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Cognitive Behavior Therapy with Adults with Intellectual Disabilities: A Systematic Review

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Cognitive Behavior Therapy with Adults with Intellectual Disabilities:
A Systematic Review

by

Crystal L. Barrera, BSW

MSW Clinical Research Paper

Presented to the Faculty of the
School of Social Work
St. Catherine University and the University of St. Thomas
St. Paul, Minnesota
in Partial Fulfillment of the Requirements for the Degree of

Master of Social Work

Committee Members

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The Clinical Research Project is a graduation requirement for MSW students at St. Catherine University - University of St. Thomas School of Social Work in St. Paul, Minnesota and is conducted within a nine-month time frame to demonstrate facility with basic social research methods. Students must independently conceptualize a research problem, formulate a research design that is approved by a research committee and the university Institutional Review Board, implement the project, and publicly present the findings of the study. This project is neither a Master's thesis nor a dissertation.

Abstract

A small but significant portion of the population has a diagnosis of an intellectual disability, defined as cognitive deficits that impact a person's daily functioning. Adults with intellectual disabilities struggle with psychopathology at four times the rate as the general population, yet only 10% receive psychotherapy. There is very little existing research into the use of psychotherapy for adults with intellectual disabilities, the majority of which has been published in niche publications that most practitioners have limited access to. Therefore, this systematic review answered the question "What are the known outcomes of Cognitive Behavior Therapy (CBT) for adults with intellectual disabilities?" A total of 19 articles were reviewed. Of the 16 quantitative studies reviewed, all 16 found statistically significant improvement on at least one outcome measure, with the majority of studies (13 of 16) finding statistically significant improvement on at least half of the outcome measures used. None of the studies reported that clients regressed as a result of the CBT intervention. Of the three qualitative studies reviewed, all three found that participants reported positive feelings about CBT. The results of this systematic review suggest that CBT has an emerging and positive evidence base in treating adults with intellectual disabilities who suffer from mental health problems, and is useful to both generalist social workers, who may refer clients to a specialist, and clinical social workers, who may directly treat these concerns.

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Finally, I wish to dedicate this research to one such individual, *Princess K*. I only knew K. for a short period of time, but her life and death have had a profound impact on my life. K., your memory will always be a blessing to me.

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Introduction

People with intellectual disabilities make up a small but significant portion of the population. There are an estimated 3.24 million Americans with intellectual disabilities (Maulik et al., 2001; United States Census Bureau, 2016). An intellectual disability is a lifelong disorder with an onset during the developmental period (i.e., childhood) that results in deficits in intellectual functioning. This is measured by a combination of IQ testing, clinical judgement, and an evaluation of adaptive behavior, including communication, social skills, activities of daily living, and independent living skills (American Psychiatric Association, 2013; Black & Andreasen, 2014).

Longitudinal studies have shown that people with intellectual disabilities suffer from psychopathology four times as often as people who do not have an intellectual disability (Einfeld, Piccinin, Mackinnon, Hofer, Taffe et al., 2006; Westerhof, Beernink, & Sools, 2016), although these authors have not studied why this is. Despite the large proportion of people with both intellectual disabilities and psychopathology, only 10% receive psychotherapy (Einfeld et al., 2006). The existing body of research into the use of psychotherapy for people with intellectual disabilities examines if people with intellectual disabilities have the cognitive capacity to take part in psychotherapy, and if so, to determine which types of psychotherapies are most effective. Parkes, et al. (2007) found that the majority of those who had been referred to psychotherapy were good candidates. Several authors have suggested that Cognitive Behavior Therapy (CBT) is a good fit for people with intellectual disabilities (Bhaumik, Gangadharan, Hiremath, & Russell, 2011; Goldfarb & Frankel, 2007). Therefore, this research project seeks to answer the question: “What are the known outcomes of Cognitive Behavior Therapy for adults with intellectual disabilities?”

This question is important to the field of social work for two main reasons. First, social workers at all levels of licensure may work in settings that would bring them into contact with people with intellectual disabilities, including residential services, schools, hospitals, employment services, and case management. Although not all social workers provide psychotherapy to their clients, many often make resource referrals. As a result, it is important for social workers to know whether or not they should refer a client with an intellectual disability to a CBT practitioner.

Second, clinical social workers may be in a position to provide psychotherapy services to people with intellectual disabilities. Unfortunately, mental health clinicians are often unaware of the best practices for treating psychological problems in people with intellectual disabilities, at least in part because the relevant research tends to be published only in highly specialized journals (Raffensperger, 2009), such as *Journal of Intellectual Disability Research* or *Journal of Intellectual and Developmental Disability*. There is clearly a need for this information to be available to a wider audience.

The purpose of this research project is to identify studies relevant to the research question, analyze them in a systematic way, and ultimately to disseminate the findings via a written report and a public presentation. These findings will contribute to the growing body of research, and serve to guide future research into the known outcomes of CBT for adults with intellectual disabilities.

Literature Review

Intellectual Disability

According to the *Diagnostic and Statistical Manual of Mental Disorders, 5th edition* (DSM-5), an intellectual disability (formerly known as mental retardation) is a lifelong disorder

with deficits in both intellectual functioning and adaptive behaviors that is first noted during the developmental period. Deficits in intellectual functioning includes a person's ability to reason, problem solve, make plans, think abstractly, and learn from experience. To qualify as having an adaptive behavior deficit, a person must require ongoing support to meet one's needs in the domains of communication, social skills, activities of daily living (i.e., self-care), and independent living skills. The diagnosis is made both by standardized intelligence tests and the use of clinical judgment regarding the severity of the impact of adaptive functioning deficits (American Psychiatric Association, 2013; Black & Andreasen, 2014).

Intellectual disability is further subcategorized as mild, moderate, severe, and profound. Because the DSM-5 makes allowances for the clinician to consider IQ measurement in addition to adaptive functioning for both the diagnosis of intellectual disability and the severity specifier, the DSM-5 does not recommend IQ score cutoffs for diagnosis or the severity specifiers (American Psychiatric Association, 2013; Black & Andreasen, 2014). However, historically, the diagnosis of intellectual disability and the severity specifier was based exclusively upon IQ scores (Black and Andreasen, 2014). The cutoff for diagnosis was any IQ score below 70; mild intellectual disability was an IQ score between 50-55 and 70; moderate was 35-40 to 50-55; severe was 20-25 to 35-40; profound was any IQ score below 20-25 (American Psychiatric Association, 2000). The DSM-IV-TR also included a fifth subcategory of borderline intellectual disability, in which the IQ score ranged between 71 and 85 (American Psychiatric Association, 2000).

There is no single cause of intellectual disability. In fact, over half the time, there is no known cause at all (Goldfarb & Frankel, 2007; Maulik, Mascarenhas, Mathers, Dua, & Saxena, 2011). For those cases with identified etiology, causal factors are fairly evenly distributed across

the antenatal period (primarily identified genetic conditions), the perinatal period (e.g., intrauterine growth restriction or birth injury), and the postnatal period (e.g., infections contracted after birth) (Maulik et al., 2011). Despite these disparate causes, it is currently believed that intellectual disability is a lifelong, permanent, and incurable condition (San Martin & Pagani, 2014).

Among those diagnosed with intellectual disability, Black and Andreasen (2014) report that 85% fall in the mild range of intellectual disability. These individuals are considered able to learn and function in the community. Another 10% of individuals fall in the moderate range; they are considered “trainable,” meaning they can learn simple tasks but will require supervision throughout their lives. The remaining 5% are either severely or profoundly affected and often require some form of institutionalization, such as group homes with 24-hour staff.

According to a meta-analysis of 52 global studies completed by Maulik et al. (2011), the overall prevalence of intellectual disability is 10.37 out of 1000 people, or approximately 1% of the population. According to the United States Census Bureau (2016), the estimated United States population was over 324,000,000 people in 2016; it is therefore estimated that there are 3.24 million Americans with an intellectual disability.

It should be noted that although the current, preferred term is “intellectual disability,” in the recent past, the term “mental retardation” was used (Black & Andreasen, 2014; Maulik et al., 2011; San Martin & Pagani, 2014). Part of the reason for this shift in terminology is due to the stigmatizing and derogatory nature that the term “mental retardation” has taken on over the years (Raffensperger, 2009). Out of respect for people who have been diagnosed with an intellectual disability, this author has chosen to use the term “intellectual disability,” even in cases that the source material used the term “mental retardation.”

Although the term “developmental disabilities” is often used interchangeably with the term “intellectual disabilities”, they are not the same thing. Developmental disabilities include other disabilities that arise during childhood and impact adaptive functioning skills (e.g., Down Syndrome, Autism Spectrum Disorder), while “intellectual disability” refers specifically to a disability associated with low cognitive capacities.

Intellectual Disability and Mental Health

As recently as the 1980s, it was believed that people with intellectual disabilities could not suffer from psychopathology (Matson, Belva, Hattier, & Matson, 2012). This is no longer the case. Studies have shown people with intellectual disabilities are diagnosed with psychiatric disorders four times as often as the general population, with between 41% and 57% of people with intellectual disabilities meeting criteria for a psychiatric disorder (Bakken & Sageng, 2016; Einfeld et al., 2006; Goldfarb & Frankel, 2007; Westerhof et al., 2016).

There is very little information available on the types of problems that bring people with intellectual disabilities to psychotherapy. Parkes, Mukherjee, Karagianni, Attavar, Sinason, et al. (2007) found that the most common reasons for people with intellectual disabilities to be referred to therapy were trauma, bereavement, challenging behaviors, and depression. Likewise, there is no clear consensus on the most common mental health diagnosis for people with intellectual disabilities. McCabe, McGillivray, and Newton (2006) suggest that depressed mood is one of the most common psychiatric symptoms experienced by people with intellectual disabilities. As for specific diagnoses, Goldfarb and Frankel (2007) completed chart reviews of people with intellectual disabilities who were receiving services from a public agency and found the most common diagnoses were impulse control disorders (with 5.5% of charts reviewed containing this diagnosis), bipolar and mood disorders (5.2%), substance-related disorders (3.9%), schizophrenia

and psychotic disorders (3.3%), and depressive disorders (2.5%). Other diagnoses noted, at rates of less than 1% each, were anxiety disorders, psychosexual disorders, adjustment disorders, ADD/ADHD and other disruptive behavior disorders, tic disorders, and personality disorders. Deb, Thomas, and Bright (2001) found that the most common mental health diagnoses of the adults with intellectual disabilities in their study were schizophrenia (4.4%), phobic disorder (4.4%), depressive disorder (2.2%), generalized anxiety disorder (2.2%), and delusional disorder (1%).

Overall, it appears psychiatric disorders are more common among those with mild or moderate intellectual disabilities (Bakken & Sageng, 2016; Myrbakk & von Tetzcher, 2008), although Bakken and Sageng (2016) note that the symptoms exhibited by people with more severe forms of intellectual disability tend to be atypical (e.g., excessively aggressive behavior or especially unusual social interactions) and therefore this population may be underdiagnosed or misdiagnosed.

Despite the clear need for mental health treatment, people with intellectual disabilities are underrepresented in psychiatric treatment settings. In a 14-year longitudinal study conducted by Einfeld et al. (2006), only 10% of those meeting criteria for a psychiatric disorder received any form of mental health treatment. Instead, most referrals for psychiatric services were made for severe behavioral problems, such as aggression towards others, self-injury, and “temper tantrums,” which are prevalent in only about 7% to 15% of people with intellectual disabilities (Myrbakk & von Tetzchner, 2008).

One possible reason that behavior problems take precedence over psychiatric disorders is a perception that people with intellectual disabilities do not have the cognitive ability to participate in psychotherapy (Bhaumik, Gangadharan, Hiremath, & Russell, 2011;

Raffensperger, 2009; Westerhof et al., 2016). This is underscored by the fact that 80% of clinical psychologists working with people with intellectual disabilities report using behavioral interventions, with implementation often delegated to direct care staff (Bhaumik et al., 2011).

Although this area is under-researched in comparison, the existing studies show adults with intellectual disabilities can both participate in and benefit from psychotherapy (Parkes et al., 2007). Parkes et al. (2007) found 81% of people with intellectual disabilities who had been referred for therapy were judged to be suitable candidates. One form of therapy which has been suggested as suitable for people with intellectual disabilities is Cognitive Behavior Therapy, or CBT (Bhaumik et al., 2011; Goldfarb & Frankel, 2007). Bhaumik et al. (2011) suggests that CBT might be useful because of its robust evidence base among the mainstream population, as well as its inclusion of a behavioral component, which is already in widespread use among people with intellectual disabilities.

Cognitive Behavior Therapy (CBT)

CBT is a specific type of psychotherapy based on two related concepts. First, that one's thoughts or cognitions influence one's emotions and behaviors, and second, the way one behaves affects both one's thoughts and emotions (Bodenheimer, 2016; Howe, 2009; Wright, Basco, & Thase, 2006). Because of this reciprocal nature of cognitions impacting behavior, and vice versa, CBT combines both cognitive interventions (such as modifying erroneous thoughts) and behavioral methods (such as exposure therapy); together, this psychotherapy has been shown to be more effective than either approach on its own (Wright et al., 2006).

The cognitive techniques often take center stage in CBT. One of the therapist's primary tasks is to work collaboratively with the patient to identify negative automatic thoughts (initial thoughts that often go unnoticed and negatively impact behavior and emotion, e.g., "I'm so

stupid.”) and, to a lesser degree, schemas (the core beliefs a person holds which act as a filter for information processing to ascribe meaning to everyday events) (Beck & Haigh, 2014; Bodenheimer, 2016; Howe, 2009; Wright et al., 2006). This is important because CBT holds there are predictable cognitive distortions unique to various mental illnesses and that by reducing these errors, symptoms will also decrease (Wright et al., 2006). Once these negative automatic thoughts and schemas are identified, the therapist and patient work together to strengthen the adaptive ones while simultaneously working to replace the maladaptive ones (Bodenheimer, 2016; Howe, 2009; Wright et al., 2006). This is called cognitive restructuring, and it is accomplished through a variety of techniques, including Socratic questioning, thought records, examining the evidence, and correcting cognitive errors (Beck & Haigh, 2014; Wright et al., 2006).

Behavioral methods are also important in CBT. Although changes in cognition often have a positive effect on behavior, behavioral techniques are incredibly useful to help patients break unhelpful patterns, face fearful situations, build coping skills, and reduce the impact of painful emotions or automatic bodily reactions (Wright et al., 2006). Some of the most commonly used behavioral interventions include systematic desensitization, graded task assignments (breaking tasks down into manageable parts), activity scheduling, and breathing and relaxation training (Beck & Haigh, 2014).

CBT is not a “one size fits all” therapy. Obtaining an accurate assessment and case conceptualization is paramount to CBT (Waltman, Creed, & Beck, 2016). It is important to understand how a person’s diagnosis, symptoms, childhood experiences, genetic or medical factors, current situation, and strengths come together to create a unique set of negative automatic thoughts, emotions, and behaviors (Wright et al., 2006). CBT also emphasizes the

importance of the therapeutic relationship. Although all psychotherapy requires the therapist to be warm, genuine, and empathetic, CBT depends on what's called "collaborative empiricism." This presumes a shared responsibility of both therapist and client to set goals, identify maladaptive thoughts and behaviors, and to create and implement plans of action (Howe, 2009).

The Effectiveness of CBT

CBT is often touted as the most studied psychotherapy, with more than 300 randomized controlled studies to date (Bhaumik et al., 2011; Butler, Chapman, Forman, & Beck, 2006). These studies have established CBT as a treatment of first choice for major depression, anxiety, and bulimia (Wright et al., 2006). Empirical support has also been found for the use of CBT in treating schizophrenia, bipolar disorder, personality disorders, somatic disorders, posttraumatic stress disorder, panic disorder, phobias (both specific phobias and social anxiety disorder), obsessive-compulsive disorder, sexual disorders, sleep disorders, and substance use disorders (Beck & Haigh, 2014; Butler et al., 2006; Wright et al., 2006).

The effectiveness of CBT appears to be dependent upon the therapist's competence and his or her fidelity to the treatment model (Waltman et al., 2016). Waltman et al., (2016) describe CBT as a "flexible, relational, skill-building, and strategic approach that is based upon the case conceptualization and a client's individualized goals" (p. 119). Wright et al. (2006) underscore the importance of empathy, warmth, and genuineness as critical to success, and cite research showing there is a very strong relationship between treatment outcomes and the strength of the therapist-patient relationship.

Ideal CBT Candidates

The ideal candidate for CBT is a person who has good verbal skills, success in past relationships, and who is motivated to participate in therapy, but research shows most people can

benefit from CBT (Oathamshaw & Haddock, 2006; Wright et al., 2006). However, there are a few contraindications for participation in CBT: severe antisocial personality disorder, disorders marked by severe amnesia, temporary symptoms of confusion or disorientation due to delirium or intoxication, a history of malingering, and an inability or unwillingness to enter a trusting therapeutic relationship (Wright et al., 2006).

CBT practitioners acknowledge that patients with psychological disorders may present with temporary cognitive impairments (Beck & Haigh, 2014), especially in terms of their ability to concentrate, think abstractly, solve problems, and to both store and retrieve learned information (Wright et al., 2006). These impairments then drive the patient's affect, internal biological reactions (such as having an elevated heart rate), and behavior (Beck & Haigh, 2014). To overcome these potential barriers, CBT is highly structured, makes heavy use of psychoeducation and homework assignments, and requires the therapist to both solicit and give frequent feedback and summations of the therapy (Wright et al., 2006).

CBT and People with Intellectual Disabilities

The use of CBT with people with intellectual disabilities is worth exploring for several reasons. First, as noted above, CBT has a strong evidence base and has been designed to compensate for the fact that clients may present with temporary cognitive impairments. Although the cognitive impairments of people with intellectual disabilities are permanent, it seems likely they can benefit from the compensatory strategies that have been built into CBT. In fact, this is exactly what the research shows. Several studies have examined whether people with intellectual disabilities have the ability to participate in CBT and found that people with intellectual disabilities can identify their emotions, link their emotions to events, and differentiate between emotions and behaviors (Hebblewaite, Jahoda, & Dagan, 2011; McCabe et al., 2006;

Oathamshaw & Haddock, 2006). Areas more difficult for people with intellectual disabilities include identifying thoughts and linking their thoughts to emotions and events (Hebblewaite, Jahoda, & Dagan, 2011; McCabe et al., 2006; Oathamshaw & Haddock, 2006).

Second, CBT emphasizes the importance of understanding the whole person in the case conceptualization process (Waltman et al., 2016). Historically, when looking at whether people with intellectual disabilities can participate in psychotherapy, attention has been paid only to cognitive abilities (Dosen, 2007). Although this is important, Dosen (2007) argues that to effectively treat people with intellectual disabilities and mental health problems, emotional development, personality, social situation, and culture also need to be considered. Raffensperger (2009) concurs, pointing out that using a strengths-based approach means client resources are explored in addition to cognitive abilities.

Third, the use of CBT integrates the behavioral methods that are widely used with people with disabilities (as noted earlier) with the cognitive model that people with intellectual disabilities are capable of doing. This is incredibly important because according to Bhaumik et al. (2011), the use of behavioral-only interventions “fail[s] to address the emotional context of the behavior, and therefore its sustained benefit is questionable” (p. 429).

For these reasons, it seems CBT may be a good fit for people with intellectual disabilities. Although existing research examines the effectiveness of CBT, the published studies are primarily relegated to small, niche publications (Raffensperger, 2009) such as *Journal of Intellectual Disability Research* or *Journal of Intellectual and Developmental Disability*, making the research body highly limited and fragmented. This means that when clients with intellectual disabilities present to a mental health clinician’s office, the chances are small that the clinician will have any evidence-based knowledge on how to treat them. Therefore, this research project

will answer the question: “What are the known outcomes of CBT for adults with intellectual disabilities?”

Methods

Research Design

The research design for this study is a systematic review. Petticrew and Roberts (2006) state systematic reviews are useful when the research has been limited, fragmented, and new studies are needed. Although there is not a large body of information on the known outcomes of CBT for adults with intellectual disabilities, there is a need to understand the overall state of this highly fragmented body of research, making a systematic review ideal.

Concepts and Terminology

There are four main components in the research question “What are the known outcomes of CBT for adults with intellectual disabilities?” These are “CBT”, “adult”, “intellectual disabilities”, and “outcomes”. It is important to clearly define what is meant by each term so that both the researcher and consumers of the research know what is being researched (Petticrew & Roberts, 2006).

For the purposes of this systematic review, the term “CBT” is interchangeable with “cognitive behavior therapy”. As discussed at length in the literature review, CBT is a type of psychotherapy intervention which combines both cognitive and behavioral interventions. “Adult” means the study subjects are 18 years or older. “Intellectual disability” refers to a lifelong condition that developed during childhood and that results in deficits in both intellectual functioning and adaptive behavior. “Outcomes” refers to any results found by a study.

Search Strategy

The following databases were searched: MedLine, a database dedicated to all areas of medicine, including psychiatry; PsychINFO, which contains literature in the psychological, social, and behavioral sciences; ScienceDirect, a database of all Elsevier publications, including specialty journals such as *Research in Developmental Disabilities*; Social Work Abstracts, a database dedicated to all areas of social work practice; and SocINDEX, which bills itself as the most comprehensive database for sociology research.

The search terms used were “cognitive behavior therapy” (which also picked up articles using the term “cognitive behavioral therapy”) and “intellectual disabilities”. To ensure all possible articles were found, additional searches were completed substituting “CBT” for “cognitive behavior therapy”, and “mental retardation” for “intellectual disabilities.” Ultimately, this meant that each database was searched a total of four times. The first search used the terms “cognitive behavior therapy” and “intellectual disabilities”. The second search used the terms “CBT” and “intellectual disabilities”. The third search used the terms “CBT” and “mental retardation”. The fourth search used the terms “cognitive behavior therapy” and “mental retardation”.

These searches were conducted using the Boolean operator “AND” to ensure that the articles retrieved included both search terms. Likewise, quotation marks were retained around the search terms to ensure the specific phrases were retrieved as written. This was important because the meaning changes when only individual words are used as opposed to when the phrase is used as a whole.

Inclusion and Exclusion Criteria

To be considered for inclusion in this systematic review, only published research studies with full text available in the English language were considered. Both qualitative and quantitative studies were considered for inclusion, however, dissertations, gray literature, books or book chapters, commentary or review articles, editorials, prior literature reviews, and any article without full text available within the database were excluded.

In order to be included in the systematic review, the articles had to deal directly with the use of CBT for adults with intellectual disabilities, as defined above. One important feature of an intellectual disability is IQ score, although this has been de-emphasized in the most recent version of the DSM. Because the diagnosis of an intellectual disability leaves room for clinical judgment - that is, a clinician's use of observation, description, and classification in decision making and diagnosis (Fava, 2013) - this research study reviewed any article that described the primary research subjects as having an intellectual disability, at any level of severity, including borderline intellectual disability.

Studies that utilized cognitive-only or behavioral-only techniques were excluded from the review. Studies regarding children or adolescents age 17 and under were excluded. Although there are several other disabilities closely related to intellectual disability because they also have origins during the developmental period and require similar lifelong care (e. g., Down Syndrome, Autism Spectrum Disorder), studies with subjects who did not meet the criteria for a diagnosis of intellectual disability were excluded.

All psychiatric diagnoses (e. g., depression, anxiety, etc.), presenting problems (e. g., trauma, behavioral concerns, etc.), and specific skills (e. g., social skills, communication, etc.)

were considered for inclusion as long as the study used CBT as the intervention and the subjects were adults with intellectual disabilities.

During the systematic search, screening was done in several stages to ensure the articles met the inclusion/exclusion criteria. First, by reviewing the title. Second, by reviewing the abstract. Finally, by reviewing the full text. When in doubt, the researcher allowed the article to pass to the next stage for further scrutiny. Primary reasons articles were rejected were because they were not about CBT, adults, people with intellectual disabilities, CBT outcomes (i. e., article was a cognitive conceptualization, opinion piece, etc.), or because the article was not available in full-text or English. The number of articles screened and accepted/rejected at each stage is available in Tables 1 through 5.

Table 1.

Results of Search of Medline Plus Database

	Total Number of Articles	Accepted after Title Review	Accepted after Abstract Review
Search 1: “cognitive behavior therapy” and “intellectual disabilities”	44	12	4
Search 2: “CBT” and “intellectual disabilities”	31	23	12
Search 3: “CBT” and “mental retardation”	3	1	0
Search 4: “cognitive behavior therapy” and “mental retardation”	86	2	0
TOTALS	164	38	16

Table 2.

Results of Search of psychINFO Database

	Total Number of Articles	Accepted after Title Review	Accepted after Abstract Review
Search 1: “cognitive behavior therapy” and “intellectual disabilities”	75	46	21
Search 2: “CBT” and “intellectual disabilities”	57	28	15
Search 3: “CBT” and “mental retardation”	46	24	17
Search 4: “cognitive behavior therapy” and “mental retardation”	79	42	30
TOTALS	257	140	83

Table 3.

Results of Search of Social Work Abstracts Database

	Total Number of Articles	Accepted after Title Review	Accepted after Abstract Review
Search 1: “cognitive behavior therapy” and “intellectual disabilities”	22	1	0
Search 2: “CBT” and “intellectual disabilities”	0	0	0
Search 3: “CBT” and “mental retardation”	0	0	0
Search 4: “cognitive behavior therapy” and “mental retardation”	2	0	0
TOTALS	24	1	0

Table 4.

Results of Search of socINDEX Database

	Total Number of Articles	Accepted after Title Review	Accepted after Abstract Review
Search 1: “cognitive behavior therapy” and “intellectual disabilities”	33	10	4
Search 2: “CBT” and “intellectual disabilities”	6	0	0
Search 3: “CBT” and “mental retardation”	0	0	0
Search 4: “cognitive behavior therapy” and “mental retardation”	20	0	0
TOTALS	59	10	4

Table 5.

Results of Search of Science Direct Database

	Total Number of Articles	Accepted after Title Review	Accepted after Abstract Review
Search 1: “cognitive behavior therapy” and “intellectual disabilities”	106	8	3
Search 2: “CBT” and “intellectual disabilities”	225	9	6
Search 3: “CBT” and “mental retardation”	447	2	0
Search 4: “cognitive behavior therapy” and “mental retardation”	242	3	0
TOTALS	1020	22	9

Sensitivity and Specificity

Petticrew and Roberts (2006) define a highly sensitive search as one which results in a high proportion of the total articles available on that topic, and a specific search as one which results primarily in articles that are relevant to the topic. Because the goal of a systematic review is to analyze as much of the relevant literature as possible, high sensitivity is important.

However, because there are often irrelevant results in a highly sensitive search, sifting through the resulting material can be unwieldy. Therefore, the search terms must be chosen so that there are also relatively high levels of specificity (Petticrew & Roberts, 2006). Table 6 shows the sensitivity and specificity of this systematic search; the sensitivity column lists the total number of results found, while the specificity column lists the number of results that appear to be relevant to the research question based on a review of the title only.

Table 6.

Sensitivity and Specificity Review

Database	Sensitivity	Specificity
Medline Plus	164	16
PsychINFO	257	83
Social Work Abstracts	24	0
SocINDEX	59	4
Science Direct	1020	9
TOTALS	1524	112

Because of the large number of articles reviewed for this systematic review, it is clear the search terms were highly sensitive. The specificity of the search was extremely low at only 7%.

Although this required the researcher to review many irrelevant articles, Petticrew and Roberts

(2006) point out that when completing a systematic review in the social services, having a high sensitivity with low specificity is not only common but can also help provide confidence that the vast majority of potentially relevant articles have been found.

Articles Included in the Final Data Set

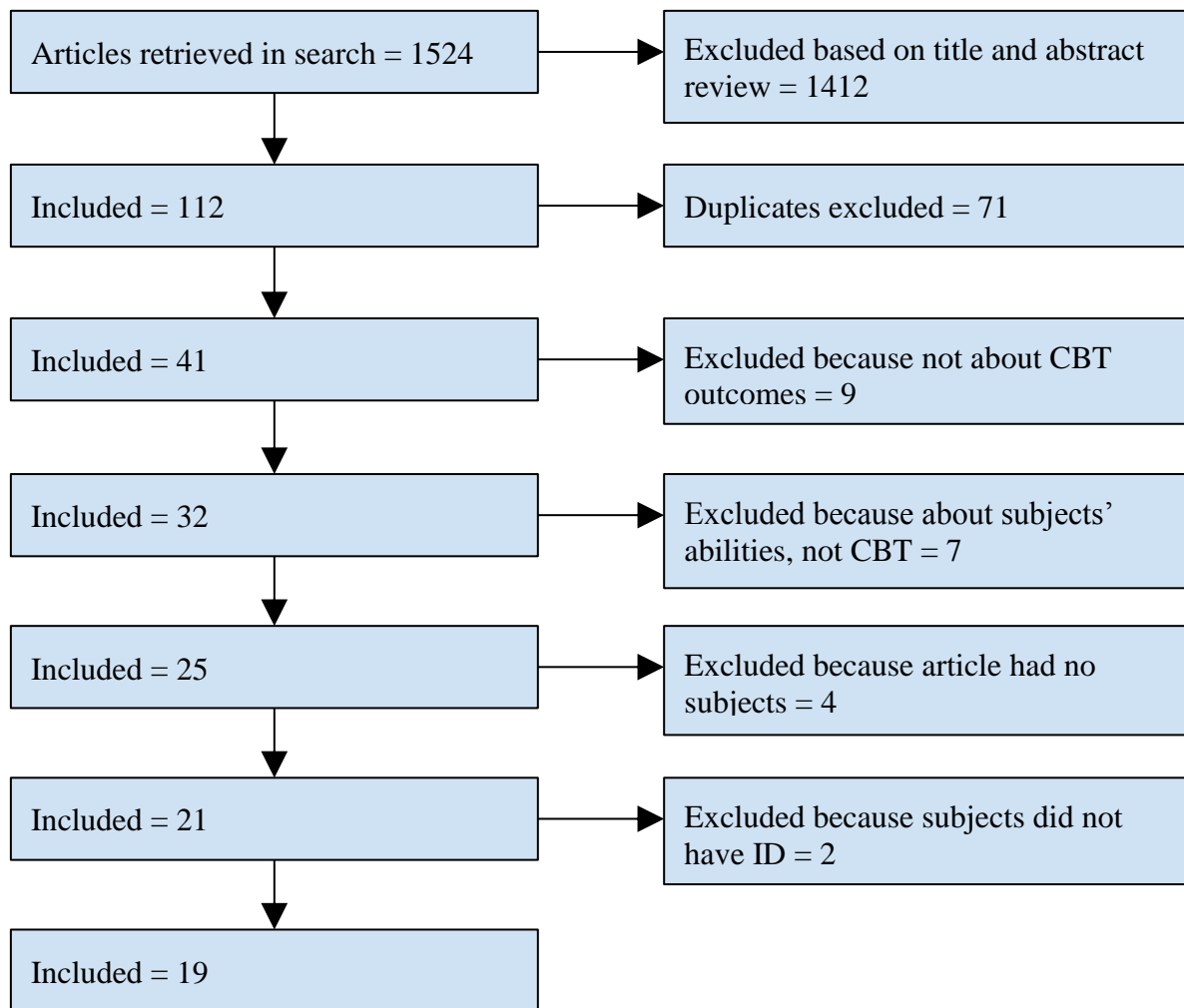
A total of 112 articles were downloaded from the databases for review. After removing duplicate articles, a total of 41 articles were left for final review. Of these articles, 19 were included in the final data set for abstraction. Nine were excluded because they were not research articles studying the outcomes of CBT; instead, they studied either the cognitive-only or behavioral-only aspects of CBT, or they reviewed study-related aspects (e. g., cost, feasibility, etc.). Seven articles were excluded because they were about the abilities of the subjects (i. e., determining if people with intellectual disabilities have the cognitive ability to complete CBT). Four articles were excluded because they described the cognitive conceptualization of intellectual disabilities, but did not include actual subjects. Two articles were excluded because the subjects did not have intellectual disabilities. See Figure 1 for a summary of how the final data set was obtained.

Data Abstraction

Because systematic reviews need to be completed in a pre-planned and systematic way (Petticrew & Roberts, 2006), the data abstracted from the final article set must be consistent. Therefore, this researcher used a two-page grid that summarized each article identified for inclusion. The information on this grid included the citation; the inclusion criteria; information about the study, such as the type of study (i. e., qualitative or quantitative), the study design, and the location of the study; information about the sample, including both treatment groups and control groups when applicable; information about the use of CBT, including the problem being

treated (e. g., depression, behavioral issues, etc.), the type of intervention, and the CBT techniques used; information about the measures used; and the outcomes. A copy of the abstraction grid can be found in Appendix A.

Figure 1. Articles included/excluded for final data set



Findings

The goal of this systematic review was to determine the outcomes of studies using CBT to treat adults with intellectual disabilities. Of the 19 studies included in the final data set, three were qualitative in nature, meaning that they seek to understand a participant's views or experiences. The remaining were quantitative studies, which use objective measurements and statistical techniques to answer the research question. Among the quantitative studies included, there were two randomized controlled studies, a research design with both an experimental group and a control group; subjects are assigned to these groups randomly. There were three quasi-experimental studies, a research design with both treatment and control groups, but in which assignment to either group is done non-randomly, and often for convenience reasons. There were seven pre-experimental studies, which do not have a control group. Finally, there were four case studies, which examine a single subject at a time.

Table 7 outlines the included studies. There was a total of seven problem types treated by CBT in these articles: anger and aggression, chronic pain, fire setting behavior, hoarding, mood disorders, psychosis, and sexually abusive behavior. Each of these, as well as the participants' views of CBT as discussed in the qualitative articles, are reviewed below.

Table 7.

Overview of Included Articles, Alphabetical by Problem Type

Brief Citation	Problem Studied	Study Type	Sample Size	ID Level	Intervention	Results
Lindsay et al. (2003)	Anger and Aggression	Pre-experimental	6	Mild	40 weekly group sessions	Statistically significant improvement on an anger inventory, anger-provoking role-plays, and daily self-reports of anger. All results were maintained through follow-up. Criminal justice system data showed no re-offense of assaults.
MacMahon et al. (2015)	Anger and Aggression	Qualitative	11	Mild	12 weekly group sessions	Main themes included what it was like to take part in group, the difference the group made in participants' lives, and the presentation of a positive self.
Novaco & Taylor (2015)	Anger and Aggression	Pre-experimental	50	Borderline/ Mild	18 individual sessions	There was a significant reduction in the number of assaults following treatment; changes on the NAS and WARS were related to this reduction, but not on the STAXI or PI.
Rose (2010)	Anger and Aggression	Quasi experimental	43	Mild / Moderate	16 weekly group sessions	There was a statistically significant improvement on the Carer Anger Inventory for the treatment group.

Taylor et al. (2005)	Anger and Aggression	Randomized Controlled Trial	40	Mild / Moderate	18 individual biweekly sessions	Although subjects in the treatment group showed improvement on all measures (NAS, PI, WARS, AX), the results were only statistically significant on the NAS; these results were maintained through follow-up.
Willner et al. (2013)	Anger and Aggression	Randomized Controlled Trial	181	Mild	12 weekly group sessions	There was a statistically significant difference on the PACS and the ABC; these results were maintained at follow-up. There was no statistically significant difference on the PI, MOAS, GDS, GAS, or ComQoL-ID.
McManus et al. (2014)	Chronic Pain	Case Studies	5	Mild	8 individual biweekly sessions	There was an initial improvement on the PSE-C and the Pain Knowledge Scale, but gains were not maintained at follow-up. All participants made and maintained gains in their knowledge on pain coping strategies. Daily logs showed low implementation of these strategies, with a preference for behavioral skills vs. cognitive skills.

Taylor et al. (2002)	Fire Setting	Pre-experimental	14	Borderline/Mild	40 biweekly group sessions	Statistically significant improvement for the majority of participants was shown post-treatment on the FIRS, FAS, GAS, NAS, CFSEI - 2. No statistically significant improvement was found on the BDI -SF.
Kellett et al. (2015)	Hoarding	Pre-experimental	14	Mild	12 individual weekly sessions	Statistically significant improvement was shown from baseline to post-treatment, and again from post-treatment to follow-up on the CIRS, SI-R, GAS-ID, and GDS-ID.
Lindsay et al. (2015)	Mood Disorders	Quasi-experimental	24	Mild	Between 8 and 14 individual sessions	There was a statistically significant treatment effect at post-treatment on the GAS and GDS; these gains were maintained at follow up. Anxiety and GSI subscales of the BSI were significant at post-treatment; the depression subscale was not.
McGillivray et al. (2008)	Mood Disorders	Quasi-experimental	49	Mild	12 weekly group sessions	The treatment group showed statistically significant improvement, which was maintained at follow-up, on the BDI-II, ATQ-R, and SCS. There was no statistically significant improvement on the SRSS.

Barrowcliff (2008)	Psychosis	Case Study	1	Mild	20 individual sessions	Statistically significant improvements were made and maintained on the PANSS, PSYRATS-AH, and SCS. The results of the BAVQ were not statistically significant. The Command Hallucination interview showed improvements.
Favrod et al. (2007)	Psychosis	Case Studies	2	Mild/ Moderate	Individual sessions for 6 months	Statistically significant improvements were made and maintained on the BAVQ.
Haddock et al. (2004)	Psychosis	Case Studies	5	Borderline/ Mild	20 weekly individual sessions	One of five participants showed and maintained improvement on the PANSS. Three of five showed and maintained improvement on the PSYRATS. One participant showed and maintained improvement on the Index of Community Involvement and the ABS, two showed and maintained improvement on the NCBRT, and three showed improvement on the ABC.
Hays et al. (2007)	Sexually Abusive Behavior	Qualitative	16	Mild/ Moderate	Weekly group sessions for one year	Majority of participants correctly answered factual/memory-related questions, were able to discuss the content of the group, and 69% indicated they would like to attend another group.

Murphy et al. (2007)	Sexually Abusive Behavior	Pre-experimental	10	Borderline/Mild	Weekly individual sessions for one year	Statistically significant treatment gains were obtained on the SAKS and the VES-A, but not on the SOSAS or QACSO.
SOTSEC - ID (2010)	Sexually Abusive Behavior	Pre-experimental	46	Borderline/Mild	Weekly group sessions for one year	Statistically significant treatment gains were obtained and maintained on the SAKS, VES-A, SOSAS, and QACSO. There were also statistically significant improvements on the SAKS and QACSO between the post-treatment measurement and the follow-up measurement.
Heaton & Murphy (2013)	Sexually Abusive Behavior	Pre-experimental	34	Borderline/Mild	N/A - Follow-up study to SOTSEC - ID (2010)	Treatment gains from SOTSEC-ID (2010) were maintained on SAKS, VES - A, SOSAS, and QACSO. Statistically significant improvements were found on the SAKS. Sixty-eight percent of men in treatment group had not re-offended.
Pert et al. (2013)	Multiple	Qualitative	15	Borderline/Mild	Individual sessions	Three main themes were identified: the role of talking in therapy, the feelings of being valued and validated, and the therapeutic change process.

Anger and Aggression

Five quantitative studies examined the use of CBT to treat anger and aggression in adults with intellectual disabilities.

Lindsay, Allan, MacLeod, Smart, and Smith (2003) completed a pre-experimental study made up of six men functioning at the mild level of intellectual disability who had been previously convicted of violent personal assault and were recruited from an outpatient mental health clinic. A group CBT intervention lasting 40 to 60 minutes per week for approximately nine months (40 sessions) was studied. The CBT techniques were modified by shortening sessions as needed, using more concrete language, and the use of pictorial or video aids to supplement written material. Outcome measurements were taken at baseline, during treatment, at the end of treatment, and at three month, nine month, and fifteen-month follow-up. Four methods of data collection were used at each measurement: a standardized anger inventory created by the authors of this study, anger-provoking role plays that were videotaped and later rated by two observers blind to the study conditions, daily client self-reports of anger, and information on re-offenses collected from the police and criminal justice system. The mean scores on the anger inventory showed a statistically significant drop in the scores from the baseline (mean = 34.8) through six months of treatment (mean = 13.8), after which point the scores remained relatively stable through the follow-up period. The anger-provoking role-plays showed a similar treatment effect: the mean scores showed a statistically significant drop in scores between baseline (mean = 10.1) and six months of treatment (mean = 3.3), after which point the scores remained stable through the follow-up period. The daily self-reports of anger also showed a statistically significant drop in scores between baseline (mean = 12.5) and the end of treatment (mean = 7.7), with scores remaining relatively stable through the follow-up period. Finally, although the authors had hypothesized that two-thirds of the participants would re-offend within two years,

information collected from the authors' "extensive network of contacts" (p. 50-51) in the criminal justice system showed none of the participants re-offended during the two years following treatment.

Novaco and Taylor (2015) completed a pre-experimental study of 50 adults with borderline and mild intellectual disabilities committed to a forensic hospital due to their anger and assaultive behavior. Each subject received 18 individual treatment sessions of CBT, which was modified primarily through a lengthy preparatory phase. Measurements were taken at baseline and post-treatment via three self-report measures and one staff-report measure and then reviewed to see if they predicted a change in the number of physical assaults recorded in the subjects' medical records in the twelve months prior to treatment compared to the twelve months following treatment. The measures used were the Spielberger State-Trait Anger Expression Inventory (STAXI), which is a 44-item standardized measure completed by the subject; the Novaco Anger Scale (NAS), another standardized measure developed to measure anger regulation, including several subscales; the Provocation Inventory (PI), which rates subjects' responses on a number of hypothetical and potentially anger-inducing situations; and the Ward Anger Rating Scale (WARS), which is completed by a staff member who knows the subject well. The results showed significant reduction in the number of assaults following treatment, from a total of 319 assaults committed by all participants in the twelve months prior to treatment to a total of 153 assaults committed by all participants in the twelve months following treatment. Changes on the NAS and WARS were significantly related to the reduction in assaults ($p = 0.008$ and $p = 0.018$, respectively), but this was not the case for the STAXI or PI ($p = 0.079$ and $p = 0.068$, respectively).

Rose (2010) completed a quasi-experimental study of 43 adults with mild to moderate intellectual disabilities; 24 were assigned to the treatment group, which consisted of 16 weekly group sessions, while the rest were assigned to the control group. CBT was modified by using adapted written materials (both simplified and using pictures) and the involvement of caregivers. This study used only caregiver reports for determining the results, and measurements were taken at baseline and at the completion of treatment. The Carer Anger Inventory was adapted from a self-report measure, and measured expressed anger of the subjects. There was a statistically significant improvement noted for subjects in the treatment group (mean = 94.51 pre-treatment to mean = 85.32 post-treatment; $p = 0.002$) as opposed to those in the control group, for whom the scores went up (mean = 94.55 pre-treatment to mean = 96.78 post-treatment). The authors did not discuss what, if anything, this change in scores for the control group meant. The Challenging Behavior Attributions Scale (CHABA) is a standardized measure with seven subscales measuring the causes of behavior; only two were used in this study, the emotional subscale and the environmental subscale. Higher ratings on the emotional scale of the CHABA were correlated with more significant improvement on the Carer Anger Inventory (Pearson's correlation = 0.455).

Taylor, Novaco, Gillmer, Robertson, and Thorne (2005) studied 40 adults with mild or moderate intellectual disabilities who were living in a forensic hospital due to aggression. This randomized controlled trial assigned 16 subjects to the treatment group and 20 subjects to a control group. Eighteen individual CBT sessions were conducted twice a week; CBT was modified to include an extended preparatory phase and the involvement of caregivers. Three self-report measures and one staff-report measure was completed at baseline, at the conclusion of treatment, and at four months follow up. Only one of these measures - the Novaco Anger Scale

(NAS), as described above - showed statistically significant improvement in the treatment group ($p < 0.05$). For the remainder of the measures - the Provocation Inventory (PI), as described above; the Ward Anger Rating Scale (WARS), also described above; and the Anger Expression (AX) scale - the treatment group showed progress when compared to the control group, but the results were not statistically significant ($p < 0.005$, statistic not given, $p = 0.08$, respectively).

Willner et al. (2013) recruited a total of 181 adults with mild and moderate intellectual disabilities from thirty day-service providers who were identified as having problems managing their anger by staff from their respective day-service providers. Participants were randomly assigned to either the treatment group ($n = 91$) or to the control group, which was a treatment as usual group ($n = 90$). A randomized controlled trial of a group-based CBT intervention which lasted twelve weeks was implemented by lay staff who had been trained in CBT and were supervised by a clinical psychologist. The CBT intervention was modified primarily through the inclusion of caregivers. Measurements were taken at baseline, 16 weeks post-treatment, and 10 months post-treatment. On the Provocation Inventory (PI), described above, the group showed improvement, but not at a level that was statistically significant at either 16 weeks ($p = 0.083$) or 10 months ($p = 0.210$). When key day service staff completed the PI, the results were not statistically significant at 16 weeks ($p = 0.060$), but they were at 10 months ($p = 0.023$). The Profile of Anger Coping Skills (PACS), which is similar to the PI, except it uses known scenarios (versus hypothetical situations) that provoke anger, showed a significant improvement in scores at 16 weeks ($p = 0.001$), and was maintained at 10 months ($p = 0.010$). The Hyperactivity and Irritability domains of the Aberrant Behavior Checklist (ABC-H/I) were completed by the key day service staff and the primary home caregiver in order to assess challenging behavior; both domains showed statistically significant improvements by key day

service workers ($p = 0.001$ and $p = 0.005$, respectively), but only the hyperactivity domain showed significant improvements when rated by primary home caregivers ($p = 0.046$ and $p = 0.187$, respectively). The Modified Overt Aggression Scale (MOAS) was also completed by the key day service staff and primary home caregiver in order to measure aggressive challenging behavior, but the results were not statistically significant for either set of raters at 16 weeks ($p = 0.914$ and $p = 0.520$ respectively). There were no significant differences on the following measures: the Glasgow Depression and Anxiety Scales (GDS/GAS), which are established standardized measures developed for people with intellectual disabilities ($p = 0.150$ and $p = 0.169$, respectively); and the Comprehensive Quality of Life Scale-Intellectual Disabilities (ComQoL-ID), a self-report measure of quality of life ($p = 0.249$).

Chronic Pain

One article in the data set studied the use of CBT to help adults with mild intellectual disabilities cope with chronic pain. McManus, Treacy, and McGuire (2014) completed five case studies; each subject received a total of eight individual sessions which were done twice a week. The CBT intervention was modified by involving caregivers in treatment. Measurements were taken at baseline, post-treatment, and at one-month follow-up. The Pain Self-Efficacy Scale for Children (PSE-C) is a standardized assessment that measures a respondent's belief about his/her ability to complete activities when in pain. According to the authors, the scores on this assessment did not change significantly between the pre- and post-treatment measures. At follow-up, two subjects showed an increase in scores, and the remaining three showed a decrease; no statistics were given to support this statement. The Pain Knowledge Scale was developed for this study to identify participants' knowledge about the role of exercise, relaxation, distraction, and cognition in pain management. Four of the five subjects showed an

improvement in their knowledge at the end of treatment, but these gains were not maintained at follow up. Again, no statistics were given in support of this assertion. The Pain Coping Strategies Questionnaire, also developed for this study, assessed belief in both wellness-focused and illness-focused strategies. Participants also kept a daily log of which strategies they used. All five participants showed an increase in knowledge about wellness-focused coping strategies, however, only two participants made progress on illness-focused coping strategies. These results were maintained at follow-up. The daily logs showed a relatively low implementation of coping strategies (a total of 35 skills were used over the course of three weeks by the five participants; the authors did not state how many skills each participant could have used as the daily logs were open ended and allowed participants to list skills they believed were a coping strategy). The strategies that were used tended to be behavioral (e. g., exercise, relaxation) as opposed to cognitively based (e. g., cognitive restructuring, coping self-talk). Again, no statistics were provided.

Fire-Setting Behavior

There was one study in the data set that researched the use of CBT for adults with mild and borderline intellectual disabilities for treating fire-setting behavior. Taylor, Thorne, Robertson, and Avery (2002) completed a pre-experimental study using twice weekly group sessions for 20 weeks with 14 subjects who had been convicted of arson. A variety of outcome measures were used at baseline and at the end of treatment. The Fire Interest Rating Scale (FIRS) is a standardized self-report scale which measures a respondent's interest in fire. Following treatment, 71% of participants had statistically significant improved scores ($p < 0.05$). The Fire Attitude Scale (FAS) is a standardized instrument measuring the respondent's attitudes about fire; 71% of participants had statistically significant improved scores following treatment ($p <$

0.05). The Goal Attainment Scales (GAS) rates respondents on offense-related treatment targets such as accepting guilt and acknowledging responsibility for their prior crimes; 85% of the participants in the study had statistically significant improvement at the post-treatment measurement ($p < 0.001$). On the Novaco Anger Scale (NAS), described previously, 69% of the respondents showed statistically significant improvement following treatment ($p < 0.05$). The Culture-Free Self Esteem Inventory (CFSEI-2), a standardized measure of self-esteem, showed that 71% of the subjects had statistically significant improvement after treatment ($p < 0.05$). Finally, the Beck Depression Inventory-Short Form (BDI-SF) is a standardized measure for depression. There was no statistically significant improvement for participants on this measure (no statistic given).

Hoarding

Kellett, Matuozzo, and Kotecha (2015) completed the one study in this data set on the use of CBT for hoarding in adults with mild intellectual disabilities. Treatment consisted of 12 weekly individual sessions, and was modified to include caregivers in treatment, reduce the complexity of written materials, adjust the length of sessions as needed, simplify case formulations, and reduce the amount of psychoeducation. Outcome measurements were taken at baseline, post-treatment, and at six-month follow-up. The Clutter Image Rating Scale (CIRS) is a standardized measure rating the degree of clutter in a participant's home; it was completed by four doctoral students and had good interrater reliability ($Kappa = 0.67$, $p < 0.001$; 95% CI = 0.501, 0.794). The Savings Inventory-Revised (SI-R) is a standardized self-report measure that evaluates various dimensions of hoarding, such as difficulty discarding items, the amount of clutter, and item acquisition habits. The Glasgow Anxiety Scale for Intellectual Disabilities (GAS-ID) is a standardized self-report measure of anxiety developed and validated specifically

for adults with intellectual disabilities. Likewise, the Glasgow Depression Scale for Intellectual Disabilities (GDS-ID) is a standardized self-report measure of depression which was developed and validated for use with adults with intellectual disabilities. There was statistically significant improvement on all four measures from baseline to post-treatment measures (CIRS $p = 0.05$, SI-R $p = 0.01$, GAS-ID $p = .050$, GDS-ID $p = 0.15$), with further statistically significant improvement on four measures from post-treatment to follow-up (CIRS $p = 0.05$, SI-R $p = 0.02$, GAS-ID $p = .30$, GDS-ID $p = 0.70$).

Mood Disorders

Two articles in the data set researched the use of CBT for mood disorders. Both used a quasi-experimental research design, and both focused on adults with mild intellectual disabilities.

The first study, by Lindsay et al. (2015), had a total sample size of 24, with 12 participants each in the treatment group and the control group; the groups were assigned through matching sex, age, IQ, and Global Severity Index (GSI) scores. Participants in the treatment group were diagnosed with anxiety (three cases), depression (three cases), mixed anxiety and depression (two cases), bereavement with anxiety and depression (three cases), and pathological jealousy (one case). Treatment was through 8 to 14 (median 11) individual sessions, and modified by involvement of family and/or caregivers and an extended preparatory period. Measurements were completed at baseline, post-treatment, and at three and six-month follow-up. The Brief Symptom Inventory (BSI) is a standardized self-report measure that reflects symptoms of a variety of psychiatric problems; three subscales were used: anxiety, depression, and GSI. Post-treatment scores showed there was a marginally significant effect for anxiety ($p = 0.07$), no significant effect on depression ($p = 0.26$), and a significant effect for the GSI ($p = 0.001$). The GAS and GDS scores both showed statistically significant treatment effects directly after

treatment (no statistics given, however, the mean scores went from 33.8 to 16.2 on the GAS and 32.2 to 12.6 on the GDS); these gains were maintained at follow-up.

The second quasi-experimental study, by McGillivray, McCabe, and Kershaw (2008), had a sample of 49 participants with depression. Twenty participants were assigned to the treatment group, with the remainder assigned to the control group. Groups were assigned by convenience. Treatment was led by lay staff from two different vocational programs and included 12 weekly group sessions. Modifications to CBT were primarily through the use of staff assistance to complete outcome scales. Measurements were taken at baseline, post-treatment, and at three-month follow-up. Four outcome measurements were used. The Beck Depression Inventory II (BDI-II), a standardized self-report measure of depression; the Automatic Thoughts Questionnaire-Revised (ATQ-R), a standardized measure of the frequency of automatic thoughts associated with depressed mood; the Social Readjustment Rating Scale (SRRS), a standardized measure of significant life events; and the Social Comparison Scale (SCS), a standardized self-report measure of how the respondent views him or herself in comparison to others. The treatment group showed statistically significant improvement on the BDI-II, ATQ-R, and SCS at post-treatment ($p = 0.000$, $p = 0.021$, $p = 0.015$, respectively); there was also improvement on the SRRS, but it was not statistically significant (no statistic given). The results were maintained at the three-month follow-up.

Psychosis

The data set yielded three articles about the use of CBT for psychosis.

Barrowcliff (2008) reported on a case study of an adult male with mild intellectual disability who received 20 individual sessions for treatment of auditory command hallucinations. Treatment was modified by using extended assessment, psychoeducation, and preparatory

phases; use of pictures instead of written words; and using concrete examples and language where possible. Outcome measurements were taken at baseline, post-treatment, and at three and six-month follow-up intervals. The Positive and Negative Syndrome Scale (PANSS) is a standardized assessment of schizophrenia symptoms, and the respondent showed improvement following treatment, which were maintained at the three and six-month follow-up. No statistical analysis was provided, however, the raw scores dropped from 36 pre-treatment to 30 post-treatment (improvement is demonstrated by a reduction in the overall score); at three months, the score was 25, and at six months, the score was 29. Although the six-month follow-up score did go up, it was still a reduction when compared to the pre-treatment score, and the authors described this result as a maintained gain. The Psychotic Symptom Rating Scale (PSYRATS) is a standardized assessment of various aspects of auditory hallucinations; the respondent showed improvement following treatment which was also maintained at the three and six-month follow-up. Again, no statistical analysis was provided, however the scores dropped from 37 prior to treatment to zero following treatment and at both follow-up measurements. The respondent again showed and maintained improvements on the Social Comparison Scale (from 13 pre-treatment to 20 post-treatment and at six-month follow up; data was not collected for this scale at three months). On the Beliefs about Voices Questionnaire (BAVQ), a standardized self-report measure, the respondent showed no changes on any of the subscales. The Command Hallucination interview was designed for this study to target specific beliefs and behaviors associated with auditory hallucinations, and showed the respondent's conviction of beliefs regarding his voices fell from 100% at baseline to 0% at post-treatment; this was maintained at the three and six-month follow-up.

Favrod, Linder, Pernier, and Chafloque (2007) reported two case studies, an adult female with mild intellectual disability, and an adult male with moderate intellectual disability. Both subjects had auditory hallucinations and received six months of individual CBT sessions. Treatment was modified by using concrete exercises and an emphasis on behavioral components. A rudimentary form of the BAVQ (described above) was used with both subjects and showed improvements that were maintained at follow-up. No statistical analysis was provided. The first respondent endorsed a 100% conviction of belief about the voices at baseline. This dropped to 60% at the end of treatment and further dropped to 50% and 40% at the nine-month and twelve-month follow-up, respectively. The second respondent endorsed a 100% conviction of belief at baseline. This dropped to 50% following treatment and 30% at nine-month follow-up. There was no twelve-month follow-up completed for the second respondent.

Haddock, Lobban, Hatton, and Carson (2004) completed five case studies of individuals with borderline and mild intellectual disabilities who had been diagnosed with schizophrenia and suffered from auditory hallucinations. Each subject received 20 weekly individual CBT sessions; CBT was modified by involving family and caregivers, reducing the length of sessions, supplying material in pictorial or audio recorded formats, and an extended preparatory phase. Outcome measurements were taken at baseline, post-treatment, and a 12-month follow-up using the Positive and Negative Syndrome Scale (PANSS) (previously described). No statistical analysis was provided, however, one of the five participants showed and maintained improvement on the PANSS (baseline score of 55, with post-treatment and follow-up scores of 35). The Psychotic Symptom Rating Scales (PSYRATS) has been previously described. No statistical analysis was provided, however, three of the participants showed improvements, which were maintained in the subsequent follow-up measurements (baseline 24, post-treatment 0,

follow-up 0; baseline 21, post-treatment 21, follow-up 14; baseline 30, post-treatment, 0, follow-up 0; baseline 37). A modified form of the Index of Community Involvement, a standardized measure asking about the participants' community activities, was used. Only one participant showed improvements on this measure, although these improvements were maintained at twelve-month follow-up (baseline 6, post-treatment and follow-up 12). A modified version of the Nisonger Child Behavior Rating Form (NCBRF), a standardized assessment of pro-social behaviors, was used, with two participants showing and maintaining improvement at each measurement (baseline measurement of 4, post-treatment 9, follow-up 10; baseline 5, post-treatment 18, follow-up 17). The Aberrant Behavior Checklist (ABC) has been previously described, and three participants showed and maintained improvement on this measure (baseline 7, post-treatment 0, follow-up 1; baseline 74, post-treatment 10, follow-up 12; baseline 32, post-treatment 24, no follow-up). The Adaptive Behavior Scale (ABS) is a standardized measure completed by a caregiver that assesses daily living skills and one participant showed and maintained improvement (baseline score 239, post-treatment 266, follow-up 252).

Sexually Abusive Behavior

There were three studies in the data set that researched the use of CBT with men with borderline and mild intellectual disabilities who had committed sexually abusive behavior. All three studies used a pre-experimental research design. In addition, all three studies used the same four outcome measures. The Sexual Attitudes and Knowledge Scale (SAKS) is a standardized measure developed for people with intellectual disabilities to assess sexual knowledge and attitudes. The Questionnaire on Attitudes Consistent with Sexual Offending (QACSO) was designed for use with sex offenders with intellectual disabilities; this standardized instrument measures distorted cognitions related to sexual offenses. The Sexual Offenders Appraisal Scale

(SOSAS) is another standardized instrument that measures cognitions about sexual offenses. The Victim Empathy Scale-Adapted (VES-A) is a standardized measure modified for sexual offenders with intellectual disabilities, and measures the level of empathy the respondent has for his or her victim.

The first study, Murphy, Powell, Guzman, and Hays (2007), had a sample size of 10 subjects who participated in weekly group CBT sessions for one year. The CBT intervention was modified through increased psychoeducation and simplification of complex treatment components. Measures were taken at baseline and post-treatment. The four outcome measures described above were used. Statistically significant treatment gains were obtained on the SAKS ($p = 0.02$) and the VES-A ($p = 0.02$). Although there was progress made on both the SOSAS and the QACSO, the results were not statistically significant (p values not reported). Informally, the authors reported that one of the 10 participants had a known incident of sexually abusive behavior during treatment.

The second study was conducted by the Sex Offender Treatment Services Collaborative-Intellectual Disabilities (SOTSEC-ID) (2010). This study consisted of 46 men who received weekly group CBT for one year. The men were divided into a total of 13 groups. Treatment was modified to allow for an extended preparatory phase. Outcome measurements were taken at baseline, post-treatment, and a six-month follow-up. Statistically significant treatment gains were made on all four measures: SAKS ($p < 0.001$), VES-A ($p = 0.002$), SOSAS ($p = 0.030$), and QASCO ($p < 0.001$). These gains were also statistically significant at follow-up on all four measures ($p < 0.001$, $p = 0.090$, $p = 0.030$, $p < 0.001$, respectively). The authors also reported three participants engaged in sexually abusive behavior during the treatment phase, and four participants engaged in sexually abusive behavior during the six-month follow-up period.

The third study was a follow-up to the SOTSEC-ID (2010) study. Heaton and Murphy (2013) followed up with 34 of the participants. Outcome measurements were taken at a mean of 44 months from the end of the treatment groups. Overall, the treatment gains made during the original SOTSEC-ID (2010) study were maintained on all four measures—the SAKS ($p < 0.001$), VES-A ($p < 0.001$), SOSAS ($p = 0.128$), and QACSO ($p = 0.001$). Records review showed that from the start of treatment during the original study to the current follow-up measure, 11 of 34 men (32%) had committed further sexually abusive behaviors; seven of these offenses occurred during the original study, and six occurred between the end of the original study and the end of the current study. Seven men were interviewed by police but not charged, and two men were convicted in a court of law for their offenses.

Participant Views of CBT

There were three qualitative studies in the data set. Each of these studies sought to capture the experiences of adults with intellectual disabilities who had received CBT.

Hays, Murphy, Langdon, Rose, and Reed (2007) interviewed 16 men with mild and moderate intellectual disabilities who had received CBT for sexually abusive behavior. The men completed a year-long group CBT intervention, which was held weekly for two hours. A semi-structured interview was completed two months after the group ended; the interview was conducted, transcribed, and reviewed by two clinical psychologists who had not been involved in providing treatment. Coding was compared for interrater reliability. The interview was centered around three main topics. First, the researchers asked factual and memory-related questions (e. g., the day the group was held) in order to ascertain the reliability of the men's responses. The majority of the respondents were judged to be correct in their responses. Interrater reliability had a mean kappa of 0.90 for this content area. Second, the researchers asked content-related

questions, such as the reason for the group, the rules for the group, and different therapeutic skills taught. Again, the majority of the respondents were judged as responding accurately; 85% of the men specifically remembered the rule about confidentiality, while 56% were able to state they were referred because they had done “something wrong.” Interrater reliability had a mean kappa of 0.82 for this content area. Finally, the researchers asked questions about the respondents’ views of the group. Overall, the responses were positive. Notably, 69% of the respondents stated they would like to attend another group. They cited breaks, meeting others, and receiving support as the best parts of treatment. They reported that talking about their own offenses as the worst part of the group. Interrater reliability had a mean kappa of 0.88 for this content area.

MacMahon et al. (2015) interviewed 11 adults with mild intellectual disabilities who had taken part in the randomized controlled trial completed by Willner et al. (2013) about anger and aggression (reported on earlier in this study). The authors completed semi-structured interviews two weeks after the end of the treatment group, then recorded, transcribed, and coded the transcripts using interpretive phenomenological analysis. Three main themes arose, each with several sub-themes. First, the participants talked about what it was like to take part in the group. The sub-themes in this category included the idea that the group was fun (especially the role plays), the importance of relationships to the process, the value the participants placed on both talking and listening to others, and finally, the challenges of participation. Interestingly, there were no spontaneous negative statements made about the group; the sub-theme about challenges was specifically solicited by the interview questions. The second main theme was about the difference the group made to the participants. Here, participants talked about a “new me”, which was described in positive terms; the new knowledge and skills they were able to successfully

implement; the way their relationships had improved; and the things that did not change as a result of the group. In this latter category, the primary finding was that although participants were able to discuss the content of the group, they struggled to apply it to their own lives. The third main theme was about presenting a positive self. The majority of the group members talked about themselves as an “expert” in anger management, how they were using their new skills, and the personal achievements gained as a result. However, a minority of the participants attributed responsibility for their anger to the actions of others in what appeared to the authors to be an attempt to present themselves in a positive light.

Pert et al. (2013) interviewed 15 adults with borderline and mild intellectual disabilities who were currently participating in individual CBT for a variety of issues, including depression, anxiety, and anger. Participants were interviewed twice using a semi-structured interview guide: once after their fourth CBT session, and once after their ninth session. Interviews were recorded, transcribed and coded using interpretive phenomenological analysis. The authors found three main themes, each with several sub-themes. The first main theme was about talking in therapy. The sub-themes were that talking with a therapist is helpful, that it can be difficult to talk to a therapist at first, and the value of having a person who keeps things confidential. Several participants specifically stated they appreciated having a non-caregiver to speak with, while several others commented on the importance of having control over what the therapist shared with caregivers. The second main theme was about feeling valued and validated. The sub-themes suggested that the participants appreciated having their problems taken seriously, feeling cared for and understood, and feeling like they were being treated as an equal or as “an adult”. Participants often discussed the importance of being treated like an adult in comparison to feeling like they were being treated like children in other areas of their lives. The third and final

main theme was about the change process in therapy. The sub-themes were about therapeutic goals, the changes they had already noticed (all of which were positive, such as improved confidence and relationships), and finally, the concept that change is fragile and takes time.

Discussion

Outcomes of CBT

Overall, the studies in the data set for this systematic review suggest the use of CBT has some positive outcomes when used with adults with intellectual disabilities for a variety of problems. Of the 16 quantitative studies reviewed, all 16 found statistically significant improvement on at least one outcome measure, with the majority of studies (13 of 16) finding statistically significant improvement on at least half of the outcome measures used. None of the studies reported that clients regressed as a result of the CBT intervention.

Of the 16 quantitative studies, 13 included follow-up data, with one study (Heaton & Murphy, 2013) not conducting a new intervention at all but rather following up on an earlier study (SOTSEC-ID, 2010). Five studies included multiple follow-up measurements, most commonly at 3 months and 6 months post-treatment. For studies with a single follow-up measurement (and excluding the single follow-up study, which occurred at 44 months post-treatment), the median time of follow-up was 6 months post-treatment. All of the studies with follow-up measurements showed treatment gains were maintained through follow-up except one (McManus et al., 2014). In addition, three studies showed further statistically significant improvement between the end of the CBT intervention and follow-up on at least one outcome measurement. This suggests the treatment gains obtained by adults with intellectual disabilities following a course of CBT were maintained for at least six months.

Anger and Aggression. Anger and aggression was the most commonly studied problem type in the data set. This is not surprising; both Parkes et al. (2007) and Myrbakk and von Tetzchner (2008) found challenging behaviors (as defined by caregivers) were one of the most common reasons that adults with intellectual disabilities were referred to psychotherapy. However, since Myrbakk and von Tetzchner (2008) estimated aggressive behaviors are present in only 7% to 15% of people with intellectual disabilities, the majority of studies evaluating the outcomes of CBT with adults with intellectual disabilities are focused on a problem found only in a minority of the population.

In addition to being the most numerous studies in the data set, these studies were of the highest quality as well. There were only two randomized controlled studies in the entire data set, and both were about the use of CBT in treating anger and aggression in adults with intellectual disabilities. Over 300 subjects were included among the five studies in this category. Because of the strength of the research designs and the relatively large sample sizes represented by these studies, greater confidence can be placed in the findings that CBT has positive outcomes for adults with intellectual disabilities who are struggling with anger and aggression.

It should be noted that this conclusion depends greatly on the outcome measure being used. Although two studies found CBT intervention significantly reduced the number of actual aggressive incidents displayed by participants (Lindsay et al., 2003; Novaco & Taylor, 2015), the standardized measures tended to show mixed results. Both of the randomized controlled trials used multiple outcome measures, but only 1 of the 4 measures was statistically significant in the study by Taylor et al. (2005), and only 2 of the 7 measures were statistically significant in the study by Willner et al. (2013).

Chronic Pain. There was only one study in the data set researching the use of CBT in treating chronic pain in adults with intellectual disabilities (McManus et al., 2014). The research design was that of a case study, with 5 individuals included. Despite initial treatment gains, most of these gains were not maintained at follow up. The authors believed the reason for this was three-fold. First, they considered the intervention to be too short. Second, they found there were limitations in staff's abilities to facilitate subject participation in the intervention. Finally, younger participants with shorter pain histories had better gains, which the authors believed to be indicative of a need for earlier intervention. Of note, when the daily logs kept by the participants were reviewed, it was found participants favored behavioral skills as opposed to cognitive skills. This is an interesting finding since behavioral-only methods tend to be favored in the current service-delivery system (Bhaumik et al., 2011). However, conclusions must be drawn with caution as this is the only study researching the use of CBT to treat chronic pain in adults with intellectual disabilities in the data set, and the study uses a weaker research design.

Fire Setting. There was only one study investigating the use of CBT in treating fire setting behaviors in adults with intellectual disabilities (Taylor et al., 2002). The research was a pre-experimental design with 14 subjects and no control group. Because the outcome measures directly related to fire interest and attitudes about fire showed statistically significant improvements, this limited research suggests CBT may be a promising intervention when treating adults with intellectual disabilities who are interested in problematic fire setting behaviors.

Hoarding. There was only one study in this problem area (Kellett et al., 2015), which used a pre-experimental design with 14 participants and no control group. The results from this study are particularly compelling both because the improvements on all outcome measures used

were statistically significant at post-treatment, but also because there was further statistically significant improvement on all outcomes at follow-up. The continued gains made by participants following the conclusion of treatment suggests participants may have been able to continue applying the skills they had learned from CBT even without ongoing intervention from the therapist.

Mood Disorders. Two studies in the data set examined the use of CBT for adults with intellectual disabilities who were suffering from a mood disorder. This is surprising for two reasons. First, McCabe et al. (2006) suggested depressed mood is the most common psychiatric symptom endorsed by adults with intellectual disabilities. Second, CBT was originally developed for use with people with mood disorders and is considered a treatment of first choice when treating people with mood disorders (Wright et al., 2006).

Despite the fact that there were only two studies about treating mood disorders with CBT in adults with intellectual disabilities, both used a control group (though neither used random assignment to either the treatment or control groups), making these studies relatively strong in comparison to other studies in the data set. A total of 73 participants were included among the two studies, which is a relatively high sample size for the articles in the data set. Both studies showed statistically significant improvements on the majority of outcome measures at the post-treatment measurement; the gains were maintained at follow-up. Because of both the positive results and the strong nature of the studies, it appears that CBT is likely an effective treatment for adults with intellectual disabilities who suffer from mood disorders.

Psychosis. Although Deb et al. (2001) found schizophrenia was the most common mental health diagnosis among the adults with intellectual disabilities in their study, there were only three studies reporting on the use of CBT in treating psychosis in adults with intellectual

disabilities; all three employed the use of case studies (a total of 8 individuals were included). Six of the eight individuals showed and maintained statistically significant improvements in psychotic symptoms and hallucinations. Although these results are promising, due to the research design and low number of subjects, further research is needed to determine the effectiveness of CBT for treating psychosis in adults with intellectual disabilities.

Sexually Abusive Behavior. Three studies examined the outcomes of CBT for adults with intellectual disabilities who displayed sexually abusive behaviors. All three studies used a pre-experimental design with no control group. Of note, one of the studies (Heaton & Murphy, 2013) was a follow-up study to another (SOTSEC-ID, 2010), which means only two unique interventions were studied.

Both studies used the same outcome measures: The SAKS, VES-A, QASCO, and SOSAS. Both studies showed statistically significant improvements on the SAKS (a measure of sexual attitudes and knowledge) and the VES-A (victim empathy scale). Only SOTSEC-ID (2010) showed statistically significant improvements on the remaining two outcome measures, which measure the subjects' cognitions and attitudes about sexual offending. This is interesting as the SOTSEC-ID (2010) study was much larger ($n = 46$) than the study (Murphy et al., 2007) which did not find statistically significant improvements on the outcome measures ($n = 10$). Further research is clearly needed to determine if CBT can change the cognitions and attitudes about sexually abusive behaviors in adults with intellectual disabilities, however because the study with positive results was much larger, it looks promising.

Both SOTSEC-ID (2010) and Heaton and Murphy (2013), which was the follow up study to the former, showed treatment gains were maintained for significant periods of time; Heaton and Murphy's (2013) follow up measurements were completed at a mean of 44 months post-

treatment. Further statistically significant improvements were made on the SAKS (Heaton & Murphy, 2013). In addition, record reviews completed by Heaton and Murphy (2013) showed 68% of the men who had received treatment had no further offenses. Therefore, it seems CBT for the use of reducing sexually abusive behavior in adults with intellectual disabilities has positive outcomes in the short and long terms.

Participant Views of CBT

Although the use of CBT in treating a variety of problems in adults with intellectual disabilities has shown positive outcomes, it is also important to consider the point of view of those receiving the treatment. There were three qualitative studies in the data set. All three interviewed participants who had participated in a CBT treatment; two of the studies focused on participants who had participated in a group CBT treatment, while one (Pert et al., 2013) focused on participants who had participated in individual CBT treatment.

Although all three studies asked participants about their experiences, Hays et al. (2007) included questions testing the participants' recall about both factual matters (e. g., the day the group met) and the content of the group (e. g., rules for participation). The study authors concluded participants were accurate in terms of recall; this is an important finding since it demonstrates adults with intellectual disabilities can understand and remember the material presented in CBT treatment.

In all three studies, participants reported having positive feelings overall about the intervention. For example, 69% of the participants in Hays et al.'s (2007) study stated they would like to attend another group even though the majority of participants also said the worst part of the group was talking about their own offenses. All three of the studies found participants valued the relationships they developed during treatment and the support they received as a

result. Participants in the group CBT interventions stated the groups were fun, while the participants in the individual CBT intervention identified the importance of having a designated person with whom they could talk. Pert et al. (2013) interviewed participants who had received individual CBT treatment; these participants noted that they especially valued being treated like adults, with some commenting they felt like they were treated like children in other areas of their lives.

The importance of confidentiality arose in two of the three studies (Hays et al., 2007; Pert et al., 2013). In Hays et al. (2007), confidentiality was the most common answer in response to questions about the content of the group. Meanwhile, participants in the study by Pert et al. (2013) stated one of the best parts of talking to a therapist was the confidentiality; these participants often stated they liked having someone they could discuss their problems with other than caregivers.

Participants also talked about the positive changes they noted in themselves following CBT. Two of the three themes that arose in the study by MacMahon et al. (2011) dealt with participants' new knowledge, skills, and abilities obtained following participating in a CBT intervention. In both MacMahon et al. (2011) and Pert et al. (2013), participants talked about the ways their relationships had been improved as a result of participating in CBT, especially in terms of having fewer arguments with others.

Fidelity to the CBT Treatment Model

Because the efficacy of CBT in general depends on the clinician's fidelity to the treatment model (Waltman et al., 2016), it is impossible to judge the outcomes of CBT for adults with intellectual disabilities without considering whether or not the studies in the data set were faithful to the CBT model. Of the 16 quantitative studies, only four directly discussed CBT

fidelity in the published article. Both of the randomized controlled trials (Taylor et al., 2005; Willner et al., 2013) and one of the case study designs (Haddock et al., 2004) ensured fidelity to the CBT model by having outside observers monitor sessions or review treatment records. The remaining study (Taylor et al., 2002) stated only that a structured manual was used to direct treatment and ensure adherence to the treatment model.

For the remaining 12 research studies included in this systematic review, no explicit information about CBT fidelity was given. However, based on the information given in the methods sections of those published articles, a subjective sense of fidelity can be inferred. In order to do this, it is important to understand what makes CBT a unique treatment intervention. As discussed in the literature review, CBT requires the use of both cognitive and behavioral components (Wright et al., 2006). Because this was one of the inclusion criteria for this systematic review, all of the studies in the data set used both cognitive and behavioral components. The use of cognitive restructuring in order to modify maladaptive automatic thoughts and underlying schemas is central to the process of change in CBT (Beck & Haigh, 2014; Bodenheimer, 2016; Howe, 2009; Wright et al., 2006); 10 of the articles explicitly discussed the process of cognitive restructuring, while the remaining two (Favrod et al., 2007; Lindsay et al., 2015) discussed techniques consistent with the process of cognitive restructuring (e. g., the use of diary cards, Socratic questioning, etc.).

The case conceptualization, in which the clinician and client explore the factors unique to the client, is also important in CBT (Waltman, Creed, & Beck, 2016). Four of the remaining 12 research studies stated a case conceptualization was completed (Barrowcliff, 2008; Kellett et al., 2015; Lindsay et al., 2015; Novaco & Taylor, 2015). Agenda setting, in which the clinician and client jointly agree on the goals for each setting is also considered important to the CBT model

(Wright et al., 2006); one study (Lindsay et al., 2015) explicitly discussed the use of agendas in treatment. Finally, although the therapeutic relationship is also considered important to the CBT treatment model (Waltman et al., 2016; Wright et al., 2006), none of the articles in the data set explicitly discussed the quality of the therapeutic relationship. Based on all of this information, all of the studies in the research study were subjectively faithful to the CBT model, although the evidence for this statement is stronger for some studies (e. g., those that explicitly discussed fidelity in the published article) than others.

Modifications Made to CBT. Despite the overall faithfulness to the CBT model, all of the studies made at least some modifications in order to adapt CBT to individuals with intellectual disabilities. These modifications were fairly minor and related to the practical application of CBT and not to the theoretical underpinnings of the model. See Table 8 for a summary of modifications made.

Table 8.

Modifications Made to CBT

Modification Made	Number of Studies Using Modification	Studies Using Modification
Use of specialized outcome measures or adaptation of pre-existing measures	10	Favrod (2007) Haddock (2004) Heaton and Murphy (2013) Kellett et al. (2015) Lindsay et al. (2015) McGillivray (2008) McManus et al. (2014) Murphy (2007) SOTSEC-ID (2010) Willner et al. (2013)
Extended assessment and preparatory phase	8	Barrowcliff (2008) Haddock (2004) Heaton and Murphy (2013) Lindsay et al. (2015)

		Murphy (2007) Novaco and Taylor (2015) SOTSEC-ID (2010) Taylor et al. (2005)
Involvement of caregivers	7	Haddock (2004) Lindsay et al. (2015) McGillivray (2008) McManus et al. (2014) Rose (2010) Taylor et al. (2005) Willner et al. (2013)
Use of more concrete communication	6	Barrowcliff (2008) Favrod (2007) Haddock (2004) Kellett et al. (2015) Lindsay et al. (2003) Rose (2010)
Length of sessions altered	3	Haddock (2004) Kellett et al. (2015) Lindsay et al. (2003)

The most common modification (10 of 16 studies) was to either use specialized outcome measures or to adapt pre-existing measures to better meet the needs of adults with intellectual disabilities. For example, measures were simplified, read aloud, or completed by caregivers.

There second most common modification, used in eight studies, was the use of an extended assessment and preparatory phase, which allowed for clinicians to spend additional time ensuring participants could make links between cognitions, feelings, and behaviors.

The third most common modification, used in seven studies, was the modification of CBT through the involvement of caregivers in treatment. In some cases, caregivers attended treatment sessions with participants, while in others, caregivers were recruited to help implement the skill-building homework between sessions. Although a number of authors underscored the importance of caregiver involvement to the success of CBT used with adults with intellectual

disabilities, Pert et al. (2013) found the respondents also valued having someone to talk to who was not a caregiver.

The fourth most common modification was found in six of the studies, in which CBT was modified by using more concrete communication. For example, written materials were supplemented or replaced by the use of pictures and videos, or figurines were used to represent other people.

Finally, the fifth most common modification, found in three of the studies, was the length of the session was altered; in two studies, sessions were shorter in order to accommodate a participant's attention span, ability to concentrate, or level of stamina, but in one study, sessions were sometimes lengthened in order to ensure participant understanding of material.

Based on these findings, it appears at least some modifications need to be made to the CBT model when treating adults with intellectual disabilities. However, Barrowcliff (2008) cautioned modifications should be made in response to individual needs, and not as a general rule. This is good advice given the CBT model requires an accurate case conceptualization, which involves understanding the unique factors an individual brings to therapy (Waltman, Creed, & Beck, 2016; Wright et al., 2006).

State of the Current Research Body

Despite the overall positive results obtained by the research studies in the data set, caution must be used when interpreting these results because the overall state of the existing research into the use of CBT with adults with intellectual disabilities is mixed.

Research Designs. The research designs of the studies in the data set varied widely. Only five of 16 quantitative studies used a control group, and only two of those used random assignment of participants to treatment vs. control groups. A total of four studies used a case

study design, with the remaining studies using a pre-experimental design. All three qualitative studies used a semi-structured interview guide; two of the three qualitative studies used interpretive phenomenological analysis.

Subjects tended to be recruited either by convenience (in many studies, the subjects received services from a particular agency) or they were referred by professionals in a particular geographic area. The sample sizes ranged from one to 181. Half of the studies had fewer than 15 subjects, while the remaining half had 24 or more subjects. The median number of subjects per study was 33.

Because all of the studies had overall positive results, regardless of research design or sampling procedures, future research should focus on study designs allowing for broader generalization of the results. This would include using research designs with a control group, obtaining representative samples, and recruiting larger numbers of participants.

Location of the Research. Of note, none of the studies in the data set originated in the United States. Instead, the vast majority of the studies (17 of 19) came from the United Kingdom; the remaining two were from Australia (McGillivray et al., 2008) and Switzerland (Favrod et al., 2007). It is possible the results of the studies were influenced by unknown geographic causes, and more research is needed in the United States on the impact of CBT for U.S. adults with intellectual disabilities.

Type and Length of CBT Interventions. Half of the quantitative studies used a group intervention, while the remaining half used individual interventions. Except for the case studies, which all used individual interventions, both group and individual interventions were represented among each of the remaining research design types. More research is needed to determine the benefits of each intervention type for adults with intellectual disabilities.

Likewise, the studies were split between studies using a brief intervention (less than 20 sessions) and those using an extended intervention (20 or more session). All of the studies using a control group (including both randomized controlled trials) used a brief intervention, while the majority of the studies without a control group used an extended intervention. Because studies using a control group are generally stronger and more generalizable to the larger population, it seems possible that CBT with adults with intellectual disabilities can be completed with brief interventions. This is an especially interesting finding considering approximately half of the studies modified treatment by extending the assessment and preparatory phase, which implies a higher number of sessions. More research is needed to determine whether this modification is truly needed.

Severity of Intellectual Disability. The vast majority of studies recruited participants with borderline or mild levels of intellectual disability. Only three studies (Favrod et al., 2007; Rose, 2010; Taylor et al., 2005) included participants who function in the moderate range of intellectual disability, and those participants tended to have IQ scores falling just below the traditional cut-off score for mild intellectual disability. As a result, although CBT had positive outcomes for adults with mild or borderline levels of intellectual disabilities, it cannot be assumed CBT will be useful for those who function in the lower ranges of intellectual disability. Further research is needed with these populations.

Implications of the Research

For Social Work Practice. Because social workers in all practice settings may interact with adults who have intellectual disabilities, it is important for social workers to know which theoretical approaches are supported by evidence. Knowing CBT has an emerging and positive evidence base in treating adults with intellectual disabilities who suffer from mental health

problems is useful to both generalist social workers, who may refer clients to a specialist, and clinical social workers, who may directly treat these concerns.

Based on the results of this systematic review, social workers at all practice levels can feel moderately confident CBT is a useful intervention specifically for adults with borderline and mild intellectual disabilities who are struggling with anger and aggression, chronic pain, fire setting behavior, hoarding, mood disorders, psychosis, and sexually abusive behavior. In addition, based on the qualitative studies retrieved as part of this systematic review, adults with intellectual disabilities responded favorably to CBT.

Social workers can further extrapolate that adults with intellectual disabilities have the cognitive capabilities to link their thoughts, emotions, and behaviors. However, because of the cognitive deficits inherent in the diagnosis of intellectual disability, adults with this diagnosis may need additional psychoeducation and socialization to the CBT model, and this should be taken into account when using CBT as a treatment. In addition, adults with intellectual disabilities appear to benefit from the use of concrete words and examples, including the increased use of pictures and videos during treatment. Finally, involving primary caregivers may increase treatment effects. However, because respondents in the Pert et al. (2013) qualitative study indicated a preference for talking about difficult matters with a non-caregiver, social workers should involve caregivers in treatment only after discussing it with the client in order to ensure confidentiality.

For Future Research. Although the use of CBT for treating a variety of mental health issues in adults with intellectual disabilities seems promising, there is a rather small evidence base at this time. Therefore, further research is needed in general.

In determining efficacy of treatment for a general population, the preference is usually geared toward high-quality experimental studies. However, due to the small evidence base, clinicians should be encouraged to publish even small case studies or pre-experimental studies. Further research is especially needed in problem areas outside the ones reported on in this systematic review, and for adults who have more severe forms of intellectual disability. In addition, research conducted in areas outside of the United Kingdom is also needed as the current research base is almost exclusively from the United Kingdom.

Once more prolific research exists, there are several areas in which more specific research is needed. First, because every study in this systematic review included at least some modification to CBT, further research is needed to determine what (if any) impacts the various modifications are having on outcomes. Second, because the studies included in this systematic review looked at both group and individual interventions fairly evenly, further research should be conducted to see if there is a particular benefit to either intervention type. Finally, although CBT was originally conceived as a relatively brief intervention, fully half the studies in this systematic review included 20 or more sessions. Further research is needed to determine what factors should be considered when choosing the length of a course of treatment.

Strengths and Limitations of this Systematic Review

As in every study, there are strengths and limitations to the results of this systematic review.

In terms of strengths, this systematic review can be considered an excellent overview of the current state of the research into the use of CBT for adults with intellectual disabilities because of the high sensitivity of the original searches. Over 1,500 articles were retrieved during the search, of which only 19 were included in the final data set. This makes it highly unlikely

there were additional articles meeting the inclusion/exclusion criteria that were missed during the systematic search. Further, because the inclusion criteria for this study was quite broad and placed no limitations as to the problem being treated, the severity of the intellectual disability, nor the timeframe in which the research was conducted, the reader can be assured of the comprehensive nature of the articles included in this systematic review.

There are two notable limitations of this study based on the inclusion and exclusion criteria. First, this systematic review only included articles written in the English language. This means any studies completed in non-English speaking countries were likely left out of the data set. Second, this systematic review only included studies with full text in the databases. It is possible additional studies exist that would have influenced the conclusions of this systematic review but were excluded because the full text was not available in the database.

Another limitation to this systematic review is the potential effect of publication bias, in which studies with negative results are not published either because researchers choose not to write up and submit the results of their studies or because the journals choose not to publish them (Fanelli, 2012; Petticrew & Roberts, 2006). This problem appears to be worsening. Fanelli (2012) reviewed a random sampling of 7,000 articles pulled from over 10,000 journals to determine the proportion of articles with a positive result compared to a negative result. Fanelli (2012) found in 1990, 70.2% of all published articles had a positive result; 15 years later, this number had soared to 88.6%. As a result of publication bias, it is possible the positive effects of CBT with people with intellectual disabilities have been overpublished.

Conclusion

There are an estimated 3.24 million Americans with intellectual disabilities (Maulik et al., 2001; United States Census Bureau, 2016). People with intellectual disabilities are

diagnosed with psychiatric disorders four times as often as the general population, with between 41% and 57% of people with intellectual disabilities meeting criteria for a psychiatric disorder (Bakken & Sageng, 2016; Einfeld et al., 2006; Goldfarb & Frankel, 2007; Westerhof et al., 2016). Despite this, people with intellectual disabilities are underrepresented in psychiatric treatment settings; Einfeld et al. (2006) found only 10% of adults with intellectual disabilities who met criteria for a psychiatric disorder received any form of mental health treatment. This means there are likely 1.5 million or more Americans with an intellectual disability who need mental health treatment but are not receiving it. Social workers need to be involved in addressing this need.

One potential barrier to receiving mental health treatment adults with intellectual disabilities face is the preconceived notion they do not have the cognitive capacities to participate in psychotherapy in general. Further, because research on people with intellectual disabilities is both sparse and published in niche publications, studies suggesting appropriate mental health treatments for adults with intellectual disabilities are largely inaccessible to the vast majority of mental health clinicians. That is why this systematic review set out to answer the question: “What are the known outcomes of Cognitive Behavioral Therapy for adults with intellectual disabilities?”

The results show that, although there is still relatively little research into this matter, what research does exist has had positive outcomes. CBT appears to be a useful intervention specifically for adults with borderline and mild intellectual disabilities who are struggling with anger and aggression, chronic pain, fire setting behavior, hoarding, mood disorders, psychosis, and sexually abusive behavior. In addition, adults with intellectual disabilities are likely to report positive feelings about CBT, making it a person-centered approach. This means social workers

can feel reasonably confident that adults with intellectual disabilities can benefit from the use of CBT and should consider its use; client progress should be monitored to ensure the results are positive.

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**Appendix A
Data Abstraction Grid**

Citation			
Meets Inclusion Criteria? (All must be yes)	Subjects have ID? YES NO	Subjects are adults? YES NO	Study uses CBT? YES NO- <i>Cog Only</i> NO- <i>Beh Only</i> NO- <i>Other:</i>

Study Info		
Type of Study <i>Qualitative (specify):</i> <i>Quantitative (specify one):</i> <i>RCT Case study Quasi-Exper</i> <i>Other:</i>	Time Period of Study <i>Cross-sectional</i> <i>Longitudinal</i>	Location of Study (i.e., Country or State)

Sample Info	
Severity of ID <i>Borderline Mild</i> <i>Moderate Severe/Profound</i> Median IQ:	Sample Characteristics <i>Age:</i> <i>Race:</i> <i>Gender:</i> <i>Other:</i>
Total Sample Size:	How Recruited?
Use of comparison/control group? YES NO	Construction of Groups <i>Random Other:</i> <i>Convenience</i> <i>Matched</i>
Type of comparison group <i>Tx as Usual Wait list</i> <i>Alternate Tx (specify):</i> <i>Other:</i>	Number of participants per condition <i>Tx Group:</i> <i>Comparison Group:</i>
Attrition Rate and Info	Other Info

Treatment (CBT) Info	
Problem being treated (e.g., mental health dx)	Type of Intervention <i>Individual Group Other:</i>
CBT Techniques Used <i>Self Monitoring (i.e., Diaries) Cognitive Restructuring Relaxation/Imagery</i> <i>Hierarchy Development Exposure/Desensitization Psychoeducation</i> <i>Role Plays Case Formulation</i> <i>Other:</i>	
Dosage <i>Number of Sessions:</i> <i>Length of Each Session:</i> <i>Frequency:</i> <i>Other:</i>	Therapist Qualifications
Info about CBT Fidelity	Other Info

Outcomes	
When Measured? <i>Baseline During Tx</i> <i>Post Tx</i> <i>Follow Up (specify):</i>	How Measured? <i>Self Report Caregiver Report Other:</i> <i>Standardized Measures (specify):</i>
Results (numbers/percentages of change on each measure reported, including vs comparison groups if applicable)	
Other Info	