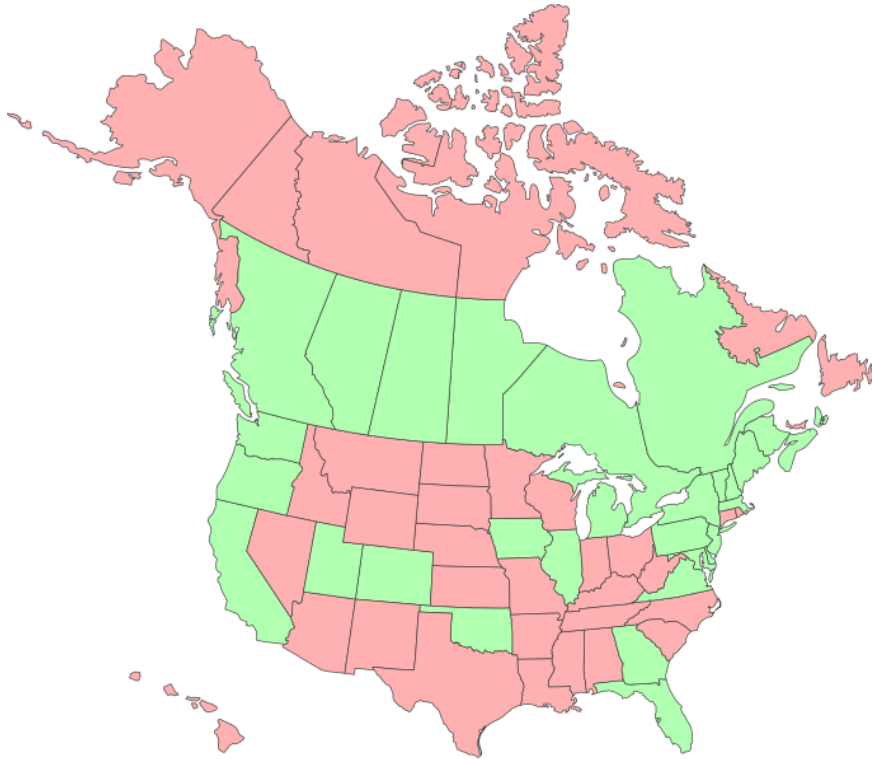


Figure 2: Map of the U.S. and Canada with states and provinces where respondents have conducted trainings. Green states and provinces represent where trainings have been conducted; red states and provinces represent where no trainings have been conducted.

Training Settings	N	Percent
Community health center	13	68.4%
Hospital	10	52.6%
University	9	47.4%
Medical School	7	36.8%
Private Practice	3	15.8%
Online	2	10.5%

Table 3: Work settings where respondents have conducted trainings

The trainings conducted by respondents varied in their protocols, approaches, and how they were funded. Protocols in CBTp refer to the type of CBTp that participants are trained in, the four main types as discussed in the introduction being individual CBTp, group based CBTp, targeted interventions such as symptom-specific treatments, and CBTp-informed care. For this survey, individual CBTp was

broken down into two types: individual CBTp using a manualized protocol, and individual formulation driven CBTp. It was common for respondents to use more than one protocol, with 68.4% of respondents using more than one. A majority of respondents train in individual formulation-driven CBTp. CBTp-informed care was also a common training protocol among respondents, followed by group based CBTp and targeted intervention. A smaller number of respondents train in manualized individual CBTp protocol, and one respondent reported training in Recovery Oriented Cognitive Therapy. A breakdown of training protocols is shown in Table 4.

Protocol used in training	N	Percent
Individual formulation-driven CBTp (non-manualized)	15	79.0%
CBTp-informed care	10	52.6%
Group based CBTp	8	42.1%
Targeted intervention (e.g. symptom-specific)	6	31.6%
Individual CBTp protocol (manualized)	4	21.1%
Other: recovery oriented cognitive therapy	1	5.3%

Table 4: CBTp protocol used in trainings conducted by respondents

Most respondents (84.2%) reported using more than one training approach, and most respondents require their trainees to complete a workshop training and/or supervision or consultation sessions. The mean workshop length was 2.75 days ($SD = 0.63$), with a range of two to four days. Most respondents require their trainees to complete field work practice in CBTp under supervision and/or fidelity reviews. The most common fidelity tool used by respondents are the CTR-S, CTS-R, and R-CTPAS (21.1% each). No respondents reported using the TOPKAT, one reported using a newly-developed, unpublished rating form, and one reported using an adapted version of the R-CTPAS. Respondents who require fidelity reviews required that trainees complete a fidelity review in an average of 82.0% ($SD = 26.2$) of their trainings, with a range of 20 – 100%. Forty-two percent of respondents who mandate fidelity reviews require their trainees to complete a minimum number of reviews above competency, with an average of 3.5 reviews for each trainee ($SD = 1.7$), a minimum of 1 review for each trainee and a

maximum of 6 reviews for each trainee. A minority of respondents require trainees to complete an academic or online course in CBTp, but respondents who elaborated on the length of their course reflected a wide range, from 1 hour to 36 hours. Completion of an exam covering CBTp concepts was the least frequently reported approach. A breakdown of the training approaches used is shown in Table 5.

Approach used in training	N	Percent
Completion of a workshop training	14	73.7%
Completion of supervision or consultation sessions	14	73.7%
Completion of field work practice in CBTp under supervision	11	57.9%
Completion of fidelity review(s)	11	57.9%
Completion of an academic or online course in CBTp	3	15.8%
Exam covering CBTp concepts	1	5.3%
Other	1	5.3%

Table 5: Training approaches used by respondents

Respondents reported a heterogeneity in funding sources, and 68.4% of respondents reported funding from more than one source. A majority obtain funding through organizational contracts, followed by staff funding through their university or hospital workplace, state or provincial contracts, government grants (state, provincial, or federal), private pay, and foundation funding. Table 6 shows a breakdown of funding sources.

Funding	N	Percent
Organizational contracts	11	57.9%
Funding as part of trainers' salary support at university or hospital workplace	9	47.4%
State or Provincial contracts	5	26.3%
State, Provincial, or Federal grants	5	26.3%
Fee for service open enrollment trainings	5	26.3%
Foundation funding	3	15.8%
Other: sessional instructor	1	5.3%

Table 6: Funding sources for trainings conducted by respondents

Discussion

Our calculated prevalence of 0.54% of mental health professionals trained in CBTp is very low considering that CBTp is one of only a handful of recommended psychotherapeutic treatments for

schizophrenia and other psychotic disorders. CBTp is recommended by national treatment guidelines, and has a strong evidence base (Kuipers et al., 1998; Haddock et al., 1998; Gould et al., 2001; Pilling et al., 2002; Wykes et al., 2008; Zimmermann et al., 2005; Barbieri & Visco-Comandini, 2019). Having the knowledge and training of this transdiagnostic and translational therapy can be a helpful skillset for mental health practitioners working with individuals with serious mental illness. In addition, CBTp can be flexibly delivered, which enhances patient choice and agency flexibility.

We estimate that there are 10.8 – 21.4 CBTp trained providers for every 10,000 people with a psychotic disorder in the U.S. and Canada, suggesting that CBTp remains largely inaccessible for many individuals in these countries. Individuals with psychotic disorders are less likely than those without psychotic disorders to report having regular access to care (Bradford et al., 2008). Increasing the accessibility of CBTp for patients with psychosis optimizes care and long-term outcomes, especially since gains tend to persist after treatment ends as the client continues CBT strategies. This treatment can be provided in a variety of ways, can be formulated for the individual's experience and situation, and can be taught to caregivers and family members of individuals to support them in their treatment.

Accessibility appears to be largely dependent on location as well. As seen in Figure 2 many U.S. states have not been the site of CBTp trainings from our sample. There is a possibility that providers from these states not listed have traveled to receive training, but this suggests that providers in these states have not received training, making CBTp inaccessible for individuals living in those states. Many of the states not included are also comprised of a more rural population than the included states, which may have less access to mental health services and particularly specialized mental health services in general (Hauenstein et al., 2007). In addition, while at least one training has been conducted in each of the shaded states in Figure 2 the primary work sites of respondents were limited to Massachusetts (specifically the Boston area), Washington (specifically the Seattle area), Pennsylvania,

Michigan (specifically the central part), and California (specifically the southern part). This reinforces the idea that CBTp trainings have been conducted far less in rural areas.

Training received by trainers was varied, and it was more common for respondents to not receive supervision in their own training than in the trainings they provide. Respondents also commonly reported self-training as a way they had been trained, which could be indicative of a lack of available training.

Both the settings and providers trained by discipline provide an interesting look into who is being trained in CBTp. The most common setting in which CBTp trainings are occurring are community mental health centers, which often offer treatment to individuals with limited access to medical services. Academic institutions were a less common training setting. While training in community health centers may increase accessibility, a lack of CBTp training in academic training institutions implies that this treatment is not part of the general education for providers. This may also imply that providers or workplaces looking to implement CBTp may have to seek it out, which first requires knowledge of the treatment, knowledge of where to find trainers, and funding to host or attend trainings.

Funding for trainings was provided mostly through organizational contracts or their own staff funding, with government contracts or grants and private pay making up a smaller amount. With organizational contracts making up a majority of the funding source for these trainings, the same problem implied with training institutions is possible: organizations looking to train their staff in CBTp may have to have previous knowledge of this treatment and seek out training, which can put many organizations at a disadvantage. More uniformity in funding may increase treatment access.

CBTp protocols used in training varied. The most common was individual formulation-driven CBTp, which is considered the most comprehensive form of CBTp, although all protocols were represented by our sample. The approaches used also varied greatly within our sample. Discrepancies in approaches

suggest that the type of training providers receive may vary, translating into different therapy provided between providers. Most of our sample reported using more than one approach: most used some kind of instructional session, either an academic/online course or a workshop, along with some kind of supervision or review. The type of supervision or review was the biggest reported difference between trainings, with the most common being a supervision or consultation session, the next being completion of field work practice under supervision, and the least common (although still required by a majority of respondents) being completion of fidelity reviews. Among respondents who required fidelity reviews, there was more discrepancy between the types of review used. Differences in these supervision requirements is the biggest difference in approaches used by respondents and may translate to the biggest differences in treatment provided by their trainees. However, we do not know how and to what extent trainees are utilizing their training. Previous studies have called for CBTp to use more standardized interventions (Gould et al., 2001; Pilling et al., 2002; Wykes et al., 2008; Zimmermann et al., 2005; Barbieri & Visco-Comandini, 2019), and these findings suggest that supervision and review requirements may be an effective place to start when working to standardize training. However, to standardize this area, substantial changes would need to be made to making CBTp a certification or licensure process in the U.S. and Canada or to incorporating CBTp broadly into training institutions.

Limitations

This study had several limitations. Because there is no licensure or database for CBTp trainers, sampling relied on trainers within the NACBTp and Early Psychosis listservs along with professional contacts of the research team and contacts who were snowball sampled from respondents. Trainers who are not connected with these groups would have been left out of the sample. However, a member of the research team, Dr. Sarah Kopelovich, is a CBTp trainer and therefore part of the community of CBTp trainers, and this community is known to be small. Most trainers are connected to the NACBTp Network either by membership or by connections with members, but it should be considered that there

are potentially trainers outside of this community. In addition, this study relied on a convenience sample of trainers, which has a high potential for bias that limits the ability to extend findings to the general population of trainers. This should be taken into consideration when noting accessibility and prevalence measures. Most of this data is descriptive of only the community of CBTp trainers though, which limits the impact of this bias.

The prevalence estimate calculated also has limitations. Data was collected from respondents only on the number of providers they had trained, the states and/or provinces where they had conducted trainings, and their primary work site. Not all respondents provided location information, so the locations represented in Figure 2 may not be representative of our entire sample. In addition, trainings and trainees between the U.S. and Canada were not differentiated in the questionnaire, meaning calculating separate prevalence between the two countries was not possible. Given that these two countries have different health care systems, the generalizability of using this broad prevalence to describe both countries is limited.

In addition, the results of this study can only be used to look at the qualifications and methods used by CBTp. They cannot be used to infer the effectiveness of the trainings conducted or how training effectiveness translated into therapeutic outcomes.

Conclusion

Our prevalence estimate of 0.54% is similar to previous estimates of 0.1% of CBTp trained mental health providers in the U.S. (Mueser et al., 2015). This supports the idea that there is very little penetration of CBTp among mental health providers.

The next step for this topic is more research into CBTp training and accessibility, specifically focusing on regions. Differentiating training types and prevalence of providers in regions throughout the U.S. and Canada is necessary to determine how best to improve accessibility and quality of trainings. More

information on these topics regionally will provide crucial information on where future funding and efforts need to be focused. In addition, more rigorous methodologies need to be applied to ascertain the estimates attained in this study. Specifically, future studies that contact trainers should focus on expanding the sample to former trainees who have now become trainers, rather than relying on a snowball sampling method. Focusing regionally will also assist with achieving a more concise sampling method. Further research into CBTp accessibility and how to overcome the barriers to a broader scale-up can lead to a greater understanding of training and treatment practices in the U.S. and Canada and help in increasing the penetration of CBTp. Further research should also be conducted to understand that effectiveness of different training methods and how these translate to therapeutic outcomes.

There are several barriers to a broader scale-up of CBTp in the U.S. and Canada. One is the difficulty of creating a more standardized program for CBTp that may be required if this were to be implemented in training institutions and/or residency programs. CBTp has been implemented through many protocols and approaches that vary by trainer, so condensing these into a program that could be used for a broader scale-up would take time and considerable effort. A scale-up of CBTp without this step may lead to greater variations in trainings and treatments, which overall may lead to variable patient outcomes, future studies finding CBTp to be less effective overall, and hurting appropriate CBTp as a practice as a whole.

Another barrier to consider is the preference for medication when treating psychotic disorders in the U.S. and Canada. The U.S. specifically tends towards pharmaceutical treatments and has a greater distrust of psychotherapy (Mueser & Glynn, 2014), which is a difficult cultural belief to overcome when considering scale-up of CBTp. One reason for this belief in the U.S. may be due to an already overwhelmed healthcare system and many patients with psychotic disorders having limited insurance coverage. Medication may prove easier to deal with for both patients and providers under this system, suggesting that any large scale-up of CBTp will have to come with a change to the health care system

that would allow more patients to access therapy sessions and more providers to have the time and capacity to hold them.

Increasing trainings and continuing the cycle of CBTp practitioners becoming trainers will improve the prevalence of CBTp trainers and accessibility of the treatment, but policy changes are necessary for a large scale-up of CBTp practices. As suggested above, licensure or certification programs would improve standardization of treatment by setting requirements for training and allowing CBTp to be taught in training institutions in a comprehensive way. In addition, changes to the larger health care system, specifically in the U.S., are needed to increase accessibility of any mental health service. Rural areas specifically are in need of mental health services, so programs to bring therapists to high-need areas and extend CBTp trainings to these areas is needed to improve accessibility equitably across regions. Other areas, specifically the U.K., have achieved a broader scale-up of CBTp, which could be used as a model for health care practices that will support this treatment.

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