



The Efficacy and Effectiveness of Psychological Treatments

**Dr. John Hunsley
Katherine Elliott
Zoé Therrien**
University of Ottawa

September 10, 2013

®



Canadian Psychological Association
141 Laurier Avenue West, Suite 702
Ottawa, Ontario K1P 5J3
ISBN # 978-1-926793-09-2
October 2013

This report was prepared by Dr. John Hunsley, Ms. Katherine Elliot
and Ms. Zoé Therrien, School of Psychology, University of Ottawa.

Preparation of this report was commissioned by the Canadian Psychological Association.

Executive Summary

There is extensive evidence demonstrating that psychotherapy can be an efficacious and effective health care service for a wide range of commonly experienced mental health and health conditions. This conclusion applies across the lifespan and is based on many hundreds of studies, including both randomized controlled trials and studies examining the impact of evidence-based psychological treatments delivered in typical clinical settings.

Psychotherapy works for the treatment of depression. Contrary to popular belief, it works at least as well (if not better) for patients with severe symptoms as it does for those experiencing milder forms of depression. Psychotherapy is as effective as medication in treating depression and is more effective than medication in preventing relapse. For some patients, the combination of psychotherapy and medication will be more beneficial than either treatment on its own.

Compared to the use of medication alone for the treatment of bipolar disorder, combining psychotherapy with medication leads to patients functioning better and having fewer relapses. Emerging evidence suggests that adding psychotherapy to medication results in better treatment adherence, reduced subjective burden of disease, and lower suicide rates.

In the treatment of anxiety and related disorders, there is strong evidence to support the use of psychotherapy as a first line treatment. This holds across the lifespan for generalized anxiety disorder, social anxiety disorder, specific phobia, panic disorder, obsessive-compulsive disorder, and posttraumatic stress disorder.

Although the strength of evidence varies considerably across the treatment of anxiety and related disorders, in general, psychotherapy and medication appear to be equally effective. For many of these disorders the rates of premature termination of treatment are lower for psychotherapy than for pharmacotherapy.

Overall, for depression, anxiety disorders, and related disorders, the strength of psychotherapeutic effects is similar or superior to what is typically found with the pharmacological treatment of these disorders. In light of this pattern of results and the potential for negative side-effects associated with medication, many clinical practice guidelines encourage clinicians to consider psychotherapy as the first treatment option to offer to patients with these disorders.

Psychotherapy reduces depression and anxiety in people with coronary heart disease (CHD)—an important finding given the psychological burden associated with these symptoms and the fact that depression has been shown to a risk factor for CHD. There is also some evidence that, when added to usual medical treatments for patients with CHD, psychotherapy significantly reduces cardiac-related death.

Psychotherapy can be more efficacious in reducing smoking (another CHD risk factor) than the usual medical treatment of CHD.

The Efficacy and Effectiveness of Psychological Treatments

Based on the results of the extensive research on the effects of psychological treatments, the American Psychological Association (APA) recently passed a resolution recognizing the substantial clinical impact of psychotherapy (APA, 2013). Although a global statement about the positive effect of psychotherapy does reflect the general research findings, it provides little guidance on the important nuances that abound in the psychological treatment literature. Psychotherapies have been developed to address a broad range of mental health and health conditions, which makes an awareness of these nuances key to understanding the strength of research findings pertinent to a specific disorder or condition. Such information is essential for clinicians delivering psychological treatments, for those developing policies on first line treatment options, and, of course, for those seeking treatment.

There are numerous sources that provide this type of disorder-specific information, including scholarly texts (e.g., Nathan & Gorman, 2007; Weisz & Kazdin, 2010), clinical practice guidelines (e.g., National Institute for Health and Care Excellence, <http://www.nice.org.uk>), and practice reviews produced by professional associations and organizations (e.g., Australian Psychological Society, 2010). For example, the Australian Psychological Society (2010) has produced a systematic review of the research literature focused on the efficacy of psychological interventions for the most commonly encountered mental disorders, including mood disorders, anxiety disorders, substance use disorders, eating disorders, adjustment disorder, sleep disorders, sexual disorders, somatoform disorders, personality disorders, psychotic disorders, dissociative disorders, and disorders first evident in childhood. This extensive document is a testament to the research supporting the psychological treatment options available for addressing mental health problems.

The purpose of the current review is to illustrate the extensive evidence that supports the efficacy and effectiveness of psychotherapy for many common mental health and health conditions. In order to best represent the scope and strength of the research evidence, our review is selective rather than exhaustive. Readers interested in the treatment of conditions not addressed in our review are encouraged to refer to the excellent and thorough sources mentioned above. A wide range of psychotherapies is included in our review, including cognitive behavioural therapy (CBT), interpersonal psychotherapy (IPT), and short-term psychodynamic therapy. By focusing on the psychological treatment, across the lifespan, of mood disorders, anxiety disorders, and coronary heart disease, our intent is to demonstrate the substantial effects that such treatments can have on some of the most common and most debilitating health conditions faced by Canadians. Because summaries of the evidence for the cost-effectiveness of psychotherapy for many conditions are available in the scientific literature (e.g., Chiles, Lambert, & Hatch, 1999; Hunsley, 2003), we do not provide detailed information on this aspect of the impact of psychotherapy. We do, however, mention costing data when relevant examples are available that add to what is commonly known about cost considerations.

Psychological Treatment Research

In recent years, an important distinction has been made with respect to research focused on the outcome of psychotherapy. This distinction between *efficacy research* and *effectiveness research* is central

to attempts to transport successful treatments to routine clinical practice (cf. Hunsley & Lee, 2007). As described by Hunsley (2007):

Treatment efficacy studies involve methodological efforts to maximize the internal validity of a study. This commonly includes the use of design features, such as random assignment to treatment and control conditions, training of therapists to a specified level of competence in providing the treatment, and ensuring that all participants have the condition that the treatment was designed to address. Treatment effectiveness studies, on the other hand, strive to maximize external validity while maintaining an adequate level of internal validity (without which, of course, no viable conclusions could be drawn about the impact of the treatment). Most commonly, efforts to enhance external validity involve locating the treatment study within clinical service sites that provide ongoing health services, thus using clinicians who are routinely providing psychological services and patients who have been referred to the clinical settings (p.117).

Data from both efficacy and effectiveness studies are key to a full understanding of the potential impact of a treatment. Once a treatment has been shown to be efficacious through multiple replications, the next step is to determine how well the treatment works in typical clinical practice (Rounsaville, Carroll, & Onken, 2001). Evidence demonstrating that treatments evaluated under highly controlled research conditions (i.e., efficacy studies) can have a comparable clinical impact when delivered in regular clinical settings (i.e., effectiveness studies) provides essential support for the routine clinical use of such treatments. For this reason, the focus in this review is on both efficacy and effectiveness research.

Our strategy for summarizing the relevant research literature involved, primarily, a reliance on the results of published meta-analyses. This emphasis on quantitative literature reviews is commonly employed in the development of clinical practice guidelines and is seen as providing the best foundation for evaluating treatment effects. Meta-analyses are likely to provide the most current and thorough overview of a research area, and the use of state-of-the-science statistical techniques (e.g., weighted least squares analyses, random effects modelling) ensures the most accurate synthesis of results obtained from multiple studies. For many of the disorders addressed in this document, several meta-analyses have been published in the past two decades. Therefore, whenever more than one relevant meta-analysis was available, we chose to include the most comprehensive meta-analyses. In almost all instances, this means that we are presenting information from the most recently published meta-analyses including, whenever possible, meta-analyses comparing outcomes associated with psychological treatments and with pharmacological interventions. In some cases though, especially with effectiveness research, the state of the research literature is not sufficiently developed to warrant a meta-analytic review. We therefore will supplement meta-analytic results with other forms of quantitative reviews, systematic reviews, or, occasionally, with individual studies.

Meta-analysis combines the results of research studies by using a common metric called an effect size. Effect sizes can be calculated for almost all types of research designs and statistical analyses. Analyses involving group comparisons typically result in two types of effect sizes. The first involves differences among group means, with the effect size being the difference between the posttreatment means of two groups (e.g., treatment and no-treatment groups) divided by the pooled sample of both groups. The statistic is called *d*, *g*, or the *standard mean difference (SMD)* when the pooled standard deviation is used. These three indices are equivalent, with the terms simply reflecting different statistical traditions—we will use the term used in the meta-analyses which we are presenting. It should also be noted that we always report the absolute value of the effect size in order to avoid any potential confusion that might occur due

to variability in how researchers present their comparisons of randomized controlled trial (RCT) results. The second type of effect size involves a comparison of groups in terms of the odds or probability of an outcome. An *odds ratio (OR)* is calculated to determine the association between group condition (e.g., treatment and no-treatment) and a binary outcome variable (e.g., the occurrence or non-occurrence of an event, such as relapse). A *risk ratio (RR)* is calculated to compare the probability of an event occurring in each of the group conditions. Although commonly used in epidemiological research, these effect size indices are not frequently used in psychological research. Therefore, whenever we present findings using this type of effect size we will provide a brief interpretation of the results.

As a final technical point, in this review we will provide effect size values for both efficacy and effectiveness studies. However, these values should not be directly compared because they are almost always based on different forms of statistical analysis. Efficacy studies are, by definition, randomized controlled trials (RCTs) that compare treatment results to the results from a control condition (e.g., no-treatment, an alternative form of treatment such as medication or treatment as usual [TAU]). In this case the effect size is based on change that is due only to treatment itself. Few effectiveness studies are RCTs, therefore meta-analyses of effectiveness studies typically involve a within-group analysis (i.e., pretreatment compared to posttreatment, with no control condition). As a result, an effect size for this type of meta-analysis is based on change that may be due to multiple causes: in addition to treatment effects, this may include effects due to maturation, regression to the mean, remission of symptoms due to passage of time, and measurement reactivity. Effectiveness study effect sizes, therefore, are likely to overestimate true treatment effects, resulting in larger values than those obtained in efficacy studies.

DEPRESSION

The Mood Disorders Society of Canada (2011) estimates that 5-12% of men and 10-25% of women will experience a major depressive episode within their lifetime. Depression is the fourth leading condition related to cause of disability worldwide and is now the leading disease-related cause of disability (Marcus, Yasamy, van Ommeren, Chisholm, & Saxena, 2012). Fortunately, there is a large body of evidence indicating that psychotherapy alone, or in combination with medication, can effectively treat this disorder in children/adolescents, adults, and older adults in a variety of treatment settings (e.g., primary care, community clinics, hospitals) and modalities (e.g., individual therapy, group therapy, brief therapy).

Efficacy Studies

In the past three decades, numerous meta-analyses have demonstrated that psychological treatments are efficacious in the treatment of depression in adults. In the most recent large-scale meta-analysis of psychological treatments for depression, Cuijpers, Andersson, Donker, and Van Straten (2011a) examined the overall impact of psychotherapy and whether there were any associations between characteristics of patients or treatment that influenced the outcome of the treatment of adult depression. Based on the 147 studies and several thousand participants included in their meta-analysis, the overall effect size of psychotherapy versus a no-treatment control group was $d = .66$ (the effect was reduced to $d = .53$ when the authors removed possible outlier findings of 1.5 or higher). All forms of psychotherapy (i.e., various types of CBT, IPT, short-term psychodynamic therapy, and non-directive supportive therapy) were found to be superior to the outcomes achieved by the control group, with effect sizes ranging from .57 to .87. Cuijpers et al. reported that there was a small, but significant effect size favouring individual therapy ($d = .20$) over group therapy, with additional indications that fewer people drop out of individual therapy than

from group therapy ($OR = .56$; i.e., the odds of dropping out of individual therapy is roughly half the odds of dropping out of group therapy). In a meta-analysis focusing on CBT modality options, Huntley, Araya, and Salisbury (2012) also found a significant effect favouring individual over group CBT at posttreatment ($SMD = .38$), although this relative advantage was not evident in subsequent follow-up assessments.

The value of group therapy for adults and older adults should not be dismissed, as there is evidence that it is an efficacious mode of treatment. Feng et al. (2011) conducted a meta-analysis of Cognitive Behavioural Group Therapy (CBGT), including data from 32 studies (with an age range of 19.5-75.2 years). The typical group size was 6-10 participants, with therapy lasting from 8-12 weeks of 1-hour weekly sessions. At post-treatment, depression levels had been significantly reduced ($g = .40$) as compared with a control group and these levels were maintained at 6 month follow-up ($g = .38$). Likewise, Huntley et al. (2012) investigated the efficacy of group-based psychological therapies for depression in a primary care setting. Fourteen studies were included (total $n = 1,217$) comparing CBGT plus TAU to TAU. The post-treatment effect size was $d = .55$, suggesting a considerable effect for CBGT in this setting.

Although the effects of very brief forms of psychotherapy (i.e., several sessions of treatment) appear to be smaller than what is achieved with short-term treatment (i.e., up to 20 sessions), the evidence suggests that they are still efficacious in reducing depressive symptoms (Cape, Whittington, Buszewicz, Wallace, & Underwood, 2010; Nieuwsma, et al., 2012). Cape et al. (2010) conducted a meta-analysis comparing brief psychotherapies (i.e., 6-7 sessions) with TAU in a primary care setting. Thirty-four studies were included in the analyses. There were significant effects favouring brief CBT over TAU for depression ($d = .33$; $n = 450$) and mixed anxiety and depression ($d = .26$; $n = 479$), as well as significant effects for problem solving therapy for depression ($d = .26$; $n = 777$) and mixed anxiety and depression ($d = .17$; $n = 579$). Nieuwsma et al. (2012) conducted a systematic review and meta-analysis of 15 RCTs evaluating brief forms (8 sessions or fewer) of CBT, problem solving therapy, and mindfulness-based cognitive therapy. These brief psychotherapies were more efficacious than control conditions, with effect sizes ranging from $d = .25$ to $.42$. Although the effect sizes are smaller than typically found for short-term versions of CBT, these briefer versions of psychotherapy may be well suited to primary care settings or for those who are reluctant to engage in the usual short-term treatments available for depression.

Research indicates that psychotherapy is also an efficacious treatment option for older adults (S. Y. Lee et al., 2012; Peng, Huang, Chen, & Lu, 2009). Peng et al. (2009) conducted a meta-analysis investigating the efficacy of psychotherapy (i.e., CBT, reminiscence therapy, and generic psychotherapy) in treating older adults (≥ 55 years of age). Fourteen studies were included, with a total of 705 participants (607 of whom completed follow-up assessments). Compared with placebo/no intervention, psychotherapy was efficacious in treating depression ($SMD = .92$). Each type of psychotherapy was more efficacious than placebo ($SMD = 1.34$ for CBT, $.64$ for reminiscence therapy, and 1.00 for generic psychotherapy). In a systematic review of RCTs, S. Y. Lee et al. (2012) investigated whether psychotherapy was a beneficial treatment for community dwelling, older adults with subsyndromal depression. Compared to those who did not receive treatment, older adults who received psychotherapy had fewer depressive symptoms, higher remission rates, and lower incidence of Major Depressive Disorder at 12-month follow-up. Accordingly, the authors concluded that psychotherapy is an efficacious way to treat depression in older adults.

There have been several meta-analyses examining the impact of psychotherapy on depression in children and adolescents, with the most comprehensive being the work of Weisz, McCarty, and Valeri (2006). Thirty-five RCTs were included in their analyses ($n = 2,095$), with 60% of the studies comprised of adolescent participants, 20% of child participants, and 20% with a mixed sample. On average, the samples were comprised of 53% girls and 47% boys, and participants received a mean of 13.3 hours of psychotherapy. Overall, the effect of psychotherapy compared to no treatment was $d = .34$, with no difference in effects related to child age. It is worth noting, however, that the overall effect size combined data from

depressed youth and from their parents. When the subsample of 6 studies that included both youth and parent data was analyzed, treatment effects on youth self-report ($d = .72$) were significantly greater than for parent report ($d = .24$). Given the nature of depression and depressive symptoms, and the fact that internalizing problems are typically noticed and reported differently by youth and their parents, this raises an important question about whether data from multiple informants should be combined to yield an overall estimate of youth treatment effects. Even when focusing on self-report data, there can be considerable variability in treatment effects across studies. In reviewing RCTs published since 1998, David-Ferdon and Kaslow (2008) found that d values could range from as low as .17 to as high as .92. Nevertheless, these authors concluded that there is substantial evidence supporting the use of CBT and IPT for depressed children and adolescents.

Treatment of Severe Depression

An important area of investigation has been how efficacious psychotherapy is for more severe forms of depression, with the American Psychiatric Association (2000a) recommending that psychotherapy may be most useful for less severely depressed patients. In response to this, several meta-analyses have addressed the question of how efficacious psychotherapy is for more severe and chronic forms of Major Depressive Disorder (Cuijpers et al., 2011b; Driessen, Cuijpers, Hollon, & Dekker, 2010). Using meta-regression and meta-analysis, Driessen et al. (2010) directly addressed the question of whether pre-treatment depression severity was related to psychological treatment outcome compared with control conditions. All participants aged 18 years and older were included in the study, and depression scores on the Beck Depression Inventory I (BDI-I), BDI-II, and Hamilton Depression Rating Scale (HDRS) were used as outcome variables. In total, 132 studies were included (total $n = 10,134$; 5,858 participants in the psychological treatment condition and 4,276 participants in the control condition). When examining initial effects of psychological treatment versus control conditions, without separating levels of severity, 74 studies using the BDI-I as an outcome measure found an effect size of $d = .80$; twelve studies using the BDI-II found an effect size of $d = .40$; and 48 studies using the HDRS as an outcome measure found an effect size of $d = .88$. There were no significant effects on treatment outcomes when meta-regression was used to examine the impact of depression severity. The authors then conducted within-study severity analyses to examine the effect of psychotherapy on both a high-severity group and a low-severity group. At post-treatment, when comparing psychological treatment to control groups, the authors found a significant effect size favouring psychotherapy ($d = .23$) for the low severity group. Conducting the same analysis on the high severity group, the authors found a significantly larger effect ($d = .39$) for psychotherapy. The authors concluded that depression severity does moderate treatment outcome, but in the reverse of what many assume: psychotherapy is more efficacious for high severity patients than for low severity patients.

Cuijpers et al. (2011b) examined the effects of psychotherapy on more chronic and severe depression by conducting a meta-analysis on data from inpatients being treated for depression. Twelve RCTs were included in the study (total $n = 570$; 308 participants in the psychotherapy condition and 262 participants in the TAU condition). In ten of the RCTs participants in all conditions received antidepressant medication. The participants were adults and older adults, and the average number psychotherapy sessions ranged from 6-47. The overall mean effect size was significant ($g = .29$). Five studies were included to examine 12 month follow-up and an overall effect size of $g = .32$ was obtained. There was no significant difference found among types of psychotherapy.

Psychotherapy Compared to Antidepressant Medication

Another area of active investigation has examined the effects of psychotherapy when compared with pharmacotherapy, particularly second-generation antidepressants. Results generally suggest that,

for depressed adults, psychotherapy performs as well post-treatment as pharmacotherapy, with psychotherapy showing superior results at follow-up and yielding lower relapse rates (De Maat, Dekker, Schoevers, & De Jonghe, 2006; Cuijpers et al., 2011a; Spielmans, Berman, & Usitalo, 2011).

De Maat et al. (2006) conducted a meta-analysis to investigate the efficacy and drop-out rates of psychotherapy and pharmacotherapy for depression. Ten studies were included which consisted of outpatients diagnosed with Major Depressive Disorder (19-65 years of age; total $n = 1,233$; 640 participants treated with pharmacotherapy and 593 participants treated with psychotherapy). The authors found no difference between psychotherapy and pharmacotherapy in terms of risk of remission, regardless of chronicity or severity of depression. At 1-2 year follow-up, however, psychotherapy had a significantly lower rate of relapse (26.5%) than did pharmacotherapy (56.6%). Additionally, when examining attrition from pharmacotherapy ($n = 182$) and psychotherapy ($n = 140$), the drop-out rate was 28.4% for pharmacotherapy versus 23.6% for psychotherapy. This difference was statistically significant, indicating drop-out rates are significantly lower in psychotherapy than pharmacotherapy.

Spielmanns et al. (2011) conducted a meta-analysis to update and extend the literature in comparing the efficacy of psychotherapy and antidepressants. Fifteen studies were included in the meta-analysis ($n = 1,014$ receiving psychotherapy; $n = 961$ receiving antidepressants). At posttreatment, there were no significant differences in efficacy between psychotherapy and medication on either continuous depression scales or categorical measures including response, remission, or treatment completion rates. At follow-up, psychotherapy was significantly superior to medication ($d = .23$). The authors point out, however, that in 11 studies, participants in the medication arm of the trials were allowed to increase dosage when needed, whereas only 3 studies allowed a similar increase in intensity for psychotherapy. Additionally, 3 studies allowed a complete change in medication for non-responders whereas no studies allowed a change in psychotherapy for non-responders, suggesting the designs may have slightly favoured medication. In their meta-analysis, which included 30 studies of adult depression comparing psychotherapy with pharmacotherapy, Cuijpers et al. (2011a) found no significant difference between treatments (although the $d = .07$ value favoured pharmacotherapy). In 18 studies combined psychotherapy and pharmacotherapy was compared to psychotherapy alone, with a resulting effect size of $d = .35$ favouring the combined treatment; similarly, in 25 studies the combined treatment was superior to pharmacotherapy alone, with an effect size of $d = .31$.

Taken collectively, these meta-analyses suggest that pharmacotherapy and psychotherapy have comparable success rates in treating depression, with better results at follow-up for psychotherapy. The results are somewhat mixed regarding drop-out, with two meta-analyses finding drop-out rates to be higher with pharmacotherapy and one meta-analysis finding no difference. At the very least, these results provide substantial evidence that both psychological treatments and antidepressant medication work for many depressed adults, thus providing those suffering from depression a viable choice of treatment options. There is also evidence that combining the two treatments can yield greater effects than is obtained with either treatment on its own.

Effectiveness Studies

In a meta-analysis of effectiveness studies for depression in adults, Hans and Hiller (2013) investigated the effect size associated with CBT for adult depression in routine clinical practice (i.e., referred through usual clinical routes and treated by practicing therapists and therapists in training). Additional subgroup analyses were conducted to examine whether group CBT was as effective as individual CBT. A total of 34 studies were included in the meta-analysis (with 1,880 patients in the completer group and 1,629 patients in the intention-to-treat group [ITT]). The majority of participants in both groups were women (mean = 68.6% in the completer group; 66.4% in the ITT group), with the mean age being 38.6

years in the completer group and 37.4 years in the ITT group. On average, completers were provided with 21.7 individual sessions of CBT or 11.2 sessions of group CBT. The mean drop-out rate was 24.6%. Outpatient CBT was effective in reducing depression in completer ($d = 1.13$) and ITT ($d = 1.06$) samples. For completer analyses, there were significant reductions posttreatment in dysfunctional cognitions, general anxiety, psychological distress, and functional impairment (d values ranged from .67 to .88). The authors reported that, based on 6 and 12 month follow-up assessment, treatment gains were maintained or improved. Differences between individual CBT and group CBT failed to reach significance, however, and *post hoc* power calculations indicated the statistical power was insufficient to detect small or moderate effects. The authors therefore urged caution in interpreting these nonsignificant results. Overall, though, the results provide compelling evidence that depression in adults can be effectively treated with CBT in typical clinical settings.

Compared to the literature on depression in adults, there are fewer effectiveness studies on the treatment of depression in youth. Hunsley and Lee (2007) and C. M. Lee, Horvath, and Hunsley (2013) reviewed the effectiveness research, focusing on studies that reported rates of clinically significant change and drop-out. Of the seven effectiveness studies they reviewed for the treatment of depression in youth, five reported improvement rates that met or surpassed the benchmark reported in the efficacy literature. Six of the seven studies had treatment completion rates that were comparable or superior to what is typically reported in the efficacy literature on the treatment of youth depression. These results suggest that treatments for youth depression delivered in routine clinical settings can achieve the level of outcomes reported in efficacy trials.

BIPOLAR DISORDER

Bipolar Disorder is a mood disorder that consists of both a manic episode (i.e., expansive, elevated or irritable mood) and usually one or more depressive episodes. There are several forms of bipolar disorder (e.g., Bipolar I, Bipolar II, and Cyclothymia), with differentiation based on the severity of the manic/hypomanic and depressive/dysthymic episodes. Bipolar disorder has a lifetime prevalence of 1-2%. Psychosocial factors (e.g., life events, family environment, cognitive style, and social support) play an important role in the risk of onset, course of the disorder, and overall expression of the illness (Zaretsky, Rizvi, & Parikh, 2007). Although people with bipolar disorder are typically able to complete their education and begin careers, the many repeated relapses into mania or depression that occur often cause loss of employment. It is common for their social networks to be adversely affected too, with only 30% of people achieving their previous levels of social and professional functioning 1 year after the first episode (Szentagotai & David, 2010). In addition to the high frequency of relapse and associated debilitation, bipolar disorder is associated with a high suicide risk.

Given the seriousness of this disorder, treatment is of paramount importance. However, mood-stabilizing medication appears to prevent relapse in relatively few patients, as 70-85% of patients relapse within 5 years; 30-50% of patients do not adhere to their medication treatments and/or continue to experience significant residual symptoms while on the medications (Szentagotai & David, 2010). Although psychotherapy alone cannot successfully treat this disorder, increasing evidence suggests that, as an adjunct to mood-stabilizing medication, it can significantly reduce relapse rates and improve overall functioning and well-being in youth, adults, and older adults. One of the areas most frequently studied in the treatment literature is the impact of psychotherapy on preventing relapses into manic and/or depressive phases of the disorder. Several meta-analyses have been conducted on relapse prevention, with the general

results being favourable when psychotherapy is an adjunct to pharmacotherapy for adults with bipolar disorder (Scott, Colom, & Vieta, 2007; Lam et al., 2009; Szentagotai & David, 2010). In addition to psychoeducation (PE), several types of psychotherapy have been studied in treating bipolar disorder, including Cognitive Behavioural Therapy (CBT), Family Focused Therapy (FFT), and Interpersonal and Social Rhythm Therapy (IPSRT), (Zaretsky et al., 2007). To date, there is no evidence that one form of psychotherapy is superior to another, provided they all are tailored toward the needs of those with bipolar disorder (Lam, Burbeck, Wright, & Pilling, 2009).

Efficacy Studies

Scott et al. (2007) conducted a meta-analysis on 8 RCTs of various psychotherapies (e.g., CBT, IPSRT, FFT, and PE) used as an adjunct to pharmacotherapy, versus standard psychiatric treatment alone of people with Bipolar I and Bipolar II disorder. There were 147 participants included in the treatment arm and 220 participants included in the control arm of the meta-analytic study. A significant reduction in relapses was found with adjunctive psychotherapy (OR = .53; i.e., the odds of relapse were almost halved with adjunctive therapy), which translated to a 40% decrease in relapse rate. Additional analyses suggested that those individuals who had maintained normal mood states for more than a year and had fewer than 12 prior relapses responded best to the combination therapy. To address this finding more fully, Lam et al. (2009) conducted a meta-analysis to directly investigate whether prior relapses moderated the effects of adjunctive psychotherapy. Nine RCTs were included in the meta-analysis, with 153 participants in the treatment arm of the study and 228 in the control group (mean ages were reported as being from mid 30's to mid 40's). Contrary to Scott et al.'s findings, they found no evidence of a moderation effect based on the number of prior episodes on relapse prevention, suggesting adjunctive psychotherapy is likely to be beneficial regardless of the number of prior episodes of mania or depression.

In a meta-analysis on the efficacy of CBT as an adjunctive psychotherapy, Szentagotai and David (2010) included 10 RCTs (a total of 770 participants). CBT had little effect on relapse prevention beyond what was achieved with medication; however there were significant effects in other domains, such as enhancing medication adherence, diminishing clinical symptoms, and enhancing quality of life and social adjustment. Psychotherapy and psychoeducation have shown strong effects in both treatment adherence and reducing the subjective burden of disease (including reduced suicide rates) in several systematic reviews (Vieta & Colom, 2004; Zaretsky et al., 2007). For example, in the Szentagotai and David (2010) study, CBT had a significant effect on medication adherence—an extremely important result given the high rates of nonadherence that typically occurs among patients with this condition.

The constellation of depressive symptoms found in bipolar disorder is an important target for treatment, as the evidence suggests that (a) these symptoms are different from what is experienced in unipolar depression and (b) those who suffer from bipolar depression have considerable periods of time in which they experience syndromal or subsyndromal symptoms of depression (Scott et al., 2007). In a systematic review, Zaretsky et al. (2007) examined 8 RCTs and concluded that, compared to TAU, CBT designed specifically for bipolar disorder showed the same rates of decrease in bipolar depression as found with CBT for unipolar depression. Likewise, in their meta-analysis which included 10 studies ($n = 770$), Szentagotai and David (2010) found CBT to have an effect on reducing clinical symptoms of depression at both 6 month follow-up and 12 month follow-up. These findings provide particularly important clinical information, as bipolar depression is very hard to treat medically because antidepressants can induce manic episodes and are, therefore, not ideal in treating this component of the disorder (Vieta & Colom, 2004).

The majority of studies have been conducted with adults in their mid-thirties to mid-forties. Although the evidence is limited, there are some preliminary indications that adjunctive psychotherapy can be beneficial for both children and adolescents. In a pilot study, Pavuluri et al. (2003) evaluated their

model of child-and-family-focused CBT (CFF-CBT) with 34 patients diagnosed with pediatric bipolar disorder (mean age 11.33 years). The model is a 12 session adapted version of FFT that takes into account the developmental needs of this younger population and provides direct assistance to parents in addressing their frustrations in coping with this disorder. Posttreatment, children displayed significantly improved outcomes on all measures of overall functioning and on symptoms of ADHD, aggression, mania, psychosis, depression, and sleep disturbance. In a follow-up of this study investigating the long-term benefits of CFF-CBT with children (5-17 years of age; $n = 25$ boys and 10 girls) receiving pharmacotherapy for bipolar disorder, West et al. (2007) found that, 3 years after initial treatment, 83% of participants had responded positively and were experiencing no to minimal symptoms across all symptom scales (i.e., overall psychiatric disorder, ADHD, mania, depression, aggression, and psychosis). Given that the median time to drop out from use of a mood-stabilizer for this population is 4 months, this represents a tremendous benefit to this highly vulnerable population. Feeny et al. (2006) also reported beneficial results when adding adjunctive 12 session CBT specifically developed for adolescent bipolar disorder to usual treatment with pharmacotherapy. Participants were aged 10-17 years ($n = 17$) were included and 87% completed the full 12 sessions of therapy. There was a significant reduction in both manic and depressive symptoms as reported by the adolescents and their parents, with a greater effect on depressive symptoms as reported by the participants. Therefore, although the research is in its early stages, the findings to date suggest that brief psychological interventions may produce substantial improvement for this population.

There is preliminary evidence to suggest that, although there is some initial cost associated with adjunctive psychotherapy at the onset, the gains made offset this cost very quickly. In their meta-analysis of adjunctive psychotherapy, Szentagotai and David (2010) found no significant financial impact of adding psychotherapy to pharmacotherapy treatment costs (i.e., adding adjunct psychotherapy did not significantly increase overall treatment cost). Additionally, in a systematic review of treatment studies, Miklowitz and Scott (2009) concluded that meta-analyses consistently show that adding adjunctive psychotherapy to pharmacotherapy in bipolar disorder reduces the number of relapses over 1-2 years. This results in a reduced number of hospital admissions and associated additional appointments with physicians, as well as maintains better general functioning within the work-force.

Overall, adjunctive psychotherapy for the treatment of bipolar disorder appears to have strong benefits in reducing relapses, alleviating depression, and improving general interpersonal and health functioning without adding an additional cost burden. There is evidence that several forms of psychotherapy designed specifically for the treatment of bipolar disorder yield these outcomes. This evidence has led most researchers, as well as the National Institute for Health and Clinical Excellence (<http://www.nice.org.uk/>), to recommend that such adjunctive psychotherapy be part of routine care for patients suffering from bipolar disorder.

GENERALIZED ANXIETY DISORDER

Generalized Anxiety Disorder (GAD) is a highly prevalent condition, characterized by excessive worry or anxiety about everyday events and problems to the point that the individual experiences considerable distress and difficulty in performing day-to-day tasks. Studies of the lifetime prevalence for GAD in the general population have provided estimates ranging from 4% to 7% (Kessler & Wittchen, 2002), whereas in older individuals prevalence estimates range from 0.7% to 9% (Flint, 2005). Although pharmacotherapy is commonly used to treat GAD, surveys conducted over the years suggest that the public and those seeking primary care services prefer psychological treatment options over pharmacological

treatments (Riedel-Heller et al., 2005). Several meta-analyses have found that psychological treatments and pharmacotherapy are equally efficacious in the treatment of GAD; the lower attrition rates associated with psychological interventions suggest that these treatments are better tolerated by most patients (Mitte, 2005). Clinical guidelines for adult patients recommend a specific form of psychological intervention, CBT, as a first-line treatment for GAD (NICE, 2004; Ballenger et al., 2001).

Efficacy Studies

In a recent meta-analysis, Hunot, Churchill, Texeira, and Silva de Lima (2010) examined the efficacy of psychological therapies for adult patients with GAD. The review included 25 studies involving a total of 1,305 participants diagnosed with GAD and aged between 18 and 75 years (mean = 47.2 years). A total of 68.6% of participants were women. All the studies compared CBT to treatment as usual or waiting list (TAU/WL; 13 studies), or to another psychological therapy (12 studies). Results indicated that patients with GAD assigned to CBT were more likely to have significant reductions in anxiety symptoms ($SMD = .82$) and to be rated by clinicians as having demonstrated clinically meaningful reductions in anxiety at post-treatment than were patients assigned to TAU/WL ($RR = 0.64$; i.e., the probability of achieving a clinically meaningful reduction in anxiety for those in TAU/WL was approximately two-thirds compared to CBT). Among those receiving CBT, 46% showed clinical improvement; in contrast, only 14% of the TAU/WL participants showed clinical improvement. The overall effect sizes were nonsignificant when CBT was compared to supportive therapies and psychodynamic therapies. Because of considerable heterogeneity in the comparisons between specific forms of psychological treatment (due in part to variability in the number of treatment sessions), the researchers cautioned that it was not possible to draw firm conclusions regarding the relative efficacy of the psychological treatments. Importantly, though, there was an increased rate of premature termination from psychological treatments for older adults in comparison to the rate for younger adults.

Although the empirical literature addressing the efficacy of non-pharmacological treatment of late-life anxiety is limited, reviews have examined the impact of psychological interventions on anxiety symptoms and diagnosed anxiety disorders in older adults (e.g., Stanley et al., 2003). Evidence from this literature indicates that various forms of psychological intervention, including CBT, short-term psychodynamic therapy, and IPT, can be efficacious in treating late life anxiety. Nohrdus and Pallesen (2003) conducted a meta-analytic review of non-pharmacological interventions for late-life anxiety and included studies in which a comparison was made either to a control condition or another treatment. A total of 15 outcomes studies were included involving 495 participants and providing 20 separate treatment interventions. The mean age of participants ranged from 63.2 to 76.5 years, with an overall mean of 69.5 years. The percentage of female participants in the studies ranged from 50% to 100%, with an overall mean of 76.7%. Although most samples were not well-defined diagnostically, the pretreatment state of participants in these studies was comparable to older adults with diagnosed GAD. The authors reported that psychological interventions produced significant improvements in both self-reported anxiety and diagnostic status when compared to a no-treatment control group ($d = .73$). There are also a small number of RCTs that have reported significant improvements in adults with GAD following treatment with mindfulness-based cognitive therapy (Evans et al., 2008; Craigie, Rees, Marsh & Nathan, 2008) or psychodynamic psychotherapy (Leichsenring et al., 2009).

To our knowledge there is no published meta-analysis that specifically examines the efficacy of psychotherapy for youth with GAD, but some systematic reviews and meta-analyses have examined the efficacy of psychotherapy for childhood anxiety disorders and identified CBT as an effective psychological treatment. In-Albon and Schneider (2007) examined the efficacy of treatments for a range of childhood anxiety disorders and reviewed 24 studies involving a total of 1,275 patients aged between 6 and 18 years

(mean age = 10.9 years). In all 24 studies the treatment condition was CBT, which was compared to a waiting list control group. The results indicated that of the youth who completed treatment, 68.9% recovered to the extent that they no longer met criteria for their principal anxiety diagnosis whereas only 12.9% of waiting list participants recovered. More recently, Reynolds, Wilson, Austin, and Hooper (2012) examined the efficacy of treatments for childhood anxiety disorders, basing their analyses on 55 studies involving a total of 2,434 youth in the treatment condition and 1,824 youth in the control condition (all participants were under 19 years of age). Based on self-report measures of anxiety, the overall effect of psychotherapy was $g = .65$. Psychotherapy was found to be superior to no treatment ($g = .76$, in 39 studies) and to active control groups (such as psychoeducation or supportive counselling; $g = .35$, in 19 studies). Most treatments were a form of CBT, and the effect size for treatments that were not variants of CBT was not significantly different from 0. These reviews confirm the efficacy of CBT treating a wide range of anxiety disorders in youth.

Effectiveness Studies

Stewart and Chambless (2009) reviewed the effectiveness of CBT for treating adults with anxiety disorders. Fifty-six effectiveness studies of CBT for adult anxiety disorders were located, eleven of which focused on the treatment of GAD. Results suggested that pretest to post-test effect sizes for GAD symptom measures were substantial ($d = 0.92$) suggesting that patients treated with CBT for GAD in clinically representative studies improved significantly from pretest when they completed treatment. In addition, CBT for GAD produced significant pretest-posttest reductions in depression symptoms. Three of the reviewed GAD studies included a control group against which to compare treatment outcome and indicated an advantage of CBT treatments over control groups, with a substantial effect size ($d = 0.89$). In their review, Hunsley and Lee (2007) identified 35 effectiveness studies for adult disorders and child and adolescent disorders and compared data from these studies with two benchmarks derived from the treatment efficacy literature (percentage of participants in the efficacy trials who completed treatment and outcome of treatments known to be efficacious for a disorder). Four effectiveness studies for GAD in adults were synthesized and showed treatment completion rates and improvement rates comparable to those reported in RCTs of treatment efficacy. Therefore, it appears that CBT for adult GAD is likely to be effective when used in a typical clinical setting. Although not specific to GAD, nine effectiveness studies for a range of pediatric anxiety disorders were synthesized and also showed completion and improvement rates comparable to those reported in RCTs of treatment efficacy.

SOCIAL ANXIETY DISORDER

Social Anxiety Disorder (SAD) is characterized by the significant and persistent fear of one or more social or performance situations, which is expressed through the experience of marked difficulty or distress, including physiological arousal and agitation, and feelings of fear, embarrassment or humiliation upon entering feared social situations. These symptoms result in significant interference in daily routines, occupational or academic functioning and social relationships (APA, 2000b). SAD is one of the most common anxiety disorders, with a prevalence rate of around 7% in both children and adults (Hudson & Dodd, 2011). SAD typically begins early in life, with approximately half of socially anxious adults reporting onset before the age of 11, and 75% before the age of 16 (Hudson & Dodd 2011). In the past twenty years, several meta-analyses have shown that both pharmacological and psychological interventions are efficacious in treating SAD. The majority of studies have evaluated the efficacy of CBT approaches and found them to be useful in treating both youth and adults with SAD.

Efficacy Studies

The meta-analysis conducted by Acarturk, Cuijpers, van Straten, and de Graaf (2009) is the most complete and up-to-date review available. The review included 30 studies involving a total of 1,628 adult participants (979 in the treatment condition and 649 in the control condition) diagnosed with SAD and aged between 18 and 65 years. In 14 comparisons, the psychological treatment was delivered in individual format, whereas in 15 comparisons a group format was used (in one study group and individual formats were combined). Almost all psychological treatments included in the meta-analysis were forms of CBT. Results confirmed the findings of earlier meta-analyses, yielding a substantial effect of psychological treatment on SAD ($d = .80$). Effect sizes indicating the difference between posttest and follow-up in the treatment conditions were calculated for 20 studies (follow-up periods ranged from 1 to 18 months) and indicated that the effects of psychological interventions on SAD probably remain stable over time and may even improve somewhat ($d = 0.19$ in studies with 1 to 3 months follow-up, $d = 0.37$ in studies with 4 to 6 months follow-up, and $d = 0.15$ in studies with 7 to 18 months follow-up). There are also a small number of RCTs that have reported significant improvements in adults with SAD following treatment with IPT (Lipsitz et al., 2008) and acceptance and commitment therapy (Dalrymple & Hebert, 2007; Kocovski, Fleming & Rector, 2009). On the basis of a small number of RCTs in which psychotherapy was compared to antidepressant medications, Canton, Scott, and Glue (2012) concluded that there was little difference in the efficacy of these two broad classes of treatment. They did note, however, that in all of the three trials in which long-term follow-up data were collected, compared to patients who received medication, those who received psychotherapy were more likely to maintain their treatment gains.

Several meta-analyses have examined the efficacy of psychological intervention in the treatment of youth SAD; we will focus on the meta-analysis conducted by Segool and Carlson (2008) as it is the most complete and up-to-date review available. The researchers compared the efficacy of two major forms of treatments for SAD in children: CBT and selective serotonin reuptake inhibitor (SSRI) drug treatment. The review included 14 studies involving a total of 332 participants diagnosed with SAD and aged between 5 and 19 years. The seven CBT studies were group-administered programs lasting an average of 11.9 weeks whereas the seven SSRI treatment studies were all individually administered programs lasting an average of 11.1 weeks. The results suggested that CBT produced significant reductions in social anxiety symptoms ($d = .86$), general anxiousness ($d = .75$) and impairment due to social anxiety symptoms ($d = 1.56$). The core symptoms of social anxiety, including social worries and fears, maladaptive cognitions and social avoidance were also reduced by CBT ($d = .86$). Additionally, in terms of promoting adaptive functioning, including children's social skills and social engagement, CBT treatment resulted in increased social competence ($d = .68$). Overall, treatment with SSRIs was found to be more efficacious than CBT in reducing symptoms. However, given concerns about the use of SSRIs with youth and the strength of the psychotherapy results, practitioners should feel confident about the value of delivering group CBT to treat children and adolescents with SAD.

Effectiveness Studies

In the Stewart and Chambless (2009) effectiveness review described previously, eleven studies involved the treatment of adults with SAD. Results suggested that pretest to post-test effect sizes for disorder specific symptom measures for SAD were substantial ($d = 1.04$), suggesting that patients treated with CBT for SAD in clinically representative studies improved significantly from pretest to when they completed treatment. In addition, CBT for SAD produced significant pretest-posttest reductions in depression symptoms. In Hunsley and Lee's (2007) review, two effectiveness studies for SAD in adults were examined: both showed treatment completion rates and improvement rates comparable to those reported in randomized controlled trials of treatment efficacy. Therefore, it appears that CBT for adult SAD can be effective when used in typical clinical settings.

OBSESSIVE COMPULSIVE DISORDER

Obsessive Compulsive Disorder (OCD) is a chronic and disabling disorder characterized by recurrent (a) obsessions that result in anxiety and (b) compulsions such as hand washing, checking, and ordering. Ruscio, Stein, Chiu, and Kessler (2010) estimated twelve-month prevalence rates to be 1.2% in an adult outpatient population and a similar prevalence has been identified in primary care settings (e.g., Veldhuis et al., 2012). Prevalence estimates among children and adolescents range from 2 to 4% (Merlo, Storch, Adkins, Murphy, & Greffken, 2007). The prevalence of OCD decreases significantly above age 65 and has been reported to be as low as 0.02% (Fireman, Koran, Leventhal, & Jacobson, 2001). Efficacious treatments for OCD include psychotherapy, pharmacotherapy, and the combination of the two (O'Connor et al., 2006; Eddy, Dutra, Bradley, & Westen, 2004). Among the various psychotherapies, CBT with exposure and response prevention (ERP) has achieved the highest degree of empirical support and is generally considered as the treatment of choice for children, adolescents and adults with OCD. Because the efficacy of ERP has been accepted, some investigators have incorporated cognitive components in order to determine whether they provide any additional benefit to those of ERP.

Efficacy Studies

Several meta-analyses have examined the efficacy of psychological intervention in the treatment of OCD in adults, with the research of Rosa-Alcazar, Sanchez-Meca, Gomez-Conesa, and Marin-Martinez (2008) being the most comprehensive. Their review included 19 studies involving a total of 752 individuals (431 forming the treatment group and 321 the control group) diagnosed with OCD with a mean age of 24 years. A total of 24% of participants were men. Overall, the results suggest that ERP, cognitive therapy (CT), and a combination of both techniques (ERP + CT) are efficacious treatments that reduce obsessive-compulsive symptoms ($d = 1.08$), general anxiety ($d = .67$), and depression ($d = .58$) and improve social adjustment ($d = .76$) in patients with OCD. Bearing in mind that there are few RCTs in which psychotherapy and medication is directly compared, ERP has been found to have significantly greater effect sizes posttreatment than pharmacotherapy, with no differences in drop-out rates evident across studies (Kobak, Greist, Jefferson, Katzelnick, & Henk, 2004). In a study focused on CBT interventions, Olatunji, Davis, Powers, and Smits (2013) examined 16 RCTs involving participants across the life span. Substantial effects compared to no-treatment control conditions were found post-treatment ($g = 1.39$) and at follow-up ($g = .43$). Interestingly, they found that effect sizes were smaller for RCTs involving adults than they were for RCTs involving youth. Jonsson, Hougaard, and Bennedsen (2011) reported that group CBT with ERP is an effective treatment for OCD, with substantial and stable outcomes comparable to those of individual CBT with ERP at posttreatment ($d = 1.06$ for group CBT and $d = 1.24$ for individual CBT) and at one year follow-up ($d = .98$ for group CBT and $d = 1.15$ for individual CBT).

Several meta-analyses have examined the efficacy of psychological intervention in the treatment of youth OCD, and we will focus on the most recent meta-analysis, which was conducted by Watson and Rees (2008). The review included 13 studies (containing 10 pharmacotherapy-to-control comparisons and 5 CBT-to-control comparisons) involving a total of 1,177 participants diagnosed with OCD and with a mean age of 12 years. Results suggest that both pharmacotherapy ($d = .48$) and CBT ($d = 1.45$) were significantly superior to control groups, with CBT yielding a larger treatment effect. These results are consistent with previous meta-analyses (e.g., Barrett, Farrell, Pina, Peris & Piacentini, 2008) and suggest that CBT should comprise the first-line treatment for youth with OCD.

Effectiveness Studies

Houghton, Saxon, Bradburn, Ricketts, and Hardy (2010) examined the effectiveness of CBT within

a publicly funded clinic for adults with OCD. Thirty-seven clients entered therapy and of these, nine (24%) dropped out of treatment and twenty-eight completed treatment. Therapists provided individualized CBT for OCD, with all participants receiving treatment that included cognitive components and almost all receiving ERP. Twenty-six of the patients who completed treatment reported a reduction in OCD symptoms posttreatment. Statistical analyses indicated that 43% of these participants achieved changes that were of such a magnitude that they could be considered recovered, and a further 13% were significantly improved. C. M. Lee et al. (2013) reviewed two effectiveness studies of youth OCD and found that both completion and outcome data were comparable to the benchmarks derived from efficacy trials.

POSTTRAUMATIC STRESS DISORDER

Posttraumatic Stress Disorder (PTSD) is a disorder that is rooted in the experience of events involving actual or threatened death or serious injury, and involves intense fear, helplessness, or horror following the event (APA, 2000b). Although a lifetime trauma incidence of 40-90% has been reported in the general population, the overall lifetime prevalence for PTSD ranges between 7-12% (Mehta & Binder, 2012). The prevalence of youth PTSD has been found to be lower (5%; Merikangas et al., 2010). Many studies have documented the efficacy of pharmacotherapy and psychotherapy for PTSD in the adult population, with most treatment guidelines suggesting that trauma-focused psychotherapy should be considered as the first-line treatment for PTSD (e.g., Foa, Keane, Friedman, & Cohen, 2009). Although a recent meta-analysis reported much larger effects sizes for psychotherapy than for pharmacotherapy, the very limited research comparing pharmacotherapy with psychotherapy led the study authors to conclude that it is not possible to draw firm conclusions regarding the relative efficacy of these two classes of treatment (Jonas et al., 2013). Various forms of psychotherapy have been used with adults including exposure-based CBT, trauma-focused CBT, stress inoculation training (a form of CBT), psychodynamic psychotherapy, eye movement desensitization and reprocessing (EMDR).

Efficacy Studies

Bisson and colleagues (2007) examined the relative efficacy of different psychological treatments for chronic PTSD. Most studies reviewed used trauma-focused CBT (TFCBT) or EMDR to treat symptoms of PTSD in an adult population. The review included 38 studies and compared TFCBT, EMDR, stress management, group CBT, or other therapies with a waiting list control or another psychological intervention. Results indicated that TFCBT showed clinically important benefit over waiting-list controls/usual care on all measures of PTSD symptoms ($SMD = 1.40$ on clinician-rated scales, $SMD = 1.70$ on self-rated scales). In addition there was evidence that it also had a clinically important effect on reducing symptoms of depression ($SMD = 1.26$) and general anxiety ($SMD = .99$) when compared to waiting list/usual care control. The efficacy of EMDR was also generally supported by the meta-analysis, but a fewer number of trials were available ($SMD = 1.51$ on clinician-rated PTSD scales; $SMD = 1.13$ on self-rated PTSD scales; $SMD = 1.20$ on general anxiety; $SMD = 1.48$ on depression). Furthermore, there was limited evidence for the efficacy of stress management ($SMD = 1.14$ on clinician-rated PTSD scales; $SMD = .33$ on self-rated PTSD scales; $SMD = 1.77$ on general anxiety; $SMD = 1.73$ on depression) and group CBT ($SMD = .72$ on clinician-rated PTSD scales; $SMD = .71$ on self-rated PTSD scales), but other therapies evidenced lower treatment effects.

Exposure-based therapy has also been shown to be an efficacious treatment for PTSD. More specifically, the efficacy of prolonged exposure (PE) has been established in a number of controlled studies.

Powers, Halpern, Ferenschak, Gillihan, and Foa (2010) conducted a meta-analysis to estimate the overall efficacy of PE for PTSD relative to control conditions. The review included thirteen studies, including 658 participants diagnosed with PTSD. All the studies used PE, and compared it to a psychological placebo (6 studies), a waiting list control group (5 studies), or both psychological placebo and waiting list controls (2 studies). Results indicated that PE performed significantly better than control conditions on measures of PTSD both at posttreatment ($g = 1.08$) as well as at follow-up ($g = .68$). Similarly, PE treatment was associated with significantly better outcomes on secondary outcomes symptom measures, both at posttreatment ($g = .77$) and at follow-up ($g = .41$).

A range of treatment approaches have been applied to address the symptoms of PTSD experienced by children and adolescents. Currently, outpatient psychotherapy appears to be the preferred initial treatment modality for PTSD, with pharmacotherapy used as an adjunctive intervention. Researchers have studied the use of pharmacotherapy and psychotherapy in the youth population, with the majority of studies evaluating the efficacy of CBT approaches (TFEBT) and EMDR. The most up-to-date meta-analysis reviewing the efficacy of CBT in the treatment of youth PTSD was conducted by Kowalik, Weller, Venter, and Drachman (2011). The review included 8 studies involving a total of 708 participants aged between 5 and 17 years. All the studies used a CBT approach, and compared CBT to an active control group (e.g., unstructured psychotherapy, non-directive supportive treatment, or child-centered therapy). As the Child Behavior Checklist (CBCL) was the only measure utilized with some consistency across studies, it was used as the primary outcome measure. Results indicated that for the Total Problem ($d = .33$), Internalizing ($d = .31$) and Externalizing ($d = .19$) indices, effect sizes were statistically significant in favour of CBT over active control conditions. The fact that participants in the comparison groups received active treatment strengthens the conclusion that TFEBT is efficacious for the treatment of youth PTSD. Rodenburg, Benjamin, de Roos, Meijer, and Stams (2009) have examined the efficacy of EMDR in children with PTSD symptoms. The review included a total of 7 studies, involving a total of 221 participants treated for post-traumatic stress reactions and aged between 4 and 18 years. Results indicated that the posttreatment effect size for EMDR was significant ($d = 0.56$), which indicates that children receiving EMDR benefitted from their treatment. This is in accordance with the results from several meta-analytic studies of EMDR in adults (e.g., Bradley et al., 2005).

Effectiveness Studies

In the Stewart and Chambless (2009) effectiveness review of treatments for adults, six studies focused on the treatment of PTSD. Results suggested that pretest to posttest effect sizes for disorder-specific symptom measures for PTSD were substantial ($d = 2.59$), suggesting that patients treated with CBT for PTSD in clinically representative studies improved significantly from pretest when they completed treatment.

SPECIFIC PHOBIA

Specific Phobia (SP) is characterized by a marked and excessive irrational fear of a specific object or situation that creates significant life interference or distress. SPs are common, with lifetime prevalence estimates of 10% (Del Casale et al., 2012). Despite the low proportion of phobia sufferers who seek treatment, specific phobia is among the most treatable of disorders. Those who seek treatment can choose from a number of different forms of CBT with considerable research support, including cognitive therapy, virtual reality exposure, and *in vivo* exposure. Of all available therapies, exposure-based CBT appears to be the

most commonly used and is often considered the first line of treatment for specific phobias (Barlow, Raffa, & Cohen, 2002). Research on pharmacotherapy options does not support the use of medication as a first line treatment for SP (e.g., Van Ameringen, Mancini, & Patterson, 2009).

Efficacy Studies

Wolitzky-Taylor, Horowitz, Powers, and Telch (2008) conducted a meta-analysis that examined, among adults diagnosed with SP, the efficacy of exposure treatments relative to no treatment, a placebo control, and psychotherapies that did not include an exposure component. Treatments were classified as exposure treatment if they included direct or indirect confrontation with the feared stimulus (e.g., *in vivo* exposure, imaginal exposure, systematic desensitization, EMDR, virtual reality exposure) and non-exposure treatments were defined as any active treatment to be active (i.e., not placebo) that did not include confrontation with the phobic target as a procedural element. These involved treatments that included relaxation and cognitive therapy. The review included 33 studies involving a total of 1,193 participants. Results indicated that exposure-based treatment showed marked benefit relative to untreated participants ($d = 1.05$). Exposure-based treatment also outperformed placebo conditions and alternative active psychotherapeutic approaches ($d = .48$). Overall, the findings are consistent with qualitative reviews that have concluded exposure-based treatments are the most potent and durable of the evidence-based treatments for SP (e.g., Choy, Fyer, & Lipsitz, 2007). Because virtual reality exposure therapy (VRET) has gained a great deal of attention for the treatment of various phobias, it is worth noting that Parsons and Rizzo (2008) conducted a meta-analysis of published studies that examined anxiety symptoms before and after VRET treatment of anxiety disorders. The review included 21 studies involving 300 participants. Results revealed that VRET had statistically large effects on overall anxiety ($d = 0.95$) and on all specific phobias (d 's ranged from 0.87 to 1.79).

PANIC DISORDER

Panic Disorder (PD) is characterized by recurring and severe panic attacks, a period of intense fear or discomfort associated with symptoms such as palpitations, sweating, shortness of breath and chest pains. Pollack, Smoller, Otto, Hoge, and Simon (2010) reported a lifetime prevalence of 5% for panic disorder with or without agoraphobia. The most widely used treatments for PD are CBT and pharmacological therapies. Early meta-analyses tended to report results favouring the efficacy of psychotherapy over pharmacotherapy (e.g., Clum, Clum, & Surls, 1993; Gould, Otto, & Pollack, 1993), but these analyses contained few direct comparisons of the two classes of treatment, thus limiting any conclusions that could be drawn (Klein, 2000). It is perhaps most accurate to conclude that, at present, there is little direct evidence to suggest that one class of treatment is superior to the other in the treatment of PD (cf. van Balkom, Bakker, Spinhoven, Blaauw, Smeenk, & Ruesink, 1997).

Efficacy Studies

Several meta-analyses have examined the efficacy of psychological intervention in the treatment of PD in adults, with the meta-analysis conducted by Sanchez-Meca, Rosa-Alcazar, Marin-Martinez, and Gomez-Conesa (2010) being the most complete and up-to-date review available. The review included 65 comparisons between a treated and a control group, obtained from 42 studies involving adult participants diagnosed with PD. Results suggested that psychological interventions were more efficacious than controls in reducing panic symptoms ($d = 0.78$). Results for specific efficacious treatments were: combined relax-

ation and exposure therapy ($d = 1.8$), exposure therapy alone ($d = 1.5$), exposure and cognitive therapy ($d = 1.3$), relaxation alone ($d = 1.5$), and a combination of exposure therapy, cognitive therapy and relaxation ($d = .83$). Gould, Coulson, and Howard (2012) examined the efficacy of CBT for late-life anxiety disorders and reviewed 12 randomized controlled comparison involving patients diagnosed with panic disorder, generalized anxiety disorder, agoraphobia, phobia, post-traumatic stress disorder, obsessive-compulsive disorder or anxiety not otherwise specified. Their review confirmed the efficacy of CBT for anxiety disorders in older adults, in general, and likely efficacy in treating late-life PD ($d = .20$ when compared to treatment as usual, $d = 0.60$ when compared to waiting list).

McHugh and his colleagues (2007) examined the relative cost-efficacy of five treatment options for PD, randomly assigning participants to receive combined CBT and imipramine, combined CBT and placebo, CBT alone, imipramine alone, or placebo alone. The trial included three phases: a 3-month acute phase, a 6-month maintenance phase, and a 6-month no-treatment follow-up phase. The acute phase consisted of 11 sessions over 12 weeks of either CBT, medication management, or their combination. In the maintenance phase, sessions were continued monthly for 6 months prior to treatment termination. Cost-efficacy ratios demonstrated advantages for monotherapies over the combined therapies at both the acute and follow-up phases. Although pharmacologic treatments demonstrated better cost-efficacy than CBT at the end of the acute phase, CBT had the greatest cost-efficacy at both maintenance and follow-up phases. Overall, results suggest that when a full course of CBT is available, it should be considered an effective monotherapy for patients with panic disorder. Combination treatment, in contrast, offered an especially poor cost-efficacy ratio; hence when CBT is available, the cost-efficacy data caution against the routine application of combination treatment.

Effectiveness Studies

Stewart and Chambless' (2009) effectiveness review included seventeen studies focused on the treatment of PD. Results suggested that pretest to posttest effect sizes for disorder-specific symptom measures for PD were substantial ($d = 1.01$), suggesting that patients treated with CBT for PD in clinically representative studies improved significantly from pretest when they completed treatment. In the Hunsley and Lee (2007) effectiveness review, seven studies for PD in adults were synthesized and showed treatment completion rates and improvement rates comparable to those reported in randomized controlled trials of treatment efficacy. Therefore, it appears that CBT for adult PD is effective when used in a typical clinical setting.

CORONARY HEART DISEASE

According to the World Health Organization, cardiovascular diseases are the number one cause of death globally (World Health Organization, 2013). In 2008 approximately 17.3 million people died as a result of cardiovascular disease, representing 30% of all global deaths, and it is predicted to remain the number one cause of death in the future (WHO, 2013). The treatment of the chronic illness of coronary heart disease (CHD) requires attention to a wide range of biopsychosocial variables (Kovacs, Silversides, Saidi, & Sears, 2006). Not only are psychological symptoms such as anxiety and depression experienced as a result of suffering from CHD, but there is evidence that a range of psychological conditions (including anxiety, depression, anger, and hostility) may be risk factors in developing the metabolic syndrome associated with CHD (Panguluri & Whooley, 2010). Psychological interventions have been designed to address both the outcomes of CHD (e.g., mortality, morbidity) and the comorbid psychological conditions that fre-

quently occur among those suffering from CHD. Additionally, there are data that suggest children who suffer from heart problems experience quality of life concerns that may be addressed through psychological interventions (Uzark et al., 2012).

In a meta-analytic review of the psychosocial treatment literature, Whalley et al. (2011) examined the evidence for psychological interventions, compared to TAU (i.e., cardiac rehabilitation which is standard medical care for CHD), reducing mortality rates associated with CHD and/or reducing the risk for developing CHD. Additionally they examined the impact of psychotherapy on treating comorbid depression and anxiety associated with CHD. The authors included 24 studies in the review ($n = 9,296$; mean age = 56.4 years; 74% of participants were male). Psychosocial interventions ranged from those focused on reducing stress, anxiety, and depression, to those that targeted specific psychosocial problems common within a CHD population. The majority of studies were conducted in group format (13/19 trials), with 7 RCTs utilizing a combination of group and individual psychotherapy and 4 RCTs utilizing only individual psychotherapy. There was consistent evidence that psychotherapy, relative to TAU, significantly reduced symptoms of depression ($SMD = .21$) and anxiety ($SMD = .25$) within this population. There was no strong evidence of reduction in overall mortality rates in 17 studies that reported all-cause mortality data. In the five trials that reported data on cardiac mortality ($n = 3,893$), there was a significant effect of psychological intervention with respect to the reduction of mortality rates (relative risk: 0.80). In other words, the mortality rate of patients in these studies who received psychotherapy was 80% of that found for patients who received TAU. Baumeister, Hutter, and Bengel (2011) conducted a meta-analysis that specifically examined the short-, medium-, and long-term effects of psychotherapy on depression in patients with coronary artery disease (CAD). Only two trials with participants over the age of 18 years met study inclusion criteria for this meta-analysis ($n = 127$). Compared to TAU, psychotherapy had a significant effect on reducing symptoms of depression in the short- ($SMD = .81$), medium- ($SMD = .19$) and long- ($SMD = .75$) term.

Psychological interventions have also been developed to address risk factors for heart disease that can be challenging for patients to alter. For example, Barth, Critchley, and Bengel (2006) conducted a meta-analysis examining the efficacy of psychological interventions for smoking cessation. Nineteen trials were included, with 1,263 patients randomly assigned to the TAU condition (i.e., brief advice plus an additional information booklet) and 1,285 patients randomly assigned to the psychosocial intervention condition (the majority of participants were men [70-90%], with a mean age of 50-60 years). The results showed that, compared with TAU, psychosocial interventions were highly efficacious, with participants nearly twice as likely to quit smoking ($OR=1.93$).

General Conclusions

As demonstrated repeatedly by the results of high quality treatment research, there is extensive evidence indicating that psychological interventions can provide substantial improvements in functioning for those suffering from mood disorders and from anxiety and related disorders. For most of these disorders, the supporting evidence is more extensive for adults than it is for youth or for older adults, but even so, a large number of treatment studies (both efficacy and effectiveness studies) support the value of psychotherapy for these age groups. Psychological intervention can also help in addressing the psychosocial aspects of common physical conditions, as demonstrated by the psychotherapy treatment literature on CHD.

In order to summarize the general findings reported in this document, we have constructed Table 1 to present the main meta-analytic findings across disorders. To enhance the utility of these results, in addition to presenting study and effect size details, we have also transformed the effect size information

into the metric of *number needed to treat* (NNT) using information provided by Kraemer and Kupfer (2006). NNT is commonly used in epidemiological and health care research, and is an intuitively appealing approach that allows for comparisons to be made with other health care services. NNT represents the number of people who need to receive a treatment in order for one additional person to improve *who would not have otherwise improved*. NNT values can be based on a comparison of treatment with no-treatment, or it can be based on a comparison of two treatments.

The summary data in Table 1 include several examples comparing evidence-based psychotherapy to no treatment and to treatment as usual. NNT does not, however, indicate the extent of the improvement or the total number of people who will benefit from treatment. It can be easily derived from *SMD*, *d*, and *g* values (although it can also be derived from *OR* and *RR* values, the necessary data for these calculations were not included in the studies reviewed in this report). Generally speaking, the lower the NNT value, the larger the treatment effect. However, a full interpretation of an NNT value necessitates consideration of several additional factors, including the condition for which treatment was sought, the nature of the clinical outcome obtained with treatment, the cost of treatment, possible treatment side-effects, and the time frame over which the treatment effects are observed (see <http://www.thennt.com/> for examples of NNT values associated with treatments considered to have substantial clinical utility). As a rough guide to interpreting the information presented in Table 1, NNT values in the range of 3-6 are often found when comparing medication to placebos for a range of mental disorders (Gray, 2004; Pinson & Gray, 2003).

Of course, as with any research review, limits to the generalizability of results must be considered—most importantly, evidence that some major forms of psychotherapy are likely to yield impressive treatment outcomes does not mean that the same results would occur for all forms of psychotherapy. Relatedly, as indicated in several of the meta-analyses presented in this document, for specific conditions there may be types of psychological treatment that are somewhat more efficacious than other types—this should be considered when determining first line treatment options. To this end, clinicians are strongly encouraged to practice in an evidence-based manner, as outlined by the Canadian Psychological Association Task Force on Evidence-Based Practice of Psychological Treatments (2012). Similarly, we suggest that any policies established for health care settings or health care providers with respect to the provision of psychological interventions should be developed with full consideration of the relevant treatment research. Taking these steps will ensure that those who need psychological interventions will receive optimal benefits from their treatment.

References

- Acarturk, C., Cuijpers, P., Van Straten, A., & De Graaf, R. (2009). Psychological treatment of social anxiety disorder: A meta-analysis. *Psychological Medicine*, *39*, 241-254.
- American Psychiatric Association (2000a). Practice guidelines for the treatment of patients with major depressive disorder (revision). *American Journal of Psychiatry*, *157* (Supplement 4), 1-45.
- American Psychiatric Association. (2000b). *Diagnostic and statistical manual of mental disorders* (4th ed., Text Revision). Washington, DC: Author.
- American Psychological Association. (2013). Recognition of psychotherapy effectiveness. *Psychotherapy*, *50*, 102-109.
- Australian Psychological Society. (2010). *Evidence-based psychological interventions in the treatment of mental disorders: A literature review* (3rd ed.). Retrieved from <http://www.psychology.org.au/Assets/Files/Evidence-Based-Psychological-Interventions.pdf>
- Ballenger, J., Davidson, J., Lecrubier, Y., Nutt, D., Borkivec, T., Rickels, K.,... & Wittchen, H. (2001). Consensus statement on generalized anxiety disorder from the International Consensus Group on Depression and Anxiety. *Journal of Clinical Psychiatry*, *62*, 53-58.
- Barlow, D., Raffa, S., & Cohen, E. (2002). Psychosocial treatments for panic disorders, phobias, and generalized anxiety disorder. In P. Nathan & J. Gorman (Eds.), *A guide to treatments that work* (2nd ed., pp. 301-335). New York: Oxford University Press.
- Barrett, P., Farrell, L., Pina, A., Peris, T., & Piacentini, J. (2008). Evidence-based psychosocial treatments for child and adolescent obsessive-compulsive disorder. *Journal of Clinical Child and Adolescent Psychology*, *37*, 131-155.
- Baumeister, H., Hutter, N., & Bengel, J. (2011). Psychological and pharmacological interventions for depression in patients with coronary artery disease. *Cochrane Database of Systematic Reviews*, *9*, CD008012
- Barth, J., Critchley, J., & Bengel, J. (2006). Efficacy of psychosocial interventions for smoking cessation in patients with coronary heart disease: A systematic review and meta-analysis. *Annals of Behavioral Medicine*, *32*, 10-20.
- Bisson, J., Ehlers, A., Matthews, R., Pilling, S., Richards, D., & Turner, S. (2007). Psychological treatments for chronic post-traumatic stress disorder: Systematic review and meta-analysis. *The British Journal of Psychiatry*, *190*, 97-104.
- Bradley, R., Greene, J. Russ, E., Dutra, L., & Westen D. (2005). A multidimensional meta-analysis of psychotherapy for posttraumatic stress disorders. *Journal of Consulting and Clinical Psychology*, *57*, 607-612.
- Canadian Psychological Association Task Force on Evidence-Based Practice of Psychological Treatments. (2012). *Evidence-based practice of psychological treatments: A Canadian perspective*. Retrieved from http://www.cpa.ca/docs/file/Practice/Report_of_the_EBP_Task_Force_FINAL_Board_Approved_2012.pdf.
- Canton, J., Scott, K. M., & Glue, P. (2012). Optimal treatment of social phobia: Systematic review and meta-analysis. *Neuropsychiatric Disease and Treatment*, *8*, 203-215.
- Cape, J., Whittington, C., Buszewicz, M., Wallace, P., & Underwood, L. (2010). Brief psychological therapies for anxiety and depression in primary care: Meta-analysis and meta-regression. *BMC Medicine*, *8*, 38-51.
- Chiles, J. A., Lambert, M. J., & Hatch, A. L. (1999). The impact of psychological interventions on medical cost offset: A meta-analytic review. *Clinical Psychology: Science and Practice*, *6*, 204-220.
- Choy, Y., Fyer, A. J., & Lipsitz, J. D. (2007). Treatment of specific phobia in adults. *Clinical Psychology Review*, *27*, 266-286.
- Clum, G. A., Clum, G. A. & Surls, R. A. (1993). A meta-analysis of treatments for panic disorder. *Journal of Consulting and Clinical Psychology*, *61*, 317-326.
- Craigie, M. A., Rees, C. S., March, A., & Nathan, P. (2008). Mindfulness-based cognitive therapy for generalized anxiety disorder: A preliminary evaluation. *Behavioural and Cognitive Psychotherapy*, *36*, 553-568.
- Cuijpers, P., Andersson, G., Donker, T., & Van Straten, A. (2011a). Psychological treatment of depression: Results of a series of meta-analyses. *Nordic Journal of Psychiatry*, *65*, 354-364.

- Cuijpers, P., Clignet, F., van Meijel, B., van Straten, A., Li, J., & Andersson, G. (2011b). Psychological treatment of depression in inpatients: A systematic review and meta-analysis. *Clinical Psychology Review, 31*, 353-360.
- Dalrymple, K. L., & Herbert, J. D. (2007). Acceptance and commitment therapy for generalized social anxiety disorder. *Behavior Modification, 31*, 543-568.
- David-Ferdon, C., & Kaslow, N. J. (2008). Evidence-based psychosocial treatments for child and adolescent depression. *Journal of Clinical Child & Adolescent Psychology, 37*, 62-104.
- Del Casale, A., Ferracuti, S., Rapinesi, C., Serata, D., Piccirilli, M., Sovajo, V., Kotsalidis, G., Manfredi, G., Andeletti, G., Tatarelli, R., & Girardi, P. (2012). Functional neuroimaging in specific phobia. *Psychiatry Research, 202*, 181-197.
- De Maat, S., Dekker, J., Schoevers, R., & De Jonghe, F. (2006). Relative efficacy of psychotherapy and pharmacotherapy in the treatment of depression: A meta-analysis. *Psychotherapy Research, 16*, 566-578.
- Driessen, E., Cuijpers, P., Hollon, S. D., & Dekker, J. J. M. (2010). Does pretreatment severity moderate the efficacy of psychological treatment of adult outpatient depression? A meta-analysis. *Journal of Consulting and Clinical Psychology, 78*, 668-680.
- Eddy, K. T., Dutra, L., Bradley, R., & Westen, D. (2004). A multidimensional meta-analysis of psychotherapy for obsessive-compulsive disorder. *Clinical Psychological Review, 24*, 1011-1030.
- Evans, S., Ferrando, S., Findler, M., Stonewell, C., Smart, C., & Haglin, D. (2008). Mindfulness-based cognitive therapy for generalized anxiety disorder. *Journal of Anxiety Disorders, 22*, 716-721.
- Feeny, N. C., Danielson, C. K., Schwartz, L., Youngstrom, E. A., & Findling, R. L. (2006). Cognitive-behavioral therapy for bipolar disorders in adolescents: A pilot study. *Bipolar Disorders, 8*, 508-515.
- Feng, C., Chu, H., Chen, C., Chang, Y., Chang, Y., Chen, T., . . . & Cou, K. (2011). The effect of cognitive behavioral group therapy for depression: A meta-analysis 2000-2010. *World Views on Evidence-Based Nursing, First Quarter*, 2-16.
- Fireman, B., Koran, L. M., Leventhal, J. L., & Jacobson, A. (2001). The prevalence of clinically recognized obsessive-compulsive disorder in a large health maintenance organization. *American Journal of Psychiatry, 158*, 1904-1910.
- Flint, A. (2005). Generalised anxiety disorder in elderly patients: Epidemiology, diagnosis and treatment Options. *Drugs and Aging, 22*, 101-114.
- Foa, E., Keane, T., Friedman, M., & Cohen, J. (2009). *Effective treatments for posttraumatic stress disorder: Practice guidelines for the International Society for Traumatic Stress Studies (2nd ed.)*. New York: Guildford Publications.
- Gould, R., Coulson, M., & Howard, R. (2012). Efficacy of cognitive behavioral therapy for anxiety disorders in older people: a meta-analysis and meta-regression of randomized controlled trials. *Journal of American Geriatric Society, 60*, 218-229.
- Gould, R. A., Otto, M. W., & Pollack, M. H. (1995). A meta-analysis of treatment outcome for panic disorder. *Clinical Psychology Review, 15*, 819-844.
- Gray, G. E. (2004). *Concise guide to evidence-based psychiatry*. Arlington, VA: American Psychiatric Publishing, Inc.
- Hans, E., & Hiller, W. (2013). Effectiveness of and dropout from outpatient cognitive behavioral therapy for adult unipolar depression: A meta-analysis of nonrandomized effectiveness studies. *Journal of Consulting and Clinical Psychology, 81*, 75-88.
- Houghton, S., Saxon, D., Bradburn, M., Ricketts, T., & Hardy, G. (2010). The effectiveness of routinely delivered cognitive behavioural therapy for obsessive-compulsive disorder: A benchmarking study. *The British Journal of Clinical Psychology, 49*, 473-489.
- Hudson, J. & Dodd, H. (2011). Introduction to special issue on social phobia in children. *Journal of Experimental Psychotherapy, 2*, 449-453.
- Hunot, V., Churchill, R., Teixeira, V., & Silva de Lima, M. (2010). Psychological therapies for generalized anxiety disorder. *Cochrane Database of Systematic Reviews, 4*.
- Hunsley, J. (2003). Cost-effectiveness and cost offset considerations in psychological service provision. *Canadian Psychology, 44*, 61-73.
- Hunsley, J. (2007). Addressing key challenges in evidence-based practice in psychology. *Professional Psychology: Research and Practice, 39*, 113-121.
- Hunsley, J., & Lee, C. M. (2007). Research-informed

- benchmarks for psychological treatments: Efficacy studies, effectiveness studies, and beyond. *Professional Psychology: Research and Practice*, 38, 21-33.
- Huntley, A., Araya, R., & Salisbury, C. (2012). Group psychological therapies for depression in the community: Systematic review and meta-analysis. *The British Journal of Psychiatry*, 200, 184-190.
- In-Albon, T., & Schneider, S. (2007). Psychotherapy of childhood anxiety disorders: A meta-analysis. *Psychotherapy and Psychosomatics*, 76, 15-24.
- Johnsson, H., Hougaard, E., & Bennedsen, B. E. (2011). Randomized comparative study of group versus individual cognitive behavioural therapy for obsessive compulsive disorder. *Acta Psychiatrica Scandinavica*, 123, 387-397.
- Jonas, D. E., Cusack, K., Forneris, C. A., Wilkins, T. M., Sonis, J., Middleton, J. C., ... & Gaynes, B. N. (2013). *Psychological and pharmacological treatments for adults with posttraumatic stress disorder (PTSD)* (Report No: 13-EHC011-EF). Rockville, MD: Agency for Healthcare Research and Quality.
- Kessler, R. & Wittchen, H. (2002). Patterns and correlates of generalized anxiety disorder in community samples. *Journal of Clinical Psychiatry*, 63, 4-10.
- Klein, D. F. (2000). Flawed meta-analyses comparing psychotherapy with pharmacotherapy. *American Journal of Psychiatry*, 157, 1204-1211.
- Kobak, K. A., Greist, J. H., Jefferson, J. W., Katzelnick, D. J., & Henk, H. J. (2004). Behavioural versus pharmacological treatments of obsessive compulsive disorder: A meta-analysis. *Focus*, 2, 462-474.
- Kocovski, N. L., Fleming, J. E., & Rector, N. A. (2009). Mindfulness and acceptance-based group therapy for social anxiety disorder: An open trial. *Cognitive and Behavioral Practice*, 16, 276-289.
- Kovacs, A. H., Silversides, C., Saidi, A., & Sears, S. F. (2006). The role of the psychologist in adult congenital heart disease. *Clinical Cardiology*, 24, 607-618.
- Kowalik, J., Weller, J., Venter, J., & Drachman, D. (2011). Cognitive behavioral therapy for the treatment of pediatric posttraumatic stress disorder: A review and meta-analysis. *Journal of Behavioral Therapy and Experiential Psychiatry*, 42, 405-413.
- Kraemer, H. C. & Kupfer, D. J. (2006). Size of treatment effects and their importance to clinical research and practice. *Biological Psychiatry*, 59, 990-996
- Lam, D. H., Burbeck, R., Wright, K., & Pilling, S. (2009). Psychological therapies in bipolar disorder: The effect of illness history on relapse prevention - A systematic review. *Bipolar Disorders*, 11, 474-482.
- Lee, C. M., Horvath, C., & Hunsley, J. (2013). Does it work in the real world? The effectiveness of treatments for psychological problems in children and adolescents. *Professional Psychology: Research and Practice*, 44, 81-88.
- Lee, S. Y., Franchetti, M. K., Imanbayev, A., Gallo, J. J., Spira, A. P., & Lee, H. B. (2012). Non-pharmacological prevention of major depression among community-dwelling older adults: A systematic review of the efficacy of psychotherapy interventions. *Archives of Gerontology and Geriatrics*, 55, 522-529.
- Leichsenring, F., Salzer, S., Jaeger, U., Kachele, H., Kreische, R., Leweke, F., ... & Leibing, E. (2009). Short-term psychodynamic psychotherapy and cognitive-behavioural therapy in generalized anxiety disorder: A randomized controlled trial. *American Journal of Psychiatry*, 166, 875-881.
- Lipsitz, J. D., Gur, M., Vermes, D., Petkova, E., Cheng, J., Miller, N., ... & Fyer, A. (2008). A randomized trial of interpersonal psychotherapy versus supportive therapy for social anxiety disorder. *Depression and Anxiety*, 25, 542-553.
- Marcus, M., Yasamy, M. T., van Ommeren, M., Chisholm, D., & Saxena, S. (2012). Depression: A global health concern. Retrieved from http://www.who.int/mental_health/management/depression/who_paper_depression_wfmh_2012.pdf
- McHugh, R. K., Ott, M. W., Barlow, D. H., Gorman, J. M., Shear, M. K., & Woods, S. W. (2007). Cost-efficacy of individual and combined treatments for panic disorders. *Journal of Clinical Psychiatry*, 68, 1038-104.
- Mehta, D. & Binder, E. B. (2012). Gene x environment vulnerability factors for PTSD: The HPA-axis. *Neuropharmacology*, 62, 654-662.
- Merikangas, K., He, J. P., Burnstein, M., Swanson, S., Avenevoli, S., Cui, L., ... & Swendsen, J. (2010). Lifetime prevalence of mental disorders in US adolescents: Results from the national comorbidity survey

- replication adolescent supplement (NCS-A). *Journal of American Academic Children and Adolescent Psychiatry*, 49, 980-989.
- Merlo, L., Storch, E., Adkins, J., Murphy, T., & Geffken, G. (2007). Assessment of pediatric obsessive compulsive disorder. In E. Storch, G. Geffken, & T. Murphy (Eds.), *Handbook of child and adolescent obsessive disorder* (pp. 67-107). Mahwah, New Jersey: Lawrence Erlbaum Associates Publishers.
- Miklowitz, D. J., & Scott, J. (2009). Psychosocial treatments for bipolar disorder: Cost-effectiveness, mediating mechanisms, and future directions. *Bipolar Disorder*, 11(Supplement 2), 110-122.
- Mitte, K. (2005). A meta-analysis of the efficacy of psycho and pharmacotherapy in panic disorder with and without agoraphobia. *Journal of Affective Disorders*, 88, 27-45.
- Mood Disorders Society of Canada (2011). Depression. Retrieved from <http://www.mooodisorderscanada.ca/documents/Consumer%20and%20Family%20Support/Depression.pdf>
- National Institute for Clinical Excellence. (2004). *Management of anxiety in adults in primary, secondary and community care: Clinical Guideline 22*. London: National Institute for Clinical Excellence.
- Nathan, P. E., & Gorman, J. M. (Eds.). (2007). *A guide to treatments that work* (3rd ed.). New York: Oxford University Press.
- Nieuwsma, J. A., Trivedi, R. B., McDuffie, J., Kronish, I., Benjamin, D., & Williams, J. W. (2012). Brief psychotherapy for depression: A systematic review and meta-analysis. *International Journal of Psychiatry in Medicine*, 43, 129-151.
- Nordhus, I., & Pallesen, S. (2003). Psychological treatment of late-life anxiety: An empirical review. *Journal of Consulting and Clinical Psychology*, 71, 643-651.
- O'Connor, K., Aardema, F., Robillard, S., Guay, S., Péliissier, M. C., Todorov, C., ... & Doucet, P. (2006). Cognitive behaviour therapy and medication in the treatment of obsessive-compulsive disorder. *Acta Psychiatrica Scandinavica*, 113, 408-419.
- Olatunji, B. O., Davis, M. L., Powers, M. B., & Smits, J. A. (2013). Cognitive-behavioral therapy for obsessive-compulsive disorder: A meta-analysis of treatment outcome and moderators. *Journal of Psychiatric Research*, 47, 33-41.
- Panguluri, C., Whooley, N. (2010). Psychological risk factors and the metabolic syndrome in patients with coronary heart disease: Findings from the Heart and Soul Study. *Psychiatry Research*, 175, 133-137.
- Parsons, T., & Rizzo, A. (2008). Affective outcomes of virtual reality exposure therapy for anxiety and specific phobias: A meta-analysis. *Journal of Behavior Therapy and Experimental Psychiatry*, 39, 250-261.
- Pavuluri, M. N., Graczyk, P. A., Henry, D. B., Carbray, J. A., Heidenreich, J., & Miklowitz, D. J. (2003). Child- and family-focused cognitive-behavioral therapy for pediatric bipolar disorder: Development and preliminary results. *Journal of the American Academy of Child and Adolescent Psychiatry*, 43, 528-537.
- Peng, X. D., Huang, C. Q., Chen, L. J., & Lu, Z. C. (2009). Cognitive behavioural therapy and reminiscence techniques for the treatment of depression in the elderly: A systematic review. *Journal of International Medical Research*, 37, 975-982.
- Pinson, L., & Gray, G. E. (2003). Number needed to treat: An underused measure of treatment effect. *Psychiatric Services*, 54, 145-147.
- Pollack, M., Smoller, J., Otto, M., Hoge, E., & Simon, N. (2010). Phenomenology of panic disorder. In D. Stein, E. Hollander, & B. Rothbaum (Eds.), *Textbook of anxiety disorders (2nd ed.)* (pp. 367-377). Arlington, VA: American Psychiatric Publishing Inc.
- Powers, M., Halpern, J., Ferenschak, M., Gillihan, S. & Foa, E. (2010). A meta-analytic review of prolonged exposure or posttraumatic stress disorder. *Clinical Psychology Review*, 30(6), 625-641.
- Reynolds, S., Wilson, C., Austin, J., & Hooper, L. (2012). Effects of psychotherapy for anxiety in children and adolescents: A meta-analytic review. *Clinical Psychology Review*, 32, 251-262.
- Riedel-Heller, S., Matschinger, H., & Matthias, C. (2005). Mental disorders-Who and what might help? Help-seeking and treatment preferences of the lay public. *Social Psychiatry and Psychiatric Epidemiology*, 40, 167-174.
- Rodenburg, R., Benjamin, A., de Roos, C., Meijer, A. M., & Stams, G. J. (2009). Efficacy of EDR in children: A meta-analysis. *Clinical Psychology Review*, 29, 599-

- 606.
- Rosa-Alcazar, A., Sanchez-Meca, J., Gomez-Conesa, & Marin-Martinez, F. (2008). Psychological treatment of obsessive-compulsive disorder: A meta-analysis. *Clinical Psychology Review, 28*, 1310-1325.
- Rounsaville, B. J., Carroll, K. M., & Onken, L. S. (2001). A stage model of behavioral therapies research: Getting started and moving on from Stage 1. *Clinical Psychology: Science and Practice, 8*, 133-142.
- Ruscio, A. M., Stein, D. J., Chiu, W. T., & Kessler, R.C. (2010). The epidemiology of obsessive disorder in the National Comorbidity Survey Replication. *Molecular Psychiatry, 53*, 53-63.
- Sanchez-Meca, J., Rosa-Alcazar, A., Marin-Martinez, F., & Gomez-Conesa, A. (2010). Psychological treatment of panic disorder with or without agoraphobia: A meta-analysis. *Clinical Psychology Review, 30*, 37-50.
- Scott, J., Colom, F., & Vieta, E., (2007). A meta-analysis of relapse rates with adjunctive psychological therapies compared to usual psychiatric treatment for bipolar disorders. *International Journal of Neuropsychopharmacology, 10*, 123-129.
- Segool, N.K. & Carlson, J. S. (2008). Efficacy of cognitive-behavioral and pharmacological treatments for children with social anxiety. *Depression and Anxiety, 25*, 620-631.
- Spielmann, G. I., Berman, M. I., & Usitalo, A. N. (2011). Psychotherapy versus second-generation antidepressants in the treatment of depression: A meta-analysis. *The Journal of Nervous and Mental Disease, 199*, 142-149.
- Stanley, M., Beck, J. G., Novy, D., Averill, P., Swann, A., Diefenbach, G., & Hopko, D. (2003). Cognitive-behavioral treatment of late-life generalized anxiety disorder. *Journal of Consulting and Clinical Psychology, 71*, 309-319.
- Stewart, R., & Chambless, D. (2009). Cognitive-behavioral therapy for adult anxiety disorders in clinical practice: A meta-analysis of effectiveness studies. *Journal of Consulting and Clinical Psychology, 77*, 595-606.
- Szentagotai, A., & David, D. (2010). The efficacy of cognitive-behavioral therapy in bipolar disorder: A quantitative meta-analysis. *Journal of Clinical Psychiatry, 71*, 66-72.
- Uzark, K., Griffin, L., Rodriguez, R., Zamberlan, M., Murphy, P., Nasman, C., . . . Varni, J. W. (2012). Quality of life in pediatric heart transplant recipients: A comparison with children with and without heart disease. *Journal of Heart and Lung Transplantation, 31*, 571-578.
- Van Ameringen, M., Mancini, C., & Patterson, B. (2009). Pharmacotherapy for social anxiety disorder and specific phobia. In M. M. Antony & M. B. Stein (Eds.), *Oxford handbook of anxiety and related disorders* (pp. 321-333). New York: Oxford University Press.
- van Balkom, A. J., Bakker, A., Spinhoven, P., Blaauw, B. M., Smeenk, S., & Ruesink, B. (1997). A meta-analysis of the treatment of panic disorder with or without agoraphobia: A comparison of psychopharmacological, cognitive-behavioural, and combination treatments. *Journal of Nervous and Mental Diseases, 185*, 510-516.
- Veldhuis, J., Dielman, J., Wohlfarth, T., Storosum, J., van Den Brink, W., Sturkenboom, M., & Denys, D. (2012). Incidence and prevalence of diagnosed OCD in a primary care, treatment seeking, population. *International Journal of Psychiatry in Clinical Practice, 16*, 85-92.
- Vieta, E., & Colom, F. (2004). Psychological interventions in bipolar disorder: From wishful thinking to an evidence-based approach. *Acta Psychiatrica Scandinavica, 110 (Suppl. 442)*, 34-38.
- Watson, H. & Rees, C. (2008). Meta-analysis of randomized, controlled treatment trials for pediatric obsessive-compulsive disorder. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 49*, 489-498.
- Weisz, J. R., & Kazdin, A. E. (Eds.). (2010). *Evidence-based psychotherapies for children and adolescents* (2nd ed.). New York: Guilford Press.
- Weisz, J. R., McCarty, C. A., & Valeri, S. M. (2006). Effects of psychotherapy for depression in children and adolescents: A meta-analysis. *Psychological Bulletin, 132*, 132-149.
- West, A. E., Henry, D. B., & Pavuluri, M. N. (2007). Maintenance model of integrated psychosocial treatment in pediatric bipolar disorder: A pilot feasibility study. *Journal of the American Academy of Child and Adolescent Psychiatry, 46*, 205-212.

- Whalley, B., Rees, K., Davies, P., Bennett, P., Ebrahim, S., Liu, Z., . . . Taylor, R. S. (2011). Psychological interventions for coronary heart disease. *Cochrane Database of Systematic Reviews*, 8, CD002902.
- Wolitzky-Taylor K., Horowitz, J., Powers, M., & Telch, M. (2008). Psychological approaches in the treatment of specific phobias: A meta-analysis. *Clinical Psychology Review*, 28, 1021-1037.
- World Health Organization (2013). Cardiovascular Diseases (CVDs) fact sheet. Retrieved from <http://www.who.int/mediacentre/factsheets/fs317/en/index.html>
- Zaretsky, A. E., Rizvi, S., & Parikh, S. V. (2007). How well do psychosocial interventions work in bipolar disorder? *The Canadian Journal of Psychiatry*, 52, 14-21.

Table 1
Number Needed to Treat (NNT) Values for Main Meta-Analytic Results

Interventions Evaluated in Meta-Analysis of RCT Results	ES	NNT
Depression		
Psychotherapy vs. no treatment, effects post-treatment (Cuijpers et al., 2011; Driessen et al., 2010)	$d = .40$ to $.88$	2.1-4.5
Psychotherapy vs. no treatment, effects post-treatment for older adults (≥ 55) (Peng et al., 2009)	$d = .92$	2.1
Psychotherapy vs. no treatment, effects post-treatment for youth (Weisz et al., 2006)	$d = .34$	5.2
Group CBT vs. no treatment, effects post-treatment (Feng et al., 2011; Huntley et al., 2012)	$g = .40$	4.4
Brief CBT vs. TAU, effects post-treatment (Cape et al., 2010)	$d = .33$	5.9
Bipolar Disorder		
Adjunctive psychotherapy vs. medication only, relapse rate (Szentagotai & David, 2010)	$OR = .53^a$	—
Generalized Anxiety Disorder		
CBT vs. TAU or no-treatment, effects post-treatment (Hunot et al., 2010)	$SMD = .82$	2.3
Social Anxiety Disorder		
Psychotherapy vs. no treatment, effects post-treatment (Acarturk et al., 2009)	$d = .80$	2.3
CBT vs. no treatment, effects post-treatment for youth (Segool & Carlson, 2008)	$d = .86$	2.2
Obsessive-Compulsive Disorder		
Psychotherapy vs. no treatment, effects post-treatment (Rosa-Alcazar et al., 2008)	$d = 1.08$	1.9
Psychotherapy vs. no treatment, effects post-treatment for youth (Watson & Rees, 2008)	$d = 1.45$	1.8
PTSD		
Trauma-focused CBT vs. no treatment, effects post-treatment (Bisson et al., 2007)	$d = 1.40$ to 1.70	1.7-1.8
Prolonged Exposure (CBT) vs. no treatment, effects post-treatment (Powers et al., 2010)	$g = 1.08$	1.9
Trauma-focused CBT vs. no treatment, effects post-treatment for youth (Kowalik et al., 2011)	$d = .33$	6.0
Specific Phobias		
Exposure-based CBT vs. no treatment, effects post-treatment (Wolitzky-Taylor et al., 2008)	$d = 1.05$	1.9
Panic Disorder		
Psychotherapy vs. no treatment, effects post-treatment (Sanchez-Meca et al., 2010)	$d = .78$	2.6
Coronary Heart Disease		
Psychotherapy vs. TAU, depression post-treatment (Whalley et al., 2011)	$SMD = .21$	8.9

^aThis was associated with a 40% reduction in relapse rate relative to the use of medication monotherapy.