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**Therapist, Client Factors, and Efficacy in Cognitive Behavioural Therapy:
A Meta-Analytic Exploration of Factors that Contribute to Positive Outcome**

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Therapist, Client Factors, and Efficacy in Cognitive Behavioural Therapy: A Meta-Analytic
Exploration of Factors that Contribute to Positive Outcome

A Dissertation Submitted to the Faculty of Post Doctoral and Graduate Studies of the University
of Ottawa in Partial Fulfillments of the Requirements for the Degree of Doctorate of Philosophy

Gina Di Giulio

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General Introduction

Cognitive Behavioural Therapy (CBT) is the form of treatment that has gathered the most empirical support for its efficacy to date. Its efficacy in treating a variety of adult mental disorders has been well documented (see Butler, Chapman, Forman, & Beck, 2006). In fact, 94% of “well-established” empirically supported treatments (see Hunsley, Dobson, Johnston, & Mikail, 1999) are cognitive behavioural therapies. CBT is based on the premise that psychopathology is caused by dysfunctional thinking patterns, that in turn cause emotional and behavioural difficulties. Thus, treatment is designed to modify dysfunctional cognitions and maladaptive behaviours, and to alter the manner in which people interpret and act on negative emotions. Treatment is delivered via a psychoeducational approach, in which the therapist begins by providing a rationale for CBT to the client and explains the relationship between cognition, affect, and behaviour (Hamilton & Dobson, 2002). Treatment is focused on solving current problems, is structured and directive, and is typically brief and time-limited (Beck, Emery, & Greenberg, 1985).

Increasing demands for cost-effective and empirically supported treatments have heightened interest in CBT. Moreover, the increased concerns of delivering the best possible treatment to consumers has made empirically supported treatments not only a reality, but also a professional and ethical responsibility. Yet, despite evidence of treatment efficacy, the precise mechanisms of change in CBT are not well-documented (Addis & Jacobson, 2000). However, with the efficacy of cognitive behavioural therapies now relatively well established, investigators have begun to consider the “active ingredients” of such approaches (Neimeyer & Feixas, 1990). Moreover, evidence is accumulating regarding the specific and non-specific factors that influence outcome in CBT. Specific factors encompass therapist factors (e.g., techniques), client

factors (e.g., homework adherence), and their interaction. Non-specific factors include those that are common across psychotherapies and not just specific to CBT, such as the therapeutic alliance. The resulting empirical data are now starting to shed light on a question that has beleaguered clinicians for quite some time. That is, which treatment, given by which therapist, works best for which client, with which disorder? (Hamilton & Dobson, 2002). A compiled list of empirically supported treatments put forth by Division 12 of the American Psychological Association (Chambless et al., 1998) and endorsed by the Clinical Psychology Section of the Canadian Psychological Association (Hunsley et al., 1999) has begun to address some of these questions, although many questions still remain unanswered.

The purpose of this dissertation project was two-fold. First, the efficacy of CBT was explored and updated from Dobson's (1989) landmark meta-analysis that hailed cognitive therapy (CT), a form of CBT, as a highly effective treatment for depression among adults. To this day, Dobson's meta-analysis is one of the most referenced studies confirming the empirical validity of CBT. A re-analysis of the current data would not be possible without (and at the very least) comparing the results to those found by Dobson in 1989. Thus, Dobson's original meta-analytic procedures (including selection of studies, coding procedures, calculation of effect sizes and statistical analyses of moderators) were closely followed in order to validly compare the current to his original study. The current study deviated somewhat to the extent that some statistical alterations were made in order to incorporate current best practices for conducting meta-analyses (e.g., correcting for small sample size). Additional moderators beyond those analysed by Dobson were also explored.

Depression was chosen as the focus of the first meta-analysis in order to directly compare the results to Dobson's (1989) original findings. A search of the extant data on the efficacy of

CBT yielded several published meta-analyses for disorders among adults including Generalized Anxiety Disorder (GAD; Gould, Otto, Pollack, Yap, 1997), Panic Disorder with Agoraphobia (PDAG; Oei, Llamas, & Devilly, 1999), Obsessive Compulsive Disorder (OCD; Abramowitz, 1997), social phobia (Gould, Buckminster, Pollack, Otto, & Yap (1997), schizophrenia (Rector & Beck, 2001), chronic pain (Morley, Eccleston, & Williams, 1999), bulimia (Whittal, Agras, & Gould, 1999), anger (Beck & Fernandez, 1998), sexual offending (Nagayama Hall, 1995) and marital discord (Dunn & Schwebel, 1995), with effect sizes ranging from moderate to large.

The aforementioned meta-analyses are the “gold-standard” for their respective diagnostic categories, involving extensive and rigorous methodologies (Butler, et al., 2006). Given the recency and quality of these studies, attempts to replicate them was unnecessary. The second aim of the current dissertation project was to explore which factors contribute most to positive outcome in CBT for adults, and the means through which they exert their influence. Several variables of potential influence were chosen either because of their conceptual relevance to CBT or their contested relevance to outcome. Several therapist and client factors that may contribute to positive outcome in CBT were chosen for a variety of Axis I psychological disorders in adults. Therapist factors that were examined include ratings of the therapeutic alliance, amount and type of training and experience, and therapist skill in delivering and adhering to a CBT protocol. Client factors encompassed pre-treatment symptom severity, homework compliance, and attitudes towards therapy including motivation, treatment credibility, and outcome expectancy. The efficacy of CBT has been clearly demonstrated in the literature. What remains to be explored however, is a better explanation as to how and under which conditions CBT exerts its positive effects. In contrast to past research, this study undertook an extensive analysis of moderator variables in order to examine interaction effects within and between therapist and

client factors. Its aim was to go well beyond previous meta-analyses that have focussed on providing cumulative effect sizes by qualifying the results when warranted by significant effect moderators. Given the larger number of variables examined and the complexity of the analyses undertaken in the second meta-analysis, inter-coder reliability ratings were examined to ensure that the intricacy of the data was accurately captured. One overarching goal was to provide a more informative knowledge base that could guide CBT research and clinicians towards a more focused approach by better attending to the most powerful treatment variables and knowing which aspects of therapy to emphasize in order to improve client outcomes. Lastly, it was hoped that the results could have implications for training clinicians by shedding light on where training efforts should be concentrated. Ultimately, and most importantly perhaps, was the prospect of translating the resulting knowledge of this study into clinical practice in order to allow for more ethical and empirically supported service provision.

The objectives of this project were undertaken and explored within two separate meta-analytic studies. The studies will be presented consecutively, in their entirety, and a general discussion will then follow that will encompass all the findings and provide the reader with a more integrative perspective on the resulting data.

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A Meta-Analytic Update on the Efficacy of Cognitive Behavioural Therapy for
Depression

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Abstract

A meta-analysis of the effectiveness of Cognitive Behavioural Therapy (CBT) for adult depression was conducted. Twenty-nine studies were identified from 1988 to 2004 that met selection criteria. Comparisons to no treatment, antidepressant medication, behaviour therapy, and other psychotherapies were made using Hedges' *d* corrected for sample size. Results indicated a clear superiority of cognitive therapy (CT) and CBT over wait-list or no treatment conditions, and slightly larger effect sizes for CT/CBT over pharmacological and other psychotherapeutic treatments for depression. As tests of homogeneity were not met for the pharmacotherapy and other psychotherapy conditions, the results should be interpreted with caution. About equal effect sizes were found between CT/CBT and Behavioural Therapy. Effect size was significantly related to format of treatment (with group therapy achieving a larger effect size than individual therapy format) and type of research trial (with larger effect sizes yielded for efficacy than effectiveness trials). Length of therapy, measured in weeks, was also significantly related to better outcome in CT/CBT. These results confirm that CT and CBT are excellent options for the treatment of adult depression.

A Meta-Analytic Update on the Efficacy of Cognitive Behavioural Therapy for Depression

Over the past three decades, a number of meta-analyses evaluating the efficacy of Cognitive Therapy (CT) for depression have been published (e.g., Dobson, 1989; Nietzel, Russel, Hemmings, & Gretter, 1987). These analyses have, for the most part, used Beck et al.'s cognitive therapy (Beck, Rush, Shaw, & Emery, 1979) as the standard treatment against which other treatment conditions are compared. The earliest and most influential meta-analysis on the efficacy of CT for depression was published by Dobson (1989). Dobson conducted a meta-analysis of 28 studies that used the Beck Depression Inventory (BDI) as the outcome measure in the treatment of depression. The results indicated that CT was clearly superior to no treatment, wait-list controls, pharmacotherapy, behaviour therapy, and other psychotherapies. One limitation of Dobson's analysis, a common shortcoming in early meta-analyses, is that he did not report having weighted his effect sizes as a function of its sample size. Small sample sizes may yield effect sizes that are exaggerated (Hedges, 1982), and thus, the results of such analyses must be interpreted with caution.

Several meta-analyses of CT for depression have been conducted since Dobson's study (e.g., Gloaguen, Cottraux, Cucherat, & Blackburn, 1998; Gaffan, Tsasis, & Kemp-Wheeler, 1995). However, these meta-analyses have been rather limited in scope, typically re-analysing older studies for the presence of one or more specific moderating variables. Few meta-analyses have gone beyond examining one or two specific variables that may have moderating effects on treatment outcome in CT for depression. A moderator variable is a third factor that influences the relationship between a predictor variable and a dependent or criterion variable (Baron & Kenny, 1986). In meta-analysis, a moderator is any variable that influences the effect size. Many meta-

analyses have been criticized for not adequately examining the role of moderators of outcome (Shadish & Sweeney, 1991).

Gaffan et al. (1995) re-analysed the studies used in Dobson's analysis and an additional 37 studies, taking sample size and researcher allegiance into account. The authors confirmed Dobson's findings, but also found that about half of the variance of the comparison between cognitive therapy (CT) and other conditions could be explained by researcher allegiance. The authors noted a historical effect to this finding, in that the relationship between researcher allegiance and effect size was larger for earlier studies, and declined over time.

Gloaguen et al. (1998) conducted a meta-analysis of CT for depression and found that CT was significantly superior to other therapies, medication, and wait-list, but was equal in effect to behaviour therapy. The authors also found that the between-trial homogeneity between CT and other therapies was not met, indicating that the effect sizes found may have been attributable to non-specific factors such as the therapeutic alliance. However, unlike Dobson, the authors did not make specific reference to Beck et al. (1989) in choosing their studies for inclusion. Thus, the "purity" of the CT conditions (i.e., their adherence to standard CT practices) cannot be ascertained, limiting the conclusions that can be drawn from the comparisons.

Wampold, Minami, Baskin, and Tierny (2002) re-analysed the studies included in Gloaguen et al.'s (1998) analysis to investigate the source of heterogeneity in the comparisons between CT and other therapies. The authors divided treatments into "bona fide" vs. "non-bona fide" and found a superiority of CT over non-bona fide treatments, but not over other bona fide treatments. However, Wampold et al.'s criteria for classifying a treatment as bona fide were questionable: the treatment had to be individualized for the patient and not involve a standard protocol delivered "rigidly" to each patient. Many empirically supported treatments for depression adhere

to treatment protocols, but would be misclassified as “non-bona fide” according to the authors’ criteria; a serious and important limitation of this study.

For the purposes of this study, CT and Cognitive Behavioural Therapy (CBT) studies were both considered as belonging to the same category of treatments, and both were considered for study inclusion. This is consistent with more recent meta-analyses since Dobson’s (i.e., Butler, et al., 2006; Gloaguen, et al., 1998). Thus, it was necessary to do the same in the current study, in order to be able to better compare the current results to the current extant findings. Furthermore, CT and CBT labels are becoming increasingly interchangeable, and clear guidelines of how to clearly define and delineate one treatment over another are very difficult to ascertain.

The purposes of this study was three-fold: 1) to provide updated effect sizes of CT (defined as CT and/or CBT) for depression since Dobson’s (1989) meta-analysis, 2) to investigate the presence of several moderators of outcome beyond those considered by Dobson and more recent meta-analyses, and 3) to improve on the methodological limitations of some previous meta-analyses (e.g., by using sample size weighting of effect sizes, attending closely to the treatments comprising the CT condition).

The following hypotheses were tested:

1. CT would be superior to no treatment (wait list and placebo conditions)
2. CT would be superior to behaviour therapy
3. CT would be superior to pharmacotherapy
4. CT would be superior to other psychotherapies

Method

Selection of Studies

A review of all studies published from Dobson's cut-off point of January 1988 to December 2004 was conducted by a computer search of PsycINFO and Medline databases using the key terms cognitive-behavioral therapy, cognitive therapy, behavior therapy and depression. A manual search of the reference sections of previous reviews and of the reference sections of the studies included in the data was also conducted. Lastly, a yearly search was undertaken of the table of contents for the years 1988 through 2004 of the following journals: *American Journal of Psychiatry*, *Archives of General Psychiatry*, *Behavior Therapy*, *Behavioural and Cognitive Psychotherapy*, *Behaviour Research and Therapy*, *British Journal of Clinical Psychology*, *British Journal of Psychiatry*, *Clinical Psychology and Psychotherapy*, *Clinical Psychology: Science and Practice*, *Cognitive Therapy and Research*, *International Journal of Cognitive Psychotherapy*, *Journal of the American Medical Association*, *Journal of Consulting and Clinical Psychology*, *Journal of Clinical Psychology*, *Journal of Counseling Psychology*, *American Journal of Psychotherapy*, *New England Journal of Medicine*, and *Psychotherapy Research*. Only studies published in English were retrieved.

Based on this search, 2,442 articles were initially retrieved. The following inclusion criteria were then applied to this initial sample of articles. The studies had to specifically reference Beck's cognitive therapy, make reference to Beck's treatment manual for cognitive therapy of depression (Beck, Rush, Shaw, & Emery, 1979), or use the cognitive therapy treatment techniques developed by Beck et. al. Clients were adults aged 18 to 65, their primary diagnosis was depression, and a suitable measure for depression taken at both pre- and post-treatment had to be available in order to calculate effect sizes (ESs). When multiple outcome

measures were used, the BDI results were used in the calculation of ESs whenever possible, as it is the more conservative measure of depressive symptom change (Lambert, Hatch, Kingston, & Edwards, 1986). Robinson, Berman, and Neimeyer (1990) have criticized previous meta-analyses that have analysed only one dependent measure of depression. Thus, although the BDI was given preference, other measures of depression were included in the analysis when the BDI was unavailable in order to ensure a more comprehensive review of efficacy across outcome measures. Finally, in keeping with current meta-analytic practices, studies had to have a sample size of at least 5 treated participants in order to maximize validity.

Based on these inclusion criteria, a total of 20 studies of CT/CBT were selected from the 2,442 retrieved. The major reason for excluding studies was that they did not make reference to Beck's cognitive therapy, and/or they did not provide an adequate pre and post measure of depressive symptomology. Table 1 describes the characteristics of these studies: 9 contrasts to wait-list or placebo control, 5 contrasts to behaviour therapy, 4 contrasts to pharmacotherapy, and 9 contrasts to other psychotherapies were possible.

The categories of treatments were coded as follows:

- (a) standard CT: cognitive therapy delivered according to the principles outlined by Beck et al. (1979), or utilizing treatment techniques that are mainly cognitive
- (b) CBT: cognitive therapy as outlined by Beck et. al., with the addition of several specific behavioural techniques (e.g., relaxation)
- (c) BT: treatment techniques that are purely behavioural, without the addition of cognitive interventions (e.g., relaxation or social skills training), and/or treatments described as such by the authors

- (d) Pharmacotherapy: treatment via the administration and monitoring of psychoactive medication, without adjunct psychological treatment
- (e) Other psychotherapy: any psychotherapy condition not falling into any of the aforementioned treatment categories (e.g., interpersonal psychotherapy, psychoanalytic therapy)
- (f) Wait-list control or no treatment: no treatment provided

Coding

For each study, the following variables were coded:

- (a) sample size (the number of participants who completed treatment in each condition—due to the infrequency of reporting complete results for all participants beginning treatment, it was not possible to conduct analyses of intention-to-treat data)
- (b) year of publication
- (c) format of treatment (individual or group)
- (d) inclusion rates (defined as the percentage of recruited participants who met criteria for inclusion in the study)
- (e) treatment setting (coded as hospital outpatient, inpatient, or community clinic/other outpatient)
- (f) treatment duration (defined as the average number of weeks of treatment for each condition)
- (g) depression outcome measure (Beck Depression Inventory [BDI], Hamilton Rating Scale for Depression [HAM-D], or other)
- (h) rater (client, therapist, or other)

- (i) type of trial; efficacy trial (where the aim is to demonstrate that the treatment works under strict conditions, against the standard protocol of treatment) vs. effectiveness trial (the aim is to test how a treatment works under usual practice circumstances, against any other treatment)
- (j) depression difference scores (calculated by subtracting post-treatment depression scores from pre-treatment depression scores, for the BDI only) for each treatment condition

Type of treatment, sample size, year of publication, treatment setting, and length of treatment were coded as they were originally coded in Dobson's (1989) original study. Average age and gender of patients was not coded, as these variables have not been shown to be significantly related to CBT outcome. Format of treatment, inclusion rates, type of trial, and outcome rater were chosen instead, as these variables have yielded mixed results in the literature, and their significance has more recently been contested in the current discourse on CBT outcome.

Inter-rater Reliability Calculations

An independent rater (J. H.) classified each of the coded variables according to the categories listed above, for 20 per cent of all of the studies. A coding manual was provided. Inter-rater reliability of the classification and coding system was calculated using Cohen's kappa (κ) coefficient (Cohen, 1960). Weighted kappas were calculated for ordinal data according to the procedures recommended by Maclure and Willet (1987). Values were interpreted according to the classification of strength of agreement provided by Landis and Koch (1977).

Calculation of Effect Sizes

Comparative ESs were computed by a weighted least squares meta-analysis which consisted of subtracting the post-treatment depression outcome means of two groups within the same study, and dividing the result by the pooled standard deviation of the post-treatment means of both groups. The J coefficient (Hedges & Olkin, 1985) was applied to correct for small sample sizes. This correction is superior to the strategy used by Dobson (1989), which involved dividing the difference between means by the standard deviation of the contrast group only; such a correction does not take into account the biased effect of small sample sizes. This procedure yields a weighted mean effect size where the standard error of the weighted mean effect size is the inverse of the sum of the weights (as discussed in Hedges & Olkin, 1985). Based on the directional nature of the hypotheses, we would expect the post-treatment outcome means of the cognitive therapy conditions to be lower than those of the comparison group (e.g., lower BDI scores for the CT group). Thus, the CT post-treatment outcome means were subtracted from the comparison group means. The order of subtraction would thus dictate that positive ESs indicate a superiority of cognitive therapy (i.e., lower depression scores), an effect size of zero signifies no difference between cognitive therapy and the contrast group, and a negative ESs would signify that cognitive therapy was actually less effective (i.e., higher depression scores). When standard deviations were not reported, the effect sizes were estimated from t or F according to the principles outlined by Glass, McGaw, and Smith (1981). When other statistical information needed to compute ES was not available, the best estimate of ES was computed using available or transformed statistics (see Rosenthal, 1991). In addition, ESs were tested for heterogeneity. A significant heterogeneity test would indicate variance among ESs that is greater than would be

expected by sampling error alone (Cooper, 1998) thus indicating that other explanatory factors (i.e., moderators) should be explored.

Moderators

In addition to examining the efficacy of CT for depression, additional variables were examined and tested for their moderating effects on effect size using a multiple least squares regression analysis. The effect sizes were used as the dependent variable in the regression equations. The predictor (independent) variables were: inclusion rates, treatment setting, type of research trial (i.e., efficacy vs. effectiveness), and format of treatment (i.e., individual or group). The predictor variables were all entered into a stepwise regression. Categorical variables were recoded into binary variables in order to convert them to quantitative data.

Consistent with Dobson (1989), the effects of several variables on depression change scores were also examined, including length of therapy (defined as duration of treatment, in weeks). Correlations with several other variables beyond those used by Dobson (1989) were obtained with the within treatment BDI change score. Specifically, these variables were inclusion rates, treatment setting, type of research trial, and format of treatment. Some studies have suggested a historical effect in meta-analyses, whereby older studies demonstrate larger effect sizes that decline over time (Gaffan et al., 1995). In order to explore this further, year of publication as a possible moderator of depression score change was also examined.

Results

Inter-rater Reliability

Twenty percent of the included articles were coded according to a manual by two raters. Agreement was *perfect* for each coded variable, except treatment setting. For the treatment

setting variable, the raters disagreed on one occasion, yielding a kappa rating of 0.5 or *fair agreement*.

Cognitive Therapy vs. No Treatment (Wait-List Control)

Contrasts between CT and wait-list control or no treatment conditions were possible for 9 studies. The overall ES for these was 0.82 (0.58-1.07, 95% *CI*), indicating that clients treated with CT did significantly better than control clients. A significant heterogeneity test ($Q_T = 31.76$, $p < 0.001$) was obtained between CT and WLC trials, indicating that the trials were heterogeneous, and thus, the presence of moderators of the overall ES should be explored.

Cognitive Therapy vs. Behaviour Therapy

A total of 5 studies permitted a contrast between CT and BT. BT treatments included behavioural activation, behavioural bibliotherapy, assertion training, and problem-solving approaches. The mean ES for these studies was 0.08 (-0.23 – 0.39 95% *CI*), indicating that the CT condition had an outcome that was about equal that of the BT condition. The test of homogeneity was significant ($Q_T = 14.65$, $p < 0.01$), indicating that the sample of trials was heterogeneous and that the presence of moderators should be explored.

Cognitive Therapy vs. Psychopharmacological Treatment

A total of 4 studies permitted a contrast between CT and a medication condition (SSRIs and TCAs). The overall ES for these studies was 0.10 (-0.43 to 0.63, 95% *CI*). As the interval of ESs includes zero, the two groups are not significantly different, indicating that CT clients did as well as clients treated with a drug. These results are consistent with recent data suggesting an at least equal outcome of CT to medication (DeRubeis et al., 2005). The between-trials test of homogeneity did not yield significant results ($Q_T = 0.12$, $p = ns$).

Cognitive Therapy vs. Other Psychotherapies

A total of 9 studies permitted a comparison between CT and other psychotherapies which included: Interpersonal; Psychodynamic-Interpersonal; Focused-Expressive; Supportive therapies and Pastoral Counselling. For these contrasts, the overall ES was 0.11 (-0.13 – 0.35, 95% *CI*). As the interval of ESs includes zero, the two groups are not significantly different, indicating that CT did equally well as clients in other psychotherapy conditions. The heterogeneity test was not significant ($Q_T = 7.98, p > 0.5$), indicating the presence of shared moderators in the CT and other conditions.

Other Influencing Variables

After adjusting for type of treatment (i.e., entering CT ESs only), multiple regression analysis found a significant statistical relationship between effect size and treatment format, $r(6) = 0.94, p < 0.01$, with group therapy achieving larger effect sizes than individual therapy, $t(31) = -2.374, p < 0.05$. No relation between effect size and inclusion rates, treatment setting, and type of research trial was found.

In addition, the influence of other variables on depression change was also explored. Consistent with Dobson (1989), the influence of length of therapy was examined. In addition, year of publication, inclusion rates, treatment setting, type of trial (i.e., efficacy vs. effectiveness), and format of treatment (i.e., individual or group) were also examined. These data were correlated with the difference in depression scores (defined as the difference between pre-treatment and post-treatment BDI scores) for the CT condition.

A significant relationship was found between length of therapy (range 4-35 weeks) and depression change, $r(16) = 0.55, p < 0.5$, and between type of trial and depression change, $r(8) = 0.66, p < 0.05$. The relationship between year of publication and depression change was $r(26) =$

0.11, $p = ns$. Thus it appears that year of publication did not relate to the amount of change seen in the CT conditions. Similarly, the correlation between the amount of change in depression and study inclusion rates was $r(8) = 0.20$, $p = ns$. Thus, the percentage of subjects who were accepted for treatment did not have an influential effect on average depression change. Treatment setting, $r(19) = 0.09$, $p = ns$, or format of treatment, $r(19) = 0.24$, $p = ns$ were not found to be related to depression change either.

Discussion

The aim of this meta-analysis was to: 1) investigate the efficacy of cognitive therapy for adult depression (compared to no treatment), as evident within the last two decades, 2) to compare the efficacy of cognitive therapy to other treatments for depression, and 3) to explore possible moderators variables of therapeutic outcome in cognitive therapy. On the basis of these results, it appears that Dobson's (1989) conclusions on the efficacy of cognitive therapy for depression are still supported today. Based on studies published after 1988, cognitive therapy was found to be more efficacious than no treatment at all, indicating specific effects on depression outcome that are attributable to cognitive therapy. Furthermore, the heterogeneity of the results suggests that the effects are related to factors that not specific to CT, but shared with other conditions as well. These results are consistent with Gloaguen et al.'s (1998) findings, in which heterogeneous results were also found when comparing CT to other treatment conditions. It is likely that the heterogeneity is related to patient characteristics such as symptom severity and/or the presence of comorbidity), and therapist characteristics, such as the amount of training they had in CBT. Additionally, the heterogeneity may be related to the CT treatment characteristics, such as the "purity" of the treatment, or the duration of treatment.

Cognitive therapy also appears to be about as equally efficacious as behaviour therapy. These results are congruent with more recent reports (e.g., Gloaguen et al, 1998; Jacobson et al., 1996), but differ from Dobson's (1989) original findings. The discrepant findings could be explained by variations in the literature as to what constitutes a behavioural treatment. For example, social skills, relaxation, and assertiveness training have been included under the umbrella of behavioural treatments, as have been sleep hygiene and smoking cessation programs. Others (e.g., Jacobson et al., 1996) have restricted their definition to a more stringent definition, such as behavioural activation. This varying concept of behavioural therapy may have contributed to the variability within research findings and should be explored further. Indeed, the behavioural treatments included in the current meta-analysis varied between treatments that were simply behavioural in nature (e.g., behavioural bibliotherapy and assertiveness training) and bona fide behavioural interventions designed to address specific problems in depression (e.g., behavioural activation). Moreover, the current sample size of 5 studies in which comparisons to BT were possible, may be too small to detect any differences between the two treatments.

The results also suggest that cognitive therapy outcome is about equal to pharmacotherapy and thus remains a reasonable alternative to medication in the treatment of depression. Some recent meta-analyses (e.g., DeRubeis, Gelfand, Tang, & Simons, 1999) have found CT to be more efficacious than pharmacotherapy for depression, including for severe levels of depressive symptoms. The effect sizes in the current study were not as strong as DeRubeis et al's findings, but support the notion that the CT and medications are, at the very least, equal in the treatment of depression in the short-term. Several reports (e.g., DeRubeis et al., 2005) have also shown CT to outperform medication treatments in the long-term, although such comparisons were not possible in the current meta-analysis given the small sample size.

Choosing to treat depression by medication or psychotherapy is certainly a contentious and controversial issue. Combination treatments have been touted in the literature as being most efficacious for more severe levels of depression (Altshuler et al., 2001). However, from an empirical standpoint, combination treatments for depression have not produced dramatic increases over the immediate benefits achieved with drug therapy or psychotherapy alone. The results from the current meta-analysis comparing cognitive therapy and pharmacotherapy are in line with Dobson's (1989), but should be interpreted with caution given that the trials were not homogeneous. The issue of type of medication and appropriate dosages must also be taken into account when interpreting ESs. In the current meta-analysis, only SSRIs and TCAs were included in the analyses, and thus, the results are not generalizable across all pharmacological treatments for depression. Furthermore, the dosages used (e.g., recommended clinical doses vs. larger than recommended doses; uniform vs. heterogeneous doses) can determine the strength of a treatment effect, and whether or not a pharmacological treatment will outperform a psychological one. In the current meta-analysis, several of the studies used rather high dosages of medications (i.e., Mohr et al., 2001; Whisman et al., 1991), often attempting to have the patient reach the "maximum tolerable dose." Had the investigators used lower dosages, the difference between CT and the pharmacological conditions may have been larger.

In the present meta-analysis, comparable ESs between cognitive therapy and other psychotherapies was demonstrated. This deviates from Dobson's (1989) original findings where ESs were much larger for CT over other psychotherapies. Other psychotherapies examined in the current meta-analysis included interpersonal, psychodynamic and supportive therapies, and pastoral counselling. All of these therapies were designed with the specific intent of treating depression. Thus, it may be that the "purity" and quality of these studies has increased over time,

thus narrowing the comparative efficacy gap between CT and these other therapies. On the other hand, it may be that the strength of CT is diminishing over time because its purity is being diluted. Earlier CT efficacy studies were mostly developed by the “pioneers” of CT, and the more experienced CT clinicians. Today, there are many different forms of CBT, thus its applicability to depression is more heterogeneous than previously, making its efficacy potentially more difficult to measure. In fact, when CT was compared to no treatment in the current meta-analysis, an ES of 0.82 was found which is smaller than Dobson’s (1989) original ES of 2.15. The weighted least-squares procedure used within the current meta-analysis is also a more stringent statistical procedure than Dobson’s (1989) meta-analytic procedures, and one that typically yields much smaller ESs. Thus, it may also be that the statistical procedures coupled with a small sample size of 9 comparisons did not allow for any meaningful differences to be detected. Lastly, there is great variation as to what constitutes an “other” treatment for depression. CBT is an empirically supported treatment, whereas many of the comparative treatments (i.e., pastoral counselling, psychodynamic therapy) are not. As such, it is difficult to directly measure and compare differences between a valid, bona-fide treatment, and other non-bona-fide treatments, and thus, one must be careful as to the conclusions that are drawn from such comparisons, especially if claims of treatment equivalency are being made.

In contrast to Dobson’s (1989) results, a significant relation between length of therapy and depression outcome was found. Empirical results on treatment duration and outcome have been mixed in previous research. Seligman’s (1995) report of psychotherapy consumers found that patients whose length of therapy was limited by insurance or managed care did worse than other patients. Merrill, Tolbert and Wade (2003) found that more sessions of cognitive therapy were associated with better outcomes for depressed patients within a community mental health

centre as well as for patients involved in two randomly controlled clinical trials. Long-term psychotherapy is counterintuitive to the cognitive therapy model which typically involves 20 sessions or less. Indeed there is an abundance of data that suggests that patients do well in short-term cognitive therapy (see McGinn & Sanderson, 2001 for a discussion). It is important to note however, that although length of treatment was related to outcome, the longest treatment (35 weeks) was relatively on the shorter end of the duration continuum. Thus, the results do not suggest that long-term CBT should be advocated for treatment of adult depression. It will be important to analyse what other variables are mediating and moderating the effects of treatment duration on CT outcome (e.g., symptom severity, patients' financial resources) in order to ensure that clients are being seen for the appropriate length of time and to maximize the efficiency of treatment.

Lastly, effect sizes were greater in the group CT condition than in the individual CT condition. Overall, differential treatment effects between individual and group therapy have not been consistently reported in the literature. It may be that a group context offers more opportunities for learning and modeling from other group participants. Or perhaps group treatment might offer a greater sense of alliance with and from other members, which may have an increased positive effect on outcome. Further research is necessary in order to investigate these hypotheses. Group therapy presents with a better cost-benefit ratio and given the similar outcomes to individual therapy, group CT may be a very appropriate and attractive treatment for depression, especially in the age of managed care.

This review adds to our current knowledge of the efficacy of cognitive therapy for adult depression. Recent meta-analyses have confirmed the efficacy of CT for other disorders including Obsessive Compulsive Disorder (Abramowitz, Foa, & Franklin, 2002), Panic Disorder

(Gould, Otto, & Pollack, 1995), and Generalized Anxiety Disorder (Deacon & Abramowitz, 2004), and disorders within other populations including adolescent (Haby, Tonge, Littlefield, Carter, & Vos, 2004) and geriatric (Scogin, Welsh, Hanson, Stump, & Coates, 2005) depression. A current summary of the available evidence on the efficacy of CBT for depression and anxiety can also be found by consulting Hollon, Stewart, and Strunk (2006). Future meta-analyses should examine the long-term effects of CT in comparison to other therapies. It would also be clinically relevant to discern the specific effects that CT has on therapeutic outcome in comparison to pharmacotherapy and in patients concurrently receiving both. Lastly, recent research has explored the efficacy of CT to a wider spectrum of psychiatric disorders. Receiving the most empirical attention have been eating disorders, personality disorders, and substance abuse disorders (Butler, Chapman, Forman, & Beck, 2006). It would be relevant then for future meta-analyses to examine the overall effects of CT within those disorders. It is important for researchers to keep the limitations of meta-analytic designs in mind, and take necessary precautions in order to minimize them. This will include using weighted effect sizes that control for sample size, and exploring moderators that may be influencing effect size, rather than averaging effect sizes into an aggregate figure. Doing so will provide evidence as to which conditions allow CT to be most effective, which is ultimately critical in order to translate empirical results into clinical practice.

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Table 1

List of Studies Included in the Meta-Analysis

Author	Year	Setting	Treatments	Sample size	Avg. Weeks of therapy	Comparisons	ESs
Addis & Jacobson	1996	CCO ^a	CT ^b BT ^c	48 50	20 20	CT vs. BT	-0.10
Agosti & Ocepek-Welikson	1997	Hospital	CBT ^d IPT ^f MED PLA	16 14 20 15	16 16 16 16	CBT vs. OTH ^e CBT vs. MED ^g CBT vs. PLA ^h	0.10 0.10 0.10
Ball, Kearney, Wilhelm, Dewhurst-Savellis, & Barton	2000	CCO	CBT BT Assertiveness training	30 31	5 5	CBT vs. BT	-0.08
Barkham, Moorey, & Davis	1992	CCO	CBT WLC	21 6	3 3	CBT vs. WLC	1.40
Barkham, Shapiro, Hardy, & Rees	1999	CCO	CBT PI ⁱ	62 54	3 3	CBT vs. OTH	0.13
Beutler, et al.	1991	CCO	CBT (group) FEP ^j (group) SSD ^k (group)	21 22 20	20 20 20	CBT vs. OTH CBT vs. OTH	0.09 0.48
Bright, Baker, & Neimeyer	1999	CCO	CBT (group) MSG ^l	18 22	10 10	CBT vs. OTH	0.29

Brown, Evans, Miller, Burgess & Mueller	1997	Hospital	CBT WLC (Relaxation)	19 16	8 8	CBT vs. WLC	0.31
Gallagher-Thompson & Steffan	1994	Hospital	CBT BPD ^m	36 30	16 16	CBT vs. OTH	-0.48
Hogg & Deffenbacher	1988	CCO	CT (Group) IPT (Group) WLC	13 14 10	8 8 8	CBT vs. OTH CBT vs. WLC	-0.06 0.57
Jacobson, et al.	1996	Hospital	BT CT	56 50	20 20	CT vs. BT	-0.12
Jamison & Scogin	1995	CCO	CT (Bibliotherapy) Wait-list control	40 40	4 4	CT vs. WLC	1.32
Mohr, Boudewyn, Goodkin, Bostrom, & Epstein	2001	Hospital	CBT SEG ⁿ MED	20 22 21	16 16 16	CBT vs. OTH CBT vs. MED	0.57 0.08
Nezu & Perri	1989	CCO	CBT BT WLC	14 14 11	10 10 10	CBT vs. BT CBT vs. WLC	1.51 3.09
Persons, Bostrom, & Bertagnolli	1999	CCO	CT CT + MED	27 18	35 35	CT vs. CT+ MED	0.04
Propst, Ostrom, Dean, & Mashburn	1992	CCO	CBT PC ^o WLC	19 10 11	20 20 20	CBT vs. OTH CBT vs. WLC	-0.45 0.48
Scogin, Jamison, & Gochneaur	1989	CCO	CT Bibliotherapy BT Bibliotherapy	22 23	4 4	CT vs. BT CT vs. WLC	0.03 1.50

Selmi, Klein, Greist, Sorrell, & Erdman	1990	CCO	WLC	22	4			
			CBT WLC	12 12	6 14	CBT vs. WLC	0.75	
Shapiro, et al.	1994	CCO	CBT PI	58 57	8 or 16 8 or 16		CBT vs. OTH	0.62
			CT + MED MED	14 17	28 26	CT+MED vs. MED	0.20	
Whisman, Miller, Norman, & Keitner	1991	Inpatient						

^aCCO = Community/Clinic/Other Outpatient

^bCT = Cognitive Therapy

^cBT = Behaviour Therapy

^dCBT = Cognitive Behavioural Therapy

^eOTH = Other

^fIPT = Interpersonal Therapy

^gMED = (Antidepressant) Medication

^hPLA = Placebo Control

ⁱPI = Psychodynamic Interpersonal

^jFEP = Focused Expressive Psychotherapy

^kSSD = Supportive Self-Directed Psychotherapy

^lMSG= Mutual support group therapy

^mPD = Brief psychodynamic therapy

ⁿSEG = Supportive Expressive Group Psychotherapy

^oPC = Pastoral Counselling

Therapist and Client Factors in Cognitive Behavioural Therapy: A Meta-Analytic Exploration of
Factors that Contribute to Positive Outcome

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Abstract

The efficacy of Cognitive Behavioural Therapy (CBT) for a variety of psychological disorders is well-established. Yet, little is known about the mechanisms by which CBT is so effective. A meta-analysis of therapist and client factors within CBT for adults was conducted in order to explore this important question. The therapeutic alliance (n=38 studies), therapist experience (n=11 studies), therapist competence (n=11 studies), pre-treatment symptom severity (n = 24 studies), homework compliance (n=28 studies), and a client's motivational attitudes towards therapy (n=21 studies) were all explored. Moderating factors (e.g., presenting problem, treatment setting) were also examined within each variable. Large effects were found for therapist competence, medium effects were found the therapeutic alliance, pre-treatment symptom severity, attitudes towards therapy, and homework compliance, and small effects were detected for therapist experience. Several notable results emerged, including the large number of significant moderators found within the competence variable, and the lack of moderators within the homework compliance variable. Implications of the results for CBT scientists and practitioners were explored and discussed.

Therapist and Client Factors in Cognitive Behavioural Therapy: A Meta-Analytic Exploration of Factors that Contribute to Positive Outcome

It has been argued that therapists' individual contributions to outcome are the major factor responsible for observed differences in outcome among different psychotherapies (Huppert, et al., 2001). Within treatments, researchers and clinicians tend to believe that therapists' characteristics can be associated with or predictive of outcome (Beutler, Machado, & Allstetter Neufeldt, 1994). In practice, this is evident in how clinicians make referrals amongst themselves. For example, they will often have an idea of who might be the most appropriate therapist to refer one of their clients to. The choice may be based on objective criteria, such as the therapist's age, years of experience, or theoretical orientation. Or the decision to refer to a specific therapist may be based on subjective criteria, such as perceived level of competence, interpersonal style, or reputation. Most likely, however, clinicians think of who might be the best-suited therapist for each client and for each problem. Moreover, clinicians providing the same treatment, even if very structured, might have very different results. This begs the question . . . what factors are responsible for the difference in their effectiveness? Several therapist factors have been touted in the literature as potentially important in order to achieve beneficial therapeutic effects.

The Therapeutic Alliance

One difference among therapists that has been examined in its relation to outcome is a therapist's ability to form a positive working relationship, or *therapeutic alliance*, with his/her clients. The therapeutic alliance, defined as the attachment and collaboration between the client and therapist (Bordin, 1979), has been identified as an instrumental factor related to positive therapeutic change. The terms *therapeutic alliance*, *working alliance*, *helping alliance*, and

therapeutic empathy have all been used synonymously to denote specific parts of the alliance or the alliance as a whole (Horvath & Luborsky, 1993). The alliance has been one of the most widely examined variables in therapy process research, and continues to be so. In fact, in 1999 the APA Division of Psychotherapy Task Force was commissioned to identify, operationalize, and disseminate information on empirically supported therapy *relationships* (ESRs) (Norcross, 2002). Moreover, Grenca and Norcross (1990) reviewed 50 published studies to determine what commonalities are shared among diverse psychotherapies. The largest common factor was the development of a therapeutic alliance between the client and therapist, cited in 56% of the studies as a common element across different psychotherapies. Thus, the alliance appears to be an important and necessary transtheoretical construct. In general, the positive contribution of the alliance towards outcome has been found across treatment modalities, using both client and therapist ratings (for an extensive review, see Horvath & Bedi, 2002).

History of Concept

The therapeutic alliance's effect on outcome was first emphasized in psychodynamic therapy. Freud (1958) believed that an analyst's positive and supportive attitude towards a client would allow him/her to develop a healthy attachment towards the therapist. Furthermore, he differentiated between this healthy attachment and an unhealthy or neurotic attachment, known as *transference* (Freud, 1958). Greenson (1965) later developed the concept of transference and coined the term *working alliance* to denote the client's healthy and mature identification to the analyst. Zetel (1956) also developed the distinction between transference and alliance. She noted that a healthy relationship between a client and therapist allows the client to step back and receive the therapist's interpretations regarding healthy and unhealthy attachments in therapy. More recent process research within short-term psychodynamic therapy has supported the

importance of the alliance. Suh, O'Malley, Strupp, and Johnson (1989) found that the alliance formed within the first three sessions was predictive of post-treatment outcome. On the other hand, the clients of therapists who were not initially warm and empathic evidenced early deterioration in treatment from which recovery was difficult.

The importance of the therapeutic alliance was further underscored with the advent of client-centred therapy. Rogers (1957) asserted that a therapist's warm and empathic stance, congruency, and ability to accept a client unconditionally were necessary and sufficient conditions for positive therapeutic outcome. Early research findings indicated that therapists who possessed these qualities were more successful in securing better outcomes for their clients (Rogers, Gendlin, Kiesler, & Truax, 1967). However, the positive relationship between Rogers' therapeutic conditions and outcome has not been found across treatment modalities (Orlinsky & Howard, 1986). Furthermore, Rogers only examined the therapist's contribution to the alliance. Some reviews, however (e.g., Gelso & Carter, 1985), concluded that Rogers' therapist-offered conditions only account for part of the complex and, at times, interactive factors that contribute to positive outcome (Horvath & Symonds, 1991).

The positive role of alliance on outcome has also been found within behavioural therapy (e.g., Ryan & Gizynski, 1971; Keijsers, Schaap, Hoogduin, & Peters, 1991). The role that the alliance plays is conceptualized somewhat differently in behaviour therapy. The therapeutic relationship is regarded as an important factor that increases the likelihood that the client will listen to the therapist and allow for the implementation of behavioural techniques (Sweet, 1984). Thus, the more effective a therapist is at fostering a positive therapeutic alliance, the greater the probability that he/she will be successful in changing a client's behaviour. As an illustration, Morris and Suckerman (1974) found that therapist warmth was significantly related to outcome

in systematic desensitization for snake-phobic clients. Significant effects between alliance and outcome have also been found in exposure and response prevention treatment for Obsessive Compulsive Disorder (Hoogduin, deHaan, & Schaap, 1989), in vivo exposure treatment for agoraphobia (Williams & Chambless, 1990), behaviour therapy for problem drinking (Miller et al., 1980) and behavioural treatment for marital therapy (Holtzworth-Munroe, Jacobson, DeKlyen, & Whisman, 1989).

Meta-Analytic Reviews of Alliance and Outcome

In a meta-analytic review of 40 studies, Orlinsky and Howard (1986) reported that therapeutic empathy was significantly correlated with outcome. Furthermore, in a review of 24 studies examining alliance and outcome, Horvath and Symonds (1991) found an average effect size of $r = 0.26$ across treatments. In more recent reviews, the effect size for alliance was found to be $r = 0.21$ across 89 studies (Norcross, 2001a) and $r = 0.22$ in another review that measured the alliance across 79 studies (Martin, Garske, & Davis, 2000). Although most studies have found a positive relationship between alliance and outcome across treatments (e.g., Ackerman & Hilsenroth, 2003; Horvath & Symonds, 1991; Krupnick et al., 1996), some have not (e.g., Krupnick et al., 1994).

Qualification on General Results

Some studies have shown that the therapeutic relationship is correlated more highly with client outcome than are specified treatment interventions (Lambert & Barley, 2001; Norcross, 2001a). However, whether the alliance is a curative factor, per se, currently remains unknown. Gaston (1990) provided three hypotheses regarding the role that the alliance might play across therapies: the alliance could be *directly* and, thus, causally related to outcome, it may be a *mediator* of outcome, or it may *interact* with other variables to effect positive change. For

example, Anthony, Ogrodniczuk, Piper, and McCallum (2003) found that the therapeutic alliance was a mediator of clients' expectancy of improvement and outcome in short-term individual therapy. Specifically, they found that the alliance directly accounted for one-third of the effect of expectancy on outcome.

In terms of an interactive effect with other variables, Norcross (2001a) found that the alliance had effects that were dependent upon clients' diagnoses. For example, for Generalized Anxiety Disorder (GAD) and Obsessive Compulsive Disorder (OCD), the treatment modality effect size on outcome was much greater than the alliance's, but for depression, the alliance was more powerful. In contrast, the alliance might actually be less important or even less beneficial for some diagnoses. For example, a negative correlation has been found between alliance and outcome for paranoid clients (Norcross, 2001a). Thus, the therapeutic relationship probably exerts a more direct causal impact on some disorders and in some treatment modalities than in others (Norcross, 2001b).

The relation of alliance to outcome has been found across differing perspectives including those of therapist, client, and external observers. However, the majority of findings indicate that alliance is the strongest predictor of outcome when it is assessed from the client's perspective (Horvath & Luborsky, 1993; Orlinsky & Howard, 1986; Henry, Strupp, Schacht, & Gaston, 1994). Horvath and Symonds (1991) found that the effect size for the relationship between alliance and outcome was $r = 0.21$ when clients rated the alliance and $r = 0.17$ when therapists rated the alliance, and the difference between effect sizes was not statistically significant. Safran and Wallner (1991) found that alliance was strongly related to outcome in short-term cognitive therapy when assessed by clients. On the other hand, when therapists rated the quality of the alliance, a moderate relation to outcome was found. In contrast, Krupnick et al.

(1996) found that ratings of patients' contribution to the alliance contributed significantly to outcome in CBT, however, ratings of therapists' contribution to the alliance to outcome were not significantly related to outcome. Although empirical findings generally indicate that clients' ratings of the therapeutic alliance are more likely to predict clinical recovery therapists ratings (Burns & Auerbach, 1996), it is impossible at this time to draw definitive conclusions about the alliance rater effects on outcome in CBT. The meta-analytic reviews that have examined rater effects on alliance and outcome thus far have not included many CBT studies in their data set. For example, in a review of 90 studies published between 1976 and 2000 (Horvath & Bedi, 2002) included only 5 cognitive therapy studies. Horvath and Symonds (1991) included only 2 cognitive therapy studies in their review of the alliance across 20 studies. Thus, a meta-analysis examining the effects of moderator variables (including type of alliance rater), within CBT specifically, and with a larger sample size, is warranted at this time.

The role of the alliance in cognitive therapy has been, for the most part, largely misunderstood. CBT has historically been inaccurately conceptualized as a mechanistic and structured treatment, in which the therapeutic relationship is downplayed, or ignored. Although the alliance has not been as frequently examined in the cognitive behavioural psychotherapies as in other modalities of treatment, theoretically, its importance has always been underscored. One notable exception is Ellis (1962) who thought that the alliance is neither necessary nor sufficient to produce positive change, and could in fact be counterproductive.

A central principle of cognitive therapy is that therapy is a collaborative effort between therapist and patient (Beck et al., 1985). This principle emphasizes that cognitive therapy is based on a collaborative approach whereby the alliance between the client and therapist is used to help the client arrive at solutions to his/her problems. The most skilled cognitive therapists are

those who establish a mutually respectful relationship with their clients, in which they combine genuine, empathic understanding of their problems, with competence in CBT treatment delivery (Dobson & Shaw, 1993).

Beck et al. (1985) listed and discussed a series of ten principles upon which cognitive therapy is based. Principle three states: “A sound therapeutic relationship is a necessary condition for effective cognitive therapy” (pp.167). Beck et al. noted that, without a warm therapeutic relationship, the techniques and procedures of cognitive therapy are unlikely to work. Thus, the relationship is the medium through which the “work” in cognitive therapy can take place. Cognitive therapists must, however, be able to clearly define the nature of the alliance. It should be warm and empathic such that the client feels safe. It must not be overly smothering, such that objective analysis by the therapist can occur, and such that the therapist does not become overly entangled in a client’s hopelessness (Dobson & Shaw, 1993).

There are *no* empirical data to suggest that CBT therapists are cold and mechanical (Keijsers, Schaap, & Hoogduin, 2000). For example, Marmar, Gaston, Gallagher, and Thompson (1989) investigated the effects of alliance on outcome in cognitive, behavioral, and brief psychodynamic therapy for depressed elderly patients and found a significant within treatment relation between alliance and outcome in cognitive and behavioural therapies only. Similarly, when compared with other treatments, higher or similar alliance ratings have been reported in CBT (Raue, Castonguay, & Goldfried, 1993; Raue, Goldfried, & Barkham, 1997; Salvio, Beutler, Wood, & Engle, 1992).

CBT differs from client-centred approaches in its conceptualization of alliance in one major way. Although the client-centered treatment frameworks endorse a positive alliance as a necessary and sufficient condition of therapy, CBT approaches typically maintain that a good

therapeutic relationship is necessary but is not a sufficient condition for positive change (Burns & Auerbach, 1996). The alliance may serve as a precondition for the application of cognitive and behavioural change mechanisms. More recently in the CBT literature, in certain contexts, the alliance has been regarded as a possible change mechanism in and of itself (e.g., Norcross, 2002; Safran & Segal, 1990). Specifically, ruptures in the therapeutic alliance can be used as opportunities to examine a client's maladaptive thinking patterns and beliefs. Safran and Segal (1990) have underscored the importance of using interpersonal processes in cognitive therapy, and have helped clients develop more adaptive cognitive schemas within the context of the therapeutic relationship. Safran and Wallner (1991) have also developed a variant of cognitive therapy that places specific emphasis on the therapeutic relationship as an essential variable related to positive change.

Although the aforementioned developments are interesting, the specific role that the alliance plays in effecting positive outcomes in CBT is still not clear. The magnitude of the alliance's effect on outcome and the effect's variability across different disorders is also unclear at this time. On the other hand, the alliance might allow for a client's acceptance of a CBT therapist's techniques, such as cognitive interpretations and restructuring. As such, the alliance might be *reflective* of positive outcome, rather than causally related. For example, Burns and Nolen-Hoeksema (1992) found, via a structural equation model, that depressed patients treated by CBT rated their therapists as more caring and empathic *as they were improving*. Thus, depression severity evoked a reciprocal effect on empathy, and the magnitude of the effect was moderate to large given that each 1 point increase on the Empathy Scale (ES; Persons & Burns, 1985) used in the study led to a decrease of 1.37 points on The Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) at post-treatment. Similarly, Raue,

Castonguay, and Goldfried (1993) found that clients who were more anxious/depressed were rated as having a lower level of alliance (by external observers) than clients who were less symptomatic. Raue, Goldfried, and Barkham (1997) found that alliance ratings were higher in “high impact” sessions of CBT than those for “low impact.” In addition, DeRubeis and Feeley (1990) found that alliance scores were predicted by, rather than predictive of, positive therapeutic change in CBT for depression. Thus, a positive alliance may also be an indicator that things are going well in therapy overall.

For the most part, the relation between alliance and outcome in CBT has been deemed to be moderate to large (Muran et al., 1995; Safran & Wallner, 1991; Wright & Davis, 1994). Nevertheless, some studies of CBT have not found a relationship between alliance and outcome. For example, Wilson, Fairburn, Agras, Walsh, and Kraemer (2002) did not find a relationship between alliance and outcome for CBT for bulimia nervosa. However, the results were based on two single alliance scores for each patient, one gathered early in treatment, and the other at mid-treatment. Thus, the effects of alliance were not assessed over time. Others have found an interactive effect between alliance and outcome with the point at which it was measured. For example, DeRubeis and Feeley (1990) found that alliance was related to outcome only *later* in treatment for cognitive therapy for depression, and not in the initial stages of therapy.

Although meta-analyses of the alliance literature have been conducted (Horvath & Symonds, 1991; Martin et al., 2000), a review of the alliance’s effect specifically within CBT has not. Given that, overall, the alliance seems to be often moderately related to outcome, and given that its role within CBT has not been extensively empirically examined, a meta-analysis examining the effects of alliance within CBT is necessary. Furthermore, given that most studies, including those within CBT, have found a positive relationship between alliance and

outcome, a simple review of the literature is not sufficient. A more in depth-analysis (via moderator analyses) is required in order to ascertain better the exact mechanism by which the alliance exerts its effects on outcome within CBT.

Therapist Experience

Therapist experience level and its relation to outcome has also been a controversial variable across psychotherapies. In the research literature, therapist experience has been operationalized variably as therapist training, level of professional training, professional discipline, and amount of pre- and post-graduate experience achieved (Beutler, Machado, & Allstetter-Neudfledt, 1994). The variation in the way that experience has been operationalized confounds the results of research in that therapist experience has not been uniformly measured across studies and as such, mixed results have been found. Bergin and Lambert (1978) suggested that clinicians with more experience obtain better outcomes in comparison to more junior therapists. Some of the research appears to support their hypothesis. In a meta-analysis of different treatment groups, Crits-Christoph et al. (1991) found that more experienced therapists had smaller differences in treatment efficacy between them; on the other hand, less experienced therapists had greater variability in treatment outcome. Moreover, therapists who are consistently more successful have also been found to be more effective across different psychotherapies in comparison to more junior therapists (Luborsky, McLellan, Diguer, Woody, & Seligman, 1997).

Other researchers have concluded that a therapist's level of experience has little or no effect on outcome (e.g., Auerbach & Johnson, 1977; Miller, Taylor, & West, 1980; Stein & Lambert, 1984). In a large meta-analysis, Smith, Glass, and Miller (1980) found no relation between therapists' years of experience and treatment outcome. In the same study, when years of experience were examined for cognitive therapists only, a *negative* correlation of -0.10 was

found. McLean and Hakstian (1979) also found that therapist experience did not correlate with outcome. Interestingly however, they also found that therapist experience had the most effect in behavioural therapy, although the results only approached statistical significance. Relatedly, Stokes, Blore, and Meats (1996) compared the outcomes of patients treated by a nurse behavioural psychotherapist against those treated by trainee students under his supervision. The results indicated that the patients of the students did improve, albeit not as greatly as those treated by the more experienced therapist.

However, one methodological caveat in the literature exists. Meta-analytic reviews have only involved comparisons between inexperienced and slightly experienced therapists; differences between inexperienced and very experienced clinicians, in general, have not been tested in research studies (Lambert & Ogles, 2004). One exception is the meta-analytic review conducted by Stein and Lambert (1984), where therapists' years of experience were found to contribute most to differences in outcomes. Nonetheless, the results obtained in reviews thus far have not provided a clear answer as to whether experience is related to outcome. The quality of the findings thus far is hampered by previously noted confounded definitions of categories of experience, improper controls, variability in amount and type of supervision received, and confounding treatment technique with level of experience (Lambert & Bergin, 1994). Thus, the studies that have investigated the relation between treatment outcome and experience may, in fact, be looking at very diverse things.

The relation between therapist experience and treatment outcome within CBT specifically, is also laden with the same methodological quandaries. As such, mixed results have also been found. Bright, Baker, and Neimeyer (1999) investigated the efficacy of professional versus paraprofessional therapists in providing group CBT and mutual support for depression.

The authors grouped the therapists according to education levels. The professional therapists consisted of doctoral clinical and counselling psychology students who had averaged 4 years of post-secondary supervised psychotherapy training. On the other hand, none of the paraprofessional therapists had advanced training in psychology, but half had experience leading groups. The researchers found that clients in the professionally led CBT therapy group were less depressed at post-treatment than the clients in the paraprofessional group. However, within the mutual support groups, a comparable number of clients were classified as non-depressed following treatment. Thus, experience (as defined by educational levels) related to outcome only in the CBT condition. However, the results may be confounded by the fact that about half of the paraprofessionals had previously had comparable experience levels with those in the professional group. The results suggest that the nature of CBT (at least in group format) is such that it may require more skills and experience in order to be successfully delivered.

Huppert et al. (2001) found that clients who were treated by therapists with more experience with psychotherapy in *general* showed greater improvement in CBT for panic disorder. However, experience was related more to treatment outcome when it was defined as years of experience of practicing psychotherapy in general, rather than years of experience of practicing CBT specifically. The results may in part be explained by the fact that the therapists in the study received rigorous training and close supervision in CBT, in conjunction with consistent monitoring of adherence to a standardized CBT protocol for panic disorder. Thus, given that the CBT therapists were all trained to at least a moderate level of competency, the range of differences between them was most likely restricted, which would explain why years of practicing CBT specifically did not significantly relate to outcome. Furthermore, it may be that

the more experienced therapists also possessed qualities related to outcome that are common across therapies, including CBT, such as the ability to form a positive therapeutic alliance.

Burns and Nolen-Hoeksema (1992) examined the relationship between years of experience and outcome in CBT for depression while controlling for other nonspecific factors. The results indicated that the patients of novice therapists improved significantly less than did those of more experienced therapists. Specifically, the post-treatment BDI scores for the patients treated by more senior therapists were 5.76 points lower on average, than those of patients treated by the novice therapists, when controlling for the therapeutic alliance, homework compliance, income, and therapeutic empathy.

It appears, therefore, that the association between experience and outcome may be more important in CBT than in other treatment modalities. However, the results thus far have been mixed, and thus, it is too early to draw definitive conclusions. Furthermore, even if outcomes do favour more experienced therapists, it would be inappropriate to conclude that more junior therapists are ineffective. Less experienced therapists can and do make a positive difference, and can also be very cost-effective. Stokes, Blore, and Meats (1996) found that supervising therapists could cut their service provision time by 77% by providing supervision to trainees rather than treating clients themselves. In addition, less experienced therapists must be given the opportunity to provide services, in order for them to achieve clinical competence. In order to better ascertain the role that experience plays in CBT, an analysis of possible moderator effects must be undertaken. In the current study, the moderators examined included how experience is defined (e.g., years of experience vs. professional “status”), type of presenting problem, and treatment setting (individual vs. group). A more extensive list of moderators is provided in the method section.

Therapist Competence and Skill

Clinical competence in service provision is also undoubtedly a very important therapist quality. *Competence* refers to the delivery of treatment as it is intended to be delivered, but with special skills that are over and above the minimum required standards for providing generic services (Kazdin, 1994). Competence is related to *adherence*, which refers to the purity in the execution of a treatment (DeRubeis & Feeley, 1990) and how skilfully one adheres to a treatment format. The two differ in that competence is usually determined by expert judges reviewing a therapist's performance, whereas adherence is rated by external observers who rate the occurrence of certain events that are key to a specific type of therapy (Shaw et al., 1999). Overall, significant results have been found between therapist competence and treatment outcome, although the strength of the relation has varied (Lambert & Bergin, 1994). Specifically, in a review of therapist's skilfulness and outcome across different psychotherapies, Orlinsky, Grawe, and Parks (1994) reported that 68% of the studies included in the analyses found a significantly positive relationship.

One or more external raters are typically used in research studies to evaluate therapists' competence. However, in the few studies that have assessed therapist competence from the client's perspective, a relation to treatment outcome has also been found. For example, Ryan and Gizynski (1971) found that patients' perceptions of therapists' confidence and persuasiveness were related to improved outcome at post-treatment. Similar results have also been found in CBT. For example, Bennun, Hahlweg, Schindler, and Langlotz (1986) found that clients who rated their therapists as more competent also improved more. Similarly, Williams and Chambless (1990) found that clients diagnosed with agoraphobia who rated their therapists as more self-confident were more likely to improve. Self-confidence in this case was related to competency,

as therapists were required to model anxiety-reducing behaviours for the client, as part of the treatment protocol. Rabavilas, Boulougouris, and Perissaki (1979) found that patients who were anxious improved the most when they rated their therapist as “challenging,” which is also a tenet of practice within CBT.

Competence in CBT specifically refers to the skilfulness of the therapist in conceptualizing the patient’s distress and problems within a CBT theoretical framework and in applying recognized techniques or methods consistent with the goals of treatment (Shaw et al., 1999). The relation of competence to outcome in CBT was examined in the National Institute of Mental Health (NIMH) Treatment of Depression Collaborative Research Program (TDCRP; Shaw et al., 1999). Outpatients across 3 treatment sites were treated with CBT for major depressive disorder. The therapists in the study were rigorously trained in the application of CBT and their progress was continuously evaluated. External raters assessed competence ratings via the Cognitive Therapy Scale (CTS; Dobson, Shaw, & Vallis, 1985) and adherence with the Collaborative Study Psychotherapy Rating Scale (CSPRS; Hollon et al., 1988). The researchers found that competence was significantly related to outcome only when a clinician-rated measure of depression was considered. Competence was not related to outcome when patient self-report measures of depression and overall symptomology were included in the analyses. Thus, competence was related to outcome, but not uniformly across outcome measures. The authors provided several explanations for the findings, including limitations of the CTS and variability in competence ratings across therapists. Nonetheless, a relation between competence and outcome was found, even when treatment dropouts were included in the analyses. Thus, competence had an effect even for those patients who did not receive the entire prescriptive treatment protocol.

Treatment adherence is especially pertinent in psychotherapy research, as a lack of adherence to a treatment protocol is a serious confound that can invalidate any finding. In fact, a number of outcome studies have failed to find differences across psychotherapies when treatments were not adhered to strictly (Kazdin, 1994). Nonetheless, the assessment of treatment integrity in psychotherapy research is the exception rather than the rule (Kazdin, 1994). Thus, more research examining this variable is necessary.

Adherence is related to the utilization of treatment manuals, as they are the standard by which adherence is assessed. Adherence has also been related to outcome in that a significant effect on outcome has been found for therapists who adhere to treatment manuals (Luborsky, McLellan, Woody, O'Brien, & Auerbach, 1985). Given the structured nature of CBT, it is not surprising that a positive relationship between adherence and outcome has been found. Luborsky et al. also found that the degree of adherence in the delivery of cognitive therapy correlated positively with outcome. Similarly, Teasdale and Fennell (1982) found greater symptomatic relief of depression for clients whose therapists adhered to a standard CBT protocol based on inducing cognitive change.

However, adherence to CBT protocol alone is not sufficient. Elkin et al. (1989) examined the role of adherence in the NIMH's TDCRP and found that it only minimally contributed to the prediction of outcome for CBT, accounting for about 1% of the outcome variance. The results are not surprising, given that therapists were trained to have at least a moderate level of competency in CBT, which would include the ability to closely follow the treatment protocol. Thus, a large correlation between outcome and adherence would not be expected given the restriction of range in competency values. When anything other than a minimal correlation between adherence and outcome is found, there is reason to suspect that other factors may be

moderating the relation. For instance, DeRubeis and Feeley (1990) found a moderate relation between therapist adherence and outcome in CBT for depression, but the relation was found only when adherence was assessed early in treatment. Thus, adherence may have differing effects on outcome depending on when it is measured. On the other hand, Castonguay et al. (1996) found that stringent adherence to manualized treatment and therapist inflexibility actually correlated negatively with outcome. One explanation for this finding may be that overly strict adherence to a protocol may not allow for the development of a therapeutic alliance. Hence, excessive adherence may actually be contraindicated in all therapies, including CBT. A more probable explanation is that there are other moderating factors that are contributing to the unusual correlations that have been found in the literature thus far between adherence and outcome. As such, an analysis of possible moderators is necessary in order to draw more definitive conclusions. Moderators examined in the current study included when adherence is measured, type of measure used, and the exact construct that is being assessed (i.e. adherence, vs. competency). Further details on moderator analyses are provided in the method section.

The mechanisms by which competence and adherence contribute to outcome in CBT were also examined in the current study. Based on studies that have utilized manual-guided therapies to ensure adherence, and where a measure of therapist competency was included, the research suggests that therapist skilfulness is associated with outcome across different psychotherapies (Beutler, Machado, & Allstetter Neufeldt, 1994). As the constructs are interdependent upon each other, they were treated as one variable in the current meta-analysis and referred to as *therapist skill*. Competence and adherence were also treated as one variable as there are only a few studies that have examined each one within CBT specifically. However,

given the research reviewed above, it was important to also analyze adherence and competence separately within a moderator analysis to determine their individual effects on outcome.

Client Factors

Therapist factors do not operate singularly, however. Therapy is a complex dynamic composed of many factors that operate together in order to exert a particular outcome. Furthermore, examining only therapists' characteristics accounts for only part of the therapeutic perspective. It must also be understood from examining clients' attributes, and how they contribute to therapeutic outcomes. Relatedly, consideration must also be given to the extra-therapeutic conditions that influence the dynamic of therapy, such as a client's particular life circumstances that will undoubtedly influence the course of treatment. Within research in CBT however, relatively less attention has been focused on the degree to which client factors contribute to treatment outcome (Hamilton & Dobson, 2002). Within the general research literature on psychotherapy, a considerable amount of research has been accumulated on clients' social class, personality, age, sex, culture, class, intelligence, and their relation to outcome (Clarkin & Levi, 2004). These variables have been examined in detail, and for the most part, have been found to have little influence on outcome across different therapeutic modalities. Thus, they were excluded from analyses in the current study. Pre-treatment symptom severity, homework compliance, and attitudinal beliefs (including motivation) and their relation to outcome were the client factors examined in the current meta-analysis. These variables have, for the most part, been shown to be related to outcome in the broader treatment literature. Their importance in CBT outcomes however, has been examined to a lesser degree, and thus were explored further in the current meta-analysis.

Pre-treatment Symptom severity

Pre-treatment symptom severity is probably the most frequent client variable evaluated in its relation to outcome (Garfield, 1994). Overall, the reviews of outcome research in general have concluded that initial symptom severity is negatively related to treatment response (Clarkin & Levi, 2004). In CBT specifically, the same relation appears to hold true. Several studies have found that higher initial symptom severity is associated with poorer outcome. For example, Mussell et al. (2000) found that baseline symptom severity predicted post-treatment outcome in group CBT for bulimia nervosa. Specifically, clients who reported more severe bulimic symptom severity were less likely to benefit from treatment. Similarly, Keijsers, Hoogduin, and Schaap (1994) found that both initial severity of obsessive compulsive complaints and level of depression were negatively predictive of outcome in behavioural treatment of OCD.

The role of initial severity to outcome was also investigated in the NIMH's TDCRP (Elkin et al., 1995). The results indicated the importance of initial depression severity as a predictor of response to CBT treatment at termination, where higher levels of depression were associated with poorer treatment response. Similarly, Burns and Nolen-Hoeksema (1992) found that individuals who were more depressed at intake were more likely to be depressed at post-treatment. Shaw et al. (1999) found that individuals' initial level of depression was significantly correlated to post-treatment depression scores. The relation was only found when depression was assessed via the BDI self-report rather than other measures (i.e., the clinician-rated HRSD-17). Similarly, Persons, Bostrom, and Bertagnolli (1999) and Simons, Lustman, Wetzel, and Murphy (1985) found that initial depression severity scores significantly predicted poorer response to and outcome in cognitive therapy.

Thase, Simons, Cahalane, McGeary, and Harden (1991) found that patients with higher initial levels of depression were more symptomatic over a 16-week course of CBT treatment for depression. Interestingly however, at post-treatment, depression severity was not correlated with outcome, and the patients who were initially more depressed did equally well as those who were less depressed. On the other hand, in a review of eight CBT trials, Durham et. al. (2005) found that initial symptom severity was related to long-term follow-up in people diagnosed with anxiety disorders. Thus, the evidence is mixed evidence for the impact of symptom severity on CBT outcome. A more systematic evaluation of this variable is necessary in order to draw definitive conclusions regarding its effect on outcome.

Homework Compliance

Another important client variable in CBT, and one that was originally unique to CBT research, is the degree to which homework assignments are completed. *Homework compliance* is a central feature of cognitive therapy (Beck, et al., 1985). The increasing use of short-term and empirically supported treatments has increased the popularity of homework assignments. In fact, a large majority of psychologists, regardless of theoretical orientation, now report that they use some form of homework assignments in their practice (Kazantzis & Deane, 1999).

Beck et al. (1985) maintained that homework has a causal effect on outcome. This premise is based on the belief that homework assignments strengthen a client's ability to use the coping strategies learned in therapy and provide an opportunity to test out ideas in real-life situations. Thus, the primary role of homework in cognitive therapy is to reinforce and enhance its psychoeducational dimension, and to aid in the creation and consolidation of an enduring set of skills.

In CBT for depression, the research suggests that treatment responders are more likely to have completed homework assignments between sessions than non-responders (Deitweiler & Whisman, 1999). In fact, patients who complete homework have shown improvements up to three times greater than patients who don't (Persons, Burns, & Perloff, 1988). The importance of homework has been highlighted across different disorders, however, despite its importance, quantitative studies of its relation to outcome have been limited (Startup & Edmonds, 1994). Thus, we cannot say unequivocally whether homework actually causes people to change and leads to symptomatic improvement. It is equally possible that improvement motivates patients to complete homework (Burns & Auerbach, 1992). Thus, more studies are needed that examine the causal relation between homework compliance and outcome.

For the most part, completion of homework assignments is associated with enhanced outcome in both experimental and correlational research studies. Neimeyer, Twentyman, and Prezant (1985) found that cognitive therapy with a homework component produced greater outcomes than cognitive therapy without homework. Burns and Spangler (2000) also found that homework had a positive, causal effect on depression in CBT, and the size of the effect was large. Patients who did the most homework improved at a much greater rate than those who did little or none. Moreover, level of symptom severity was not correlated with homework compliance. Thus, patients who completed homework fared better, independent of their level of depression. On the other hand, Persons, Burns, and Perloff (1988) found that the positive effect of homework compliance to outcome was related to initial symptom severity. More specifically, the effect was larger for patients who reported high initial BDI scores (higher than 20), where reductions in BDI scores averaged 81% compared to mean reductions of 64.1% for patients with low initial BDIs (lower than 20).

Startup and Edmonds (1994) also found a significant relationship between homework compliance and outcome in CBT for depression. Specifically, early homework compliance (first two sessions) as rated by therapists, was predictive of improvement at termination. Similarly, Fennell and Teasdale (1987) found that homework compliance within the first two treatment sessions of CBT was predictive of both immediate and long-term improvement in depressive symptoms. Other studies have also reported the treatment enhancing effects of early compliance (e.g., Leung & Heimberg, 1996). Addis and Jacobson (2000) found that both early compliance and mid-treatment compliance were equally related to treatment outcome. On the other hand, Burns and Nolen-Hoeksema (1992) found that only post-treatment scores of homework compliance were related to recovery from depression. Similarly, Kornblith, Rehm, O'Hara, and Lamparski (1983) also found only post-treatment and follow-up depression scores were related to homework completion.

In a meta-analysis of homework assignments in cognitive and behavioural therapy, Kazantzis, Deane, and Ronan (2000) found that homework assignments had a moderate effect on treatment outcome. Thus, it appears that a positive relationship exists between homework compliance and treatment outcome in CBT. The positive relation between homework and outcome in CBT has been found across studies for individuals (i.e., Bryant, Simons, & Thase, 1999) and groups (i.e., Leung & Heimberg, 1996). It has also been demonstrated with other populations, such as the depressed elderly (i.e., Coon & Thompson, 2003) and couples (i.e., Holtzworth-Munroe, et al., 1989). The positive effect of homework on cognitive and behavioural outcome has also been demonstrated with problems other than depression, such as social phobia (Edelman & Chambless, 1995) and obsessive-compulsive disorder (O'Sullivan, Noshirvani, Marks, Monteiro, & Lelliot, 1991).

However, not all studies have demonstrated a clear and positive relationship of between homework completion and outcome. For example, Taylor et al. (2001) did not find a difference in homework compliance between treatment responders and partial treatment responders to group CBT for PTSD arising after road traffic collisions. However, the authors used cluster analyses (where change scores were used to identify patterns of treatment-related change) to draw conclusions between the two groups. This method only yields two groups for comparison, those who respond “best” to treatment and those who don’t respond as well. Thus, partial responders and non-responders were grouped together, creating a confound in that differences in homework compliance between partial and non-responders would not have been captured. Had the authors analysed the results differently (i.e., via a multivariate regression analysis), perhaps a significant relation would have been found between homework compliance and outcome.

Nelson and Borkovec (1989) also failed to demonstrate a clear relation between homework and outcome in cognitive behavioural therapy for generalized anxiety disorder. However, homework compliance was assessed via patients’ homework (self) report sheets. As compliance was not assessed directly by means of a more sound measure, the possibility of inaccurate results cannot be discounted. More research is needed to merge the widespread practice of assigning homework with sound methodological evidence of its efficacy. Moreover, the meta-analyses that have been conducted thus far are limited, as many new studies have been published recently on the role of homework within CBT. The current study added to the analysis by Kazantzis, Deane, and Ronan (2000) by including five additional and more recent years of published studies, thus making it more current. In addition, a different set of moderator analyses were conducted in order to add a differential element to the current research from what has already been conducted. As such, a more comprehensive synthesis can be drawn from the literature, and thus, more definitive

conclusions can be made regarding the role and strength of effect of homework compliance in effecting positive outcomes in CBT.

Attitudes Towards Therapy

A client's attitude towards therapy is also a very important variable to consider. This may include a client's level of motivation, and/or the expectation that therapy will lead to change. The impact of such attitudes may be especially true of short-term, goal-oriented psychotherapies, such as CBT, because the time constraints require that treatment proceed quickly and in a goal-oriented manner (Koss & Shiang, 1994). In fact, a number of studies have found that clients who agree with or "buy into" the cognitive-behavioural treatment rationale are more likely to have successful outcomes (Addis & Jacobson, 2000). For example, Fennell and Teasdale (1987) found that compared to poorer responders to treatment, patients who agreed with an explanatory pamphlet about CBT for depression given to them at intake changed more rapidly during the first four sessions of treatment. In addition, they also had more favourable outcomes at follow-up. Addis and Jacobson (1996) provided patients with a rationale for the causes and treatment of depression, using the same pamphlet as Fennell and Teasdale. They also found a significant relation between perceived treatment helpfulness and positive outcome in CBT. Moreover, Burns and Nolen-Hoeksema (1991) found that a measure of "patient willingness" to use positive coping strategies was related to outcome in CBT for depression. Keijsers, Hoogduin, and Schaap (1994) investigated the role of motivation in the behavioural treatment of panic disorder and also found a significant relation to outcome.

Although a number of investigators have proposed that the motivation to engage in therapy is an important predictor of outcome, research on patients' willingness to engage actively in CBT has been limited in the past (Burns & Nolen-Hoeksema, 1991), and has changed little in

the past decade. Furthermore, it is unclear at this time whether attitudes about treatment are directly related to outcome, or interact with other factors (e.g., a more motivated client might complete more homework), in order to effect positive outcomes.

The current meta-analysis adds to previous research in that an extensive analysis of moderators was undertaken, beyond those of most published meta-analyses on the efficacy of CBT. Rather than provide an overall ESs for each variable, moderators were examined in order to provide clinicians with a more expansive knowledge base from which they could guide their clinical practice. The current meta-analysis also goes beyond previous research by providing CBT trainees with a more comprehensive set of factors to which they could especially attend to in order to ensure proper training and ultimately, better clinical service provision.

Method

Selection of Studies

Inclusion Criteria for all Variables

All of the therapist and client factors analysed in the current meta-analysis were identified using three methods: (1) a computer search of PsycINFO and Medline databases 1970 through 2006; (2) a manual search of the reference sections of previous reviews and of the reference sections of the studies included in the current data set , and (3) a yearly search of the table of contents for the years 1970 through 2006 of the following journals: *American Journal of Psychiatry*, *Archives of General Psychiatry*, *Behavior Therapy*, *Behavioural and Cognitive Psychotherapy*, *Behaviour Research and Therapy*, *British Journal of Clinical Psychology*, *British Journal of Psychiatry*, *Clinical Psychology and Psychotherapy*, *Clinical Psychology: Science and Practice*, *Cognitive Therapy and Research*, *International Journal of Cognitive Psychotherapy*, *Journal of the American Medical Association*, *Journal of Consulting and*

Clinical Psychology, Journal of Clinical Psychology, Journal of Counseling Psychology, American Journal of Psychotherapy, New England Journal of Medicine, and Psychotherapy Research. The following inclusion criteria were then applied to the initial sample of studies (a) the study had to have had a minimum of 5 participants in order to maximize validity; (b) the study had to be presented in English; (c) the therapeutic treatment could involve either an individual, couple, or group format; (d) the population had to be comprised of adults (18 years of age and older), (e) the study had to have a quantifiable measure of both the variable being analysed and of outcome, and their relation had to have been assessed in a quantifiable way. The following search terms were used to find studies within CBT specifically: cognitive-behavioral therapy, cognitive therapy, behavior therapy, and simply CBT. After each term was entered, the search string was re-run with the “remove duplicates” command in order to eliminate multiples of the same article.

Therapeutic Alliance –Additional Inclusion Criteria

Based on the criteria used by Horvath and Symonds (1991), the following additional guidelines were used as the inclusion criteria for the alliance meta-analysis: (a) the alliance construct had to be referred to as either the *therapeutic alliance*, *working alliance*, *helping alliance*, *therapeutic bond*, *empathy*, *therapeutic empathy*, or simply *alliance*. As a result of the search strategies described, a total of 30,497 articles were identified.

The 30,497 articles derived from the original search were then restricted to CBT only using the aforementioned CBT terms. Each alliance term was crossed with each CBT term within the PsycInfo and Medline databases. Using this search strategy, 768 studies were retained. After carefully reading the abstracts of all 768 articles, 55 studies were selected and considered for further inclusion in the meta-analysis. An additional 21 studies were found by searching the

table of contents of the aforementioned journals, and 3 more were located by scanning the references of the original studies found. Thus, a total of 79 published studies were found that seemed to match the inclusion criteria. After reviewing each study, 41 studies were removed from further consideration, as they failed to meet at least one of the inclusion criteria.

Specifically, 3 did not meet definition criteria for the alliance construct, 35 did not include a quantifiable measure of alliance and outcome, 1 study did not have the required minimum of 5 participants, 1 study was not in English, and 1 did not involve a population of adults aged 18 and over. Thus, a total of 38 published studies were included in the analysis. Table 1 describes the characteristics of these studies. Only published data will be used in the analyses. Previous meta-analyses of the therapeutic alliance and outcome, using data gathered across the developmental span, have not found publication status influenced the relation of alliance and outcome (Martin, et al., 2000; Shirk & Karver, 2003). Thus, the publication status of obtained data does not appear to be empirically related to outcome.

Therapist Experience - Additional Inclusion Criteria

The following additional guidelines were used as the inclusion criteria for the experience meta-analysis: (a) *experience was referred to as either therapist experience, years of experience, years of practice, length of time practicing, type of training, professional training, advanced degree, paraprofessional training, novice, expert therapist, or trainee.* As a result of the search strategies described, a total of 17,930 articles were identified.

The 17,930 articles derived from the original search were then restricted to CBT only, using the CBT inclusion terms. Each experience term was crossed with each CBT term within the PsycInfo and Medline databases. Using this search strategy, 205 studies were retained. After carefully reading the abstracts of all 205 articles, 32 studies were selected and

considered for further inclusion in the meta-analysis. An additional 5 studies were found by searching the table of contents of the aforementioned journals, and 13 more were located by scanning the references of the original studies found. Thus, a total of 50 published studies were found that seemed to match the inclusion criteria. After reviewing each study, 39 studies were removed from further consideration, as they failed to meet at least one of the inclusion criteria. Specifically, 14 did not meet definition criteria for the experience construct, 14 did not meet criteria for the CBT construct, 10 did not include a quantifiable measure of experience and outcome, and 1 did not involve a population of adults aged 18 and over. Thus, a total of 11 published were included in the analyses, and these are described in Table 2.

Therapist Competence and Skill -Additional Inclusion Criteria

The following additional terms were used as the part of the inclusion criteria for the skill meta-analysis: *Therapist skill, therapist skilfulness, adherence, therapist competence, and therapist competency*. As a result of the search strategies described, a total of 36,414 articles were identified. The 36,414 articles derived from the original search were then restricted to CBT only using the CBT inclusion terms. Each skill term was crossed with each CBT term within the PsycInfo and Medline databases. Using this search strategy, 499 studies were retained. After carefully reading the abstracts of all 499 articles, 121 studies were selected and considered for further inclusion in the meta-analysis. An additional 7 studies were found by searching the table of contents of the aforementioned journals, and 15 more were located by scanning the references of the original studies found. Thus, a total of 143 published studies were found that seemed to match the inclusion criteria. After reviewing each study, 132 studies were removed from further consideration, as they failed to meet at least one of the inclusion criteria. Specifically, 40 did not meet definition criteria for the skill or competence construct, 82 did not include a quantifiable

measure of skill/competence and outcome, 2 were not in English, and 8 did not involve a population of adults aged 18 and over. Thus, a total of 11 published were included in the analyses which are descriptively summarized in Table 3.

Pre-Treatment Symptom Severity - Additional Inclusion Criteria

The following additional terms were used as the part of the inclusion criteria for the pre-treatment symptom severity meta-analysis: *(pre-treatment)symptom severity, symptomology, level of symptomology, intensity of symptoms, and number of psychological problems*. As a result of the search strategies described, a total of 15,992 articles were identified. The 15,992 articles derived from the original search were then restricted to CBT only using the CBT inclusion terms. Each severity term was crossed with each CBT term within the PsycInfo and Medline databases. Using this search strategy, 351 studies were retained. 4 studies were excluded because they were not in English, and 1 was excluded because it involved animal research, leaving 346 articles for possible inclusion. After carefully reading the abstracts of all 346 articles, 190 studies were selected and considered for further inclusion in the meta-analysis. An additional 12 studies were found by searching the table of contents of the aforementioned journals, and 37 more were located by scanning the references of the original studies found. Thus, a total of 239 published studies were found that seemed to match the inclusion criteria. After reviewing each study, 215 studies were removed from further consideration, as they failed to meet at least one of the inclusion criteria. Specifically, 42 did not meet definition criteria for the symptom severity construct, 158 did not include a quantifiable measure of symptom severity and/or outcome, 4 did not have the required minimum of 5 participants, 4 studies were not in English, and 7 did not involve a population of adults aged 18 and over. Thus, a total of 24 published were included in the analyses, the details of which are described in Table 4.

Homework Compliance - Additional Inclusion Criteria

The following additional terms were used as the part of the inclusion criteria for the homework compliance meta-analysis: *homework, homework compliance, and homework assignments*. As a result of the search strategies described, a total of 8,069 articles were identified. The 8,069 articles derived from the original search were then restricted to CBT only using the CBT inclusion terms. Each compliance term was crossed with each CBT term within the PsycInfo and Medline databases. Using this search strategy, 729 studies were retained. After carefully reading the abstracts of all 729 articles, 43 studies were selected and considered for further inclusion in the meta-analysis. An additional 3 studies were found by searching the table of contents of the aforementioned journals, and 19 more were located by scanning the references of the original studies found. Thus, a total of 65 published studies were found that seemed to match the inclusion criteria. After reviewing each study, 37 studies were removed from further consideration, as they failed to meet at least one of the inclusion criteria. Specifically, 8 did not meet definition criteria for the homework compliance construct, 26 did not include a quantifiable measure of homework compliance and/or outcome, and 3 did not involve a population of adults aged 18 and over. Thus, a total of 24 published were included in the analyses. Table 5 provides a descriptive summary of the included studies.

Attitudes Towards Therapy – Additional Inclusion Criteria

The following additional terms were used as the part of the inclusion criteria for the attitudes towards therapy meta-analysis: *treatment expectancy, treatment credibility, attitudes towards therapy, patient motivation, client motivation, beliefs about therapy*. As a result of the search strategies described, a total of 1,836 articles were identified. The 1,836 articles derived from the original search were then restricted to CBT only using the CBT inclusion terms. Each

attitude term was crossed with each CBT term within PsycInfo and Medline databases. Using this search strategy, 99 studies were retained. After carefully reading the abstracts of all 99 articles, 34 studies were selected and considered for further inclusion in the meta-analysis. An additional 2 studies were found by searching the table of contents of the aforementioned journals, and 15 more were located by scanning the references of the original studies found. Thus, a total of 51 published studies were found that seemed to match the inclusion criteria. After reviewing each study, 30 studies were removed from further consideration, as they failed to meet at least one of the inclusion criteria. Specifically, 8 did not meet definition criteria for the attitudes towards therapy construct, 19 did not include a quantifiable measure of alliance and outcome, 1 study was not in English, and 2 did not involve a population of adults aged 18 and over. Thus, a total of 21 published were included in the analyses which are described in Table 6.

Classification and Coding Systems of Moderator Variables - All Studies

Studies were categorized and coded on several variables in order to explore moderator effects. Moderators were chosen either because of their conceptual relevance to CBT, their methodological importance, or their contested relation to outcome in the literature. All studies were coded on the following variables:

- (a) year of publication
- (b) sample size
- (c) presenting problem (coded as depression, OCD, panic disorder, agoraphobia, simple phobia, social phobia, substance abuse, eating disorder, alcoholism, marital, GAD, insomnia, PTSD, other anxiety, psychosis, parasuicide, other, or combination.
- (d) treatment setting (coded as hospital outpatient, hospital inpatient, or community clinic/other outpatient)

- (e) type of outcome measure used (Beck Depression Inventory [BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961], Hamilton Depression Rating Scale [HAM-D; Hamilton, 1960], Inventory of Interpersonal Problems [IIP; Horowitz, Rosenberg, Baer, Ureno, & Villasenor, 1988], Global Assessment Scale [GAS; Endicott, Spitzer, Fleiss, & Cohen, 1976] self-report symptom scale, other clinician symptom rating scale, Dysfunctional Attitudes Scale [DAS; Weissman & Beck, 1979], Symptom Checklist-90 [SCL-90; Derogatis, Lipman, & Covi, 1973], Brief Psychiatric Rating Scale [BPRS; Overall & Gorham, 1962], other observer scale, or composite score
- (f) CBT type (CBT, CT, BT, or either CBT or CT + medication). Assignment to each condition was made according to the following criteria: CBT if the treatment was categorized as such by the authors, or if the treatment clearly used both cognitive and behavioural techniques; CT if a treatment used mostly cognitive techniques and/or focused primarily on cognitive change; BT if a treatment used only behavioural techniques and or focused exclusively on behaviour change, and lastly, CBT/CBT + medication if CBT was paired with a pharmacological intervention.
- (g) variable rater (client, therapist, therapist + client, or observer)
- (h) type of trial (efficacy; a randomized controlled trial designed to test a treatment effect vs. effectiveness trial; a naturalistic study designed to show that a treatment works in clinical/applied settings)

In addition, the following variables were coded within each individual study noted below.

Alliance:

- (a) time of assessment (early, mid, post, averaged, or multiple assessment time points)

- (b) type of alliance measure (Working Alliance Inventory [WAI; Horvath & Greenberg, 1989], Vanderbilt Therapeutic Alliance Scale [VTAS; Hartley & Strupp, 1983], California Psychotherapy Alliance Scales [CALPAS; Marmar, Weiss, & Gaston, 1989], Relationship Inventory [RI; Barrett-Leonard, 1986], Helping Relationship Questionnaire [HRQ; Luborsky, 1984], Coding System of Interaction in Psychotherapy [CIP; Schindler, Hohenberger-Sieber, & Hahlweg, 1989], Truax Accurate Empathy Scale [TAES; Truax, 1967], Collaborative Study Psychotherapy Rating Scale [CSPRS, Hollon et. al., 1988], Penn Helping Alliance Scale [PHAS; Morgan, Luborsky, Crits-Christoph, Curtis, & Solomon, 1982], Patient's report of therapy session, Therapist-Patient Rating, Client Process Rating Scales, Patient self-report rating, Therapist self-report rating)

Therapist Experience:

- (a) definition of experience (years of experience overall, years of experience doing CBT/BT, type of degree)

Therapist Competence and Skill:

- (a) definition of skill (competence or adherence)
 (b) type of competence/skill measure (e.g., Cognitive Therapy Rating Scale)
 (c) time of assessment (pre-, early, mid-, post-treatment, averaged, single random session)

Pre-Treatment Symptom Severity:

- (a) type of severity measure (e.g., BDI, HAM-D)

Homework Compliance:

- (a) homework type (thought records, bibliotherapy, relaxation training, exposure, or combination)
- (b) type of compliance (i.e., completion) measure (yes/no, percentage, Likert scale, or number of days per week homework was completed)
- (c) time of assessment (early, mid, post-treatment, or continuous)

Attitudes Towards Therapy:

- (a) type of attitude variable (positive expectancy, motivation, perceived helpfulness, or hoped for change)
- (b) type of attitude measure (e.g., Treatment Expectancy Scale [TES; Borkovec & Nau, 1972], self-report or clinician rated)

Inter-rater Reliability Calculations

Given the range of variables explored within each individual study, inter-rater reliability codings were examined. An independent rater (J. H.) classified each variable according to the categories listed above, for 20 per cent of all of the studies. A coding manual was provided. Inter-rater reliability of the classification and coding system was calculated using Cohen's kappa (κ) coefficient (Cohen, 1960). Weighted kappas were calculated for ordinal data according to the procedures recommended by Maclure and Willet (1987). Values were interpreted according to the classification of strength of agreement provided by Landis and Koch (1977).

Calculation of Individual Effect Sizes

Effect sizes were calculated using the coefficient r because it is the most well documented statistical procedure for aggregating correlations (Hedges & Olkin, 1985). Furthermore, r was the most appropriate statistic to employ, as most of the data in the original

studies were continuous (Rosenthal, 1984). Where original results were not reported as *rs*, they were converted to *rs* using the appropriate formulas provided by Rosenthal (1984). Where multiple cases of the same level of a moderating variable were available, they were combined by taking their mean value in order to minimize dependence within each analysis (Cooper, 1989). Similar to previous research (Horvath & Symonds, 1991; Kazantzis et al., 2000; Martin, et al., 2000), nonsignificant results were conservatively assigned an *r* of 0. All *rs* were then transformed into the Fisher Z transformation of *r* (*Zr*) in order to normalize their distribution according to the following formula:

$$z = \frac{1}{2} \ln \left(\frac{1 + r}{1 - r} \right)$$

where $\ln(x)$ is the natural logarithmic function. All meta-analytic calculations were then conducted using the transformed *rs*. The Fisher *Zr* transformation results yields more conservative results than other methods, and remains one of the best known and applied methods of combining results (Wolf, 1986). All effect sizes were calculated using Metawin 2.0 statistical software program (Rosenberg, Adams, Gurevitch, 2000).

Combining Effect Sizes

Effect sizes were weighted according to sample size. Hunter and Schmidt (1990) recommended weighting studies in order to give more weight to studies that employ a larger number of participants. Thus, weighting studies prevents less representative studies from being given equal weight with better designed ones with larger *ns*. Cumulative effect sizes, weighted to correct for unequal variances were calculated using the formula:

$$E = \frac{\sum_{i=1}^n w_i E_i}{\sum_{i=1}^n w_i}$$

$$\sum_{i=1}^n w_i$$

where n is the sample size and E_i is the effect size for the i^{th} study (Rosenberg, Adams, Gurevitch, 2000).

When multiple measures of an outcome variable were used in a study, their effect sizes were analysed separately within moderator analysis to investigate whether they differentially related to outcome. Similarly, when more than one variable assessment measure was used (e.g., measurement of homework compliance), the resulting effect sizes were analyzed separately within the moderator analyses to investigate whether the construct variable had differential effects across measures.

Tests of Homogeneity and Fail-safe N

A test of homogeneity evaluates whether the effect sizes significantly vary from study to study (Kenny, 1987). Homogeneity tests yield a Chi square statistic. If the statistic is significant, the studies are not homogenous, and thus, it is assumed that the variability in the results are not due to sampling error (Martin, et al., 2000), and thus, other explanatory factors (i.e., moderators) should be explored. Because r was the chosen measure of effect size, the Fisher test of homogeneity of correlations (Q_T) was used. Finally, the fail-safe N was computed in order to address the possibility of a file drawer problem, which refers to the tendency of studies with nonsignificant results to be buried away in file drawers and not published (Wolf, 1986). Thus, without this correction, meta-analytic results could be over-inflated with positive results, which could result in a Type I error. The fail-safe N answers the question: How many nonsignificant studies would have to be included in the meta-analysis in order to yield insignificant results. Thus, the larger the fail-safe N , the more robust the results.

Moderator Analyses

Moderator analyses were conducted within each meta-analysis using one-way Analysis of Variances (ANOVAs). One-way ANOVAs were chosen as they are the most appropriate method to test mean differences of multiple levels of a single independent variable. Combined effect sizes (Z_r s) were entered as the dependent variable, and the potential moderators were entered as single factor (independent) variables. The Student-Newman-Keuls (SNK) post-hoc test was used following significant analyses to assess differences in the relationship of multiple levels of the moderator variables with effect size. t -tests were used in the event that a moderator only had two levels. A significance level of $p < .05$ was used in all comparisons.

Results

Inter-rater Reliability

Twenty percent of articles for each moderator for each treatment variable were coded by both raters. The overall inter-rater reliability for each variable was as follows: 0.68 for alliance (*substantial agreement*); 0.98 for therapist experience (*near perfect agreement*, not including CBT type and trial type ratings which were not computable due to constant ratings given by one of the raters); 0.81 for competence (*near perfect agreement*, not including treatment setting and competence variable ratings, which were constants from one rater); 0.86 for pre-treatment symptom severity (*near perfect agreement*, not including CBT type ratings which were held constant for one rater); 0.84 for homework compliance (*near perfect agreement*), and 0.82 for attitudes towards therapy (*near perfect agreement*, not including trial type ratings which were held constant for one rater). The overall mean kappa was 0.83, indicating *near perfect* agreement overall. Kappa is not computable when one rater assigns constant ratings for each case of the

variable being rated. In the cases where this occurred, the raters never disagreed on more than two cases, and thus the integrity of the codings was not seriously compromised.

Alliance

Based on results for 38 studies, the overall effect size (ES) for the Alliance variable was 0.27 (0.24 to 0.30, 95% *CI*; see Figure 1). As the Fail-safe *N* calculation was very large (7,925 studies), the magnitude of the alliance ES is robust. A significant heterogeneity test ($Q_T = 366.21, p < .001$) was obtained, indicating that other factors should be explored in order to explain the variance amongst effect sizes. Thus, a one-way ANOVA was then computed for the following moderator variables: year of publication; presenting problem; treatment setting; outcome measure; CBT type; rater; type of trial; time of assessment, and alliance measure. Only year of publication was significantly related to effect size, $F(3, 65) = 2.84, p < .05$; see Table 7. A posteriori contrasts were conducted for the effect sizes where Student Newman-Keuls (SNK) tests revealed that all publication date ranges were moderating the overall effect size. Specifically, effect sizes were largest for studies published between 1970 and 1989 ($ES = 0.57$), and smallest for studies published between 2000 and 2006 ($ES = 0.27$). Presenting problem, treatment setting, outcome measure, CBT type, rater, trial type, time of alliance assessment, and alliance measure were not found significantly moderate the overall effect size (all F s < 1).

Therapist Experience

Based on results from 11 studies, the overall ES for experience was 0.10 (0.06 to 0.13), 95% *CI*). Figure 2 represents a graphical depiction of the individual effect sizes. The Fail-safe *N* test result of 413 studies indicated that the ES is robust. A significant test of heterogeneity indicated that moderating factors should be explored ($Q_T = 240.57, p < 0.001$). Thus, a one-way ANOVA was first conducted on the experience effect sizes, with each of the following potential

moderators of experience entered as the independent variable: presenting problem; year of publication, treatment setting; outcome measure; CBT type; rater; type of trial, and experience measure. As noted in Table 8, year of publication was found to be a significant moderator of effect size, $F(2, 27) = 3.82, p < .05$. Post-hoc analyses revealed that the studies published in the 1990s had significantly larger effect sizes ($ES = 0.23$) than studies published between 2000 and 2006 ($ES = -0.08$). A significant moderating effect was also found for trial type, $t(28) = -4.11, p < .001$, with a significantly larger effect size revealed for effectiveness ($ES = 0.65$) over efficacy ($ES = -0.03$) trials. Presenting problem, treatment setting; outcome measure; rater; type of trial, CBT type, or how experience was measured were not found to significantly moderate the effect size (all $F_s < 1$).

Therapist Competence

Based on data from 11 studies, the overall ES for therapist competence was 0.44 (0.37 to 0.50, 95% *CI*). The Fail safe N was very large at 2,033 studies, thus the reported ES is robust. Individual effect sizes and confidence intervals for the competence variable are shown in Figure 3. A significant test of heterogeneity ($Q_T = 236.43, p < .001$) indicated that moderating variables should be explored for the overall ES. Thus, a one-way ANOVA was conducted for the following potentially moderating variables: presenting problem; year of publication, treatment setting; outcome measure; CBT type; competence rater; type of trial; time of assessment; competence variable, and competence measure. A number of significant moderators were found; only rater and CBT type were not found to moderate the overall ES. Presenting problem was found to be a significant moderator of competence, $F(2, 24) = 19.66, p < .001$, as summarized in Table 9. SNK Post-hoc analyses revealed that effect sizes were largest for studies when the presenting problem was *parasuicide* ($ES = 1.03$), and smallest when the presenting problem was

depression ($ES = 0.15$). Treatment setting was also a moderator of effect size, $t(25) = 4.23$, $p < .001$, with higher mean competence effect size reported for *hospital outpatient* treatment settings ($ES = 0.82$) versus *community* ones ($ES = 0.19$). Significant moderating effects were also found for year of publication, $F(3, 23) = 3.46$, $p < .05$; see Table 10. A reverse historical effect was found in that studies published after the year 2000 were found to be stronger moderators of effect size ($ES = 0.74$) when compared to studies published in the late 1990s ($ES = 0.24$). Trial type was also a moderator of competence effect size, $t(25) = 3.44$, $p < .01$, with a higher mean competence effect size found in *efficacy* trials ($ES = 0.84$) rather than *effectiveness* trials ($ES = 0.28$). Competence measure was an additional moderator of competence, $F(4, 22) = 12.42$, $p < .001$ (see Table 11), with largest effect sizes reported for studies using the MACT Rating Scale ($ES = 1.03$), followed by therapist and/or client's self report ratings of therapist competence ($ES = 0.67$), and smallest for those using the Cognitive Therapy Scale as the primary competence measure ($ES = 0.06$). As noted in Table 12, type of outcome measure was also found to moderate competence effect size, $F(2, 24) = 4.53$, $p < .05$, with both client self-report ($ES = 0.67$) and clinician rated measures ($ES = 0.62$) yielding greater effect sizes than the BDI ($ES = 0.12$). Time of competence assessment was also a significant moderator of effect size, as evidenced in Table 13, $F(3, 23) = 4.08$, $p < .05$. SNK post-hoc analyses revealed higher mean competence effect sizes when competence measures were taken either at post-treatment ($ES = 0.71$) or when they were collected throughout treatment and averaged ($ES = 0.66$), in comparison to competence measures that were taken early ($ES = 0.30$) or mid-treatment ($ES = 0.01$). Lastly, the specific therapists' skill that was being measured was found to significantly moderate outcome, with higher mean effect sizes reported for studies measuring competence ($ES = 0.65$) rather than adherence ($ES = 0.20$), $t(25) = 2.72$, $p < .05$.

Client Variables

Pre-Treatment Symptom Severity

Based on data from 24 studies, the overall ES for symptom severity was 0.22 (0.18 to 0.25, 95% *CI*; see Figure 4). Given the large Fail-safe *N* of 2,937 studies, the overall ES is robust. A significant test of heterogeneity ($Q_T = 229.65, p < 0.001$) suggested that moderating factors should be explored. Thus, a one-way ANOVA was conducted for the following potential moderators of symptom severity effect size: presenting problem; year of publication, treatment setting; CBT type; rater; type of trial, and severity measure. Treatment setting, year of publication, rater, and severity rating were not significant moderators of overall symptom severity ES (all $F_s < 1$). Presenting problem was found to significantly moderate the overall ES (see Table 14). SNK analyses revealed significantly larger means for other (ES = 0.73) over depression (ES = 0.25) and anxiety disorders (ES = 0.25). CBT type significantly moderated the overall ES, and mean comparisons revealed that the ES for symptom severity was significantly larger in Behaviour Therapy (ES = 0.75) than in the Cognitive Behavioural Therapy conditions (ES = 0.24), $t(41) = -3.51, p < .01$. Trial type also moderated ES, with a higher mean ES found for effectiveness (ES = 0.44) over efficacy trials (ES = 0.17), $t(41) = -2.70, p < .05$.

Homework Compliance

Based on data from 28 studies, the overall ES for homework compliance was 0.26 (0.22 to 0.29, 95% *CI*). Individual ESs are depicted in Figure 5. The Fail-safe *N* result was large (3,028 studies) and thus the chances of the ES being attributed to chance or error are minimal. A significant test of heterogeneity ($Q_T = 85.39, p < .001$) suggested the presence of moderators, and thus they were explored. A one-way ANOVA was conducted for each of the following variables in order to test whether they were moderating the overall ES: presenting problem; year of

publication, treatment setting; CBT type; rater; type of trial; time of assessment; homework type and homework compliance measure, none of which emerged as significant.

Attitudes Towards Therapy

Based on the results from 21 studies, the overall ES for attitudes towards therapy was 0.21 (0.18 to 0.25, 95% *CI*; see Figure 6). The ES is robust, given the large Fail-safe *N* of 2,242 studies that was found. A significant test of heterogeneity ($Q_T = 145.96, p < 0.001$) indicated that moderators should be explored. Thus, a one-way ANOVA followed for each of the following variables: presenting problem; year of publication, treatment setting; CBT type; rater; type of trial; time of assessment; outcome measure; attitude measure, and type of attitude being measured. Type of attitude, presenting problem, treatment setting, CBT type, outcome measure, and rater were not significant moderators of overall ES. *Year of publication* was a significant moderator of ES, $F(2, 46) = 5.36, p < .01$, the results of which are summarized in Table 15. SNK post-hoc analyses revealed that studies published in the 1990s had ES means (0.28) that were significantly larger from studies published between 2000 and 2006 ($ES = 0.07$). *Type of trial* was also a significant moderator of the overall ES, and mean comparisons revealed larger ESs for *effectiveness* ($ES = 0.29$) over *efficacy trials* ($ES = 0.12$), $t(47) = -3.05, p < .01$. The *time of attitude assessment* significantly moderated outcome, $F(2, 46) = 4.89, p < .05$ (see Table 16). Significantly larger mean ESs were found when attitude towards therapy was assessed *early* in treatment ($ES = 0.29$), as opposed to *pre-treatment* ($ES = 0.10$). Lastly, *expectancy measure* was found to moderate the overall ES, $F(2, 46) = 11.83, p < .001$, as seen in Table 17. Post-hoc analyses revealed a significantly larger mean ES for the *RTQ* ($ES = 0.47$) over the *NML* ($ES = 0.19$), or '*other*' ($ES = 0.13$) ratings.

Discussion

Therapist Factors

A summary of all the meta-analytic results found in the current study, including overall ESs and results of moderator analyses can be found in Table 18. In terms of therapist factors, alliance, experience, and competence were examined in their relation to outcome, and several moderating factors within each variable were explored. Symptom severity, homework compliance, and attitudes towards therapy were examined as client factors, with moderator analyses performed as well. An overall ES of 0.27 was found for alliance, which is similar to the range of effect sizes reported in other meta-analysis that have examined alliance and its relation to treatment outcome (i.e., Norcross, 2001a; ES = 0.21, Martin, Garske, & Davis, 2000; ES = 0.22, Horvath and Symonds, 1991; ES = 0.26). Previous meta-analyses have examined the effects of the alliance construct across psychotherapies. To-date, this is the first meta-analysis that examined its effects within CBT only. The 95% CI for the alliance variable ranged from 0.24 to 0.30, which includes the Horvath and Symonds (1991) value, but it slightly larger than the Norcross (2001a) and the Martin et al. (2000) findings. This indicates that the alliance is *at least* as important to outcome in CBT as it is in other psychotherapies, if not more. Indeed comparable, moderate ESs for alliance have been found in individual studies in CBT (i.e., Muran et. al., 1995; Wright & Davis, 1994). The results certainly lend support to dispelling the notion that the alliance is not as important in CBT as in other therapies. Given that this is the first review of its kind, additional meta-analyses need to be conducted in order to replicate and the current results. More importantly however, is the need to investigate the conditions through which the alliance exerts its effects in CBT. This requires a shift away from discourse regarding “if” the alliance is important in CBT, towards “how” it is important.

Year of publication was found to be the only moderator of the overall ES for alliance. A significant historical effect was found, whereby earlier studies published between 1979-1989 had larger mean ESs than more recent studies, especially studies published between 2000 and 2006. There are several possible explanations for this finding. The majority of the earlier studies included in the alliance analysis involved behaviour therapy. Although CBT type was not a significant moderator of the alliance variable, it may be that the current sample size was not large enough to detect differences among therapies, including a possible larger historical effect for behavioural therapies over cognitive and cognitive-behavioural ones. Secondly, a change in the impact of the alliance might suggest that, although the alliance is always important, the more recent studies (and the more recent treatments) may rely less on therapeutic alliance, per se, for efficacious treatment, and more on other components that are more specific to CBT (e.g., homework).

No other variables were found to moderate the overall alliance ES, including presenting problem. This finding is not consistent with Norcross' (2001b) finding that the alliance can impart differential effects on one diagnosis over another. However, Norcross' review was not specific to CBT. Thus, the current findings suggest that in CBT, the therapeutic alliance is an important predictor of outcome across the range of diagnoses explored in the alliance meta-analysis (which included depression, anxiety disorders, substance abuse, eating disorders, marital difficulties, and psychosis). Time of assessment was also not found to moderate the overall ES. This contradicts findings that the early alliance is most related to outcome, most of which have been found within treatment modalities. Thus, based on the current findings, it appears that the therapeutic alliance is important at all time points in CBT. Early alliance may be important in order to facilitate a client to "buy into" treatment in the initial stages. As treatment progresses,

the therapeutic alliance may provide a scaffolding effect through which the client can engage in more active tasks that are a large part of CBT (e.g. activation, exposure, etc.). The alliance might then, in fact be, the vehicle through which the client can do his/her work, as Beck et. al. (1985) suggested. Thus, the therapeutic alliance must always be attended to, as it appears to be equally important throughout CBT therapy. This finding does not support the somewhat commonly held notion that the alliance does not matter as much in CBT as in other interpersonal or psychodynamically oriented therapies, or that CBT therapists are cold and less supportive of their clients.

Although previous reports have indicated that the alliance is strongest when rated by the client (Henry et. al., 1994; Horvath & Luborksy, 1993), this was not found in the current meta-analysis. As other reports did not differentially disaggregate rater effects within CBT from other treatments, they are inconclusive. The sample size in the current-meta analysis was large enough to warrant sound comparisons between raters of the alliance in CBT specifically, and no differential effects were found. The current findings also do not lend support for alliance effects in CBT that are moderated by type of alliance measure, outcome measure, trial type, or treatment setting.

Therapist Experience

An effect size of 0.10 was found for therapist experience and its relation to outcome within CBT therapies. Given the mixed results that have been reported in the literature thus far, and given the discrepant operational definitions that 'experience' has been given, the results are not surprising. The studies included in the current meta-analysis measured therapist experience as the number of years of practice, the number of years of practicing CBT, and/or type of academic degree. One must be careful however, not to interpret these results as meaning that

experience is irrelevant in CBT. Rather, the small effect size could be illustrative of the fact that CBT is an effective treatment, even when the varying levels of experience of its service providers are controlled for (assuming that therapists are competent). It is important to note that previous explorations of the importance of therapeutic experience in CBT (and across psychotherapies in general) have typically compared very experienced to novice therapists. Polarizing experience in this matter increases the chances of finding significant differences between groups. It would be more meaningful to examine experience and its effects across a continuum, rather than as a dichotomy. Unfortunately, many studies have not assessed experience in this matter, and thus, the overall results found in the current meta-analyses are somewhat limited as well. It is also important to note that the sample size for the experience variable was rather small (11 studies), which may have impacted upon the results.

On the other hand, the results of the moderator analyses may be more informative and might shed some light as to why mixed results have been previously found, and why the experience variable continues to remain so varied in its relation to outcome. Moderator analyses revealed trial type to be significantly related to outcome, with the greater effect sizes reported for effectiveness over efficacy trials. Efficacy trials are, for the most part, highly controlled and structured studies in comparison to effectiveness trials, and are typically run by expert clinicians. In the event that less experienced clinicians are involved, they are usually supervised by the more experienced therapists. In addition, their adherence to the CBT model and treatment protocol tends to be assessed, as is their competence CBT delivery. Any wavering from a protocol or any issues regarding the quality of treatment services is usually very quickly addressed and remediated. Thus, the effects of overall therapist experience are likely to be minimized or “washed out” by this quality control process, and by the effort to standardize all therapists to a

common level of competence. In contrast, effectiveness trials do not necessarily have the same rigorous methodological standards, and varying levels of competence and experience are generally not controlled for as strictly as in efficacy trials. As such, discrepant levels of experience are more likely to occur in effectiveness trials, where they are more likely to exert a differential effect on outcome.

Year of publication was significantly related to the overall effect size, with greatest moderating effects derived from studies that were published in the 1990s, over those published in the 1970s, or after 2000. These results are better explained by the qualitative properties of the studies, rather than indicative of a true year of publication effect. The sample size for studies in the 1970s were low (4 studies), and the studies published in or after 2000 all had an individual effect size of zero. Thus, the studies published in the 1990s appear to have more of a statistical meaningfulness, due to larger sample sizes (i.e., larger power), rather than a real clinically significant one.

CBT type was not a moderator of the overall ES. Unfortunately, the paucity of research in the area of experience within CBT specifically coupled with a lack of studies comparing pure cognitive to behavioural therapies preclude any sound comparisons between the current results and what has been previously reported. Moreover, the current meta-analysis included only six behavioural studies, which measured experience differently amongst them (e.g., overall years of experience vs. educational training and experience). Thus, the small sample size for behavioural therapy is not large enough to draw definitive or even tenable conclusions from. Presenting problem, treatment setting, outcome measure, rater, and how experience was measured also did not moderate the overall experience ES. However, given the small sample size, further replication

is necessary in order to determine more definitive conclusions on the effects of experience on CBT outcome

Therapist Competence

The therapist competence variable yielded a large overall effect size of 0.44, which was moderated by several factors. In the majority of studies included in the current meta-analysis, competence was defined as overall skill in delivering CBT and adherence to the CBT model. Presenting problem was statistically related to the overall effect size, with greatest mean effect sizes found for parasuicide behaviours, and smallest for depression. Given that parasuicide and self-harm behaviours often are highly co-morbid with other diagnoses such as substance abuse and personality disorders (Ferreira de Castro, Cunha, Pimenta, & Costa, 1998), it may be that a more competent clinician is required to successfully treat them. Although it is true that depression is often comorbid with other diagnoses, suicidal gestures tend to be more comorbid with diagnoses or life-long characterological difficulties that are more difficult to treat (e.g., borderline personality disorder), and which may require greater therapeutic competence. Treatment setting was also a significant moderator of outcome, with greater mean effect sizes for competence found for outpatient (hospital) treatment settings over studies that used community samples. Given that symptom severity often plays a large role in who is referred to a hospital setting (generally, clients with more severe symptomology), it is plausible that greater competence is required to treat more severe cases.

Year of publication was also found to moderate the effect of therapist competence, with greater effect sizes found for more recent studies published after 2000. It is important to note that all of the studies whose primary presenting problem was parasuicidal behaviours were published after 2000. Thus, this finding is more likely an artefact of presenting problem, rather than

indicative of a true reverse historical effect. Trial type also moderated the overall effect size, with larger mean competence ratings found for efficacy over effectiveness trials. For the most part, efficacy trials are run by more experienced research-practitioners, who may also be more competent clinicians as well, and thus have more favourable outcomes. Competence measure also moderated effect sizes, with the greatest mean effect sizes found for the Manual Assisted Cognitive Behavioral Therapy (MACT) rating scale. Again, this was the primary measure used to assess competence for parasuicide treatment studies, which may speak more to the presenting problem effect, rather than the effect of individual measures of competence. Interestingly, effect sizes were smallest when the Cognitive Therapy Scale (CTS) was used to assess therapists' competence. The CTS is the most widely used measure of competence in CBT treatment delivery. Its methodological limitations however, have been noted, i.e., it has shown good reliability, but has not demonstrated its validity in measuring competence (Dobson, Shaw, & Vallis, 1985). The Cognitive Therapy Scale Revised (CTS-R; Blackburn et. al., 2001) is a newer scale that was devised to correct the methodological limitations of the earlier version of the scale. Although the data is still rather preliminary at this point, the CTS-R has shown good reliability and validity among trainee therapists, and thus might demonstrate a stronger relationship with outcome in the near future. It is also plausible that a restricted range of competence was sampled, which may misleadingly give the impression that competence is not related to outcome in CBT. Rather, therapists may have in fact, been very competent, with differences between them that were too small to be statistically detected.

Type of outcome measure was also a significant moderator of competence, with clinician and client rated measures yielding larger effect sizes over the BDI. These results are similar to those found in the Treatment for Depression Collaborative Research Program (TDCRP; Shaw et.

al., 1999) where competence was related to outcome only when a clinician rated measure of depression (the HAM-D) was used, and no effects were found for the BDI. Competence itself is required to complete clinician-rated measures, including the HAM-D. Thus, the clinicians completing it were likely competent therapists as well, which could explain the larger effect sizes for the outcome measure variable.

Time of competence assessment was also a significant moderator of competence effect size. Averaged assessments of competence, or those taken later in therapy had greater mean effect sizes than measures that were taken early on in treatment. Therapists may have improved more towards the later stages of therapy, which may have contributed to the larger effect sizes. As some of the outcome measures were client-rated, it may also be that clients rated their therapists more favourably towards the end of therapy, due to a greater therapeutic alliance or positive affinity to the therapist. Lastly, the specific therapeutic skill being measured was a significant moderator of competence. Higher mean effect sizes were found when competence itself was being measured, rather than adherence to a treatment protocol. This finding makes intuitive sense, in that more skill is involved with demonstrating competence, rather than merely adhering to a particular treatment. Competence in CBT is a multi-faceted skill that goes beyond simple adherence and it is understandable that larger effect sizes were found when that particular skill was assessed. Given that CBT type was not found to moderate the overall effect size, and given the large overall effect size for competence, it appears that competence is an important variable and related to outcome across different forms of CBT. The results however, must be interpreted in light of the small sample size of 11 studies. Although the Fail-safe *N* was rather large, future replication with larger sample sizes is necessary in order to draw more definitive

conclusions about the effects of therapists' competence on CBT outcome, when such studies become available.

Client Variables

Pre-treatment symptom severity

A moderate association ($ES = 0.22$) was found between pre-treatment symptom severity and outcome. Other than the current meta-analysis, the extant data on symptom severity and outcome in CBT have not been summarized in a systematic manner. Thus, it is difficult to compare the current results to what has been previously found in the literature. This is especially true given that the findings on symptom severity and its relation to outcome have been quite mixed across settings and disorders. On the basis of these results however, it appears that symptom severity (i.e., lower initial symptom severity) does play a role in effecting better outcome in CBT, at least moderately so.

CBT Type was found to moderate effect size, with higher mean effect sizes found for Behavioural Therapy (BT) over the CBT conditions (CT, CBT, and CT/CBT + medications). Thus, initial symptom severity mattered less in CBT than in behavioural therapy, and the overall effect size would thus decrease if the BT conditions were removed. These findings provide evidence for the efficacy of CBT, across initial symptomology levels and irrespective of diagnoses being treated (which for the pre-treatment symptom severity meta-analysis, included depression, anxiety disorder, bulimia, and sexual dysfunction). On the other hand, the effect of BT appears to be attenuated as symptom severity increases, and did not show the same overall robustness to severity as CBT did.

Trial type was also significantly related to outcome, with greater effect sizes reported for effectiveness trials. Thus, efficacy trials were more robust to the effects of initial symptom

severity. This may be due to the fact that efficacy trials tend to control for adherence, as well as for the competence of the therapists delivering the CBT and thus may be a “purer” form of CBT and offer a greater protection against elevated symptomology.

Presenting problem was also found to significantly moderate the overall ES, with disorders coded within the “other” category yielding larger mean ESs over both depression and anxiety disorders. The “other” category consisted of psychotic disorders, bulimia, and male sexual dysfunction. Larger ESs meant that higher initial symptom severity was related to poorer therapeutic outcomes. It is not surprising that larger ESs were found for such disorders, given the rather consistent finding that greater symptomology within psychotic disorders is usually associated with poorer outcomes (Caton et al., 2006). The more chronic nature of psychotic disorders over the more temporal states of depression or anxiety also contribute to this finding, in that mood or anxiety disorders can be brought to a remissive state in comparison to psychotic disorders which tend to be more enduring, and are “controlled” rather than completely “cured.” Lastly, CBT for psychosis is typically offered as a combined treatment program that can offer benefits when used as an adjunctive treatment to medication, which is a further indication of the greater symptom severity that is usually found with such disorders. The link between initial severity and poorer treatment outcome for bulimia has been reported elsewhere (e.g., Peterson, et al., 2000), and the current findings are consistent with this as well. However, the “other” category of disorders in the current study was small ($n = 5$), which limits the generalizability of the findings.

Homework Compliance

A moderate effect size ($ES = 0.26$) was found for homework compliance and outcome in CBT, which is fairly consistent with the findings reported in the literature thus far. The results

were not significantly associated with any moderating variable. This suggests that homework compliance is related to outcome *regardless* of the aforementioned variables. This result is consistent with the finding that clients who comply with regular homework assignments tend to have better therapeutic outcomes in CBT, and is consistent with several of the basis tenants of CBT that postulate that regular homework is necessary in order for the client to practice and solidify the skills learned in therapy. Furthermore, Beck et. al. (1979) recommended checking homework on a weekly basis, and doing so at the beginning of the session in order to model the importance of homework as well as to increase the probability of clients completing their homework regularly.

Although previous studies have reported a positive relationship between early homework compliance and outcome (e.g., Startup & Edmonds, 1994; Fennell & Teasdale, 1987) this was not found in the current analysis. Perhaps early compliance is a better indicator of early motivation for change, which has been positively linked to outcome. Much of the previous literature has only assessed homework compliance at one time-point in therapy or assessed it continuously throughout and averaged the results. Few studies have compared various time-points of assessments to each other, and thus are limited in scope. Unfortunately, the number of studies in which homework was measured early ($n = 9$) may have been too small to detect a significant relationship to outcome, or to make generalizations about its impact. Clearly though, when clinicians assess homework regularly and on a weekly basis, clients are more likely to have more favourable outcomes.

Attitudes Towards Therapy

The overall effect size for attitudes towards therapy was moderate ($ES = 0.21$), which is generally consistent with what has been found previously in the literature. Type of trial was a

significant moderator of the overall ES, with effectiveness trials yielding larger mean ESs than efficacy trials. In general, participants in efficacy trials tend to be more homogeneous, in that they are carefully screened and selected for inclusion based upon (usually) strict criteria. Participants may also be specifically recruited for such studies, and thus may be more motivated and vested in improving, especially after being accepted for treatment after such a rigorous selection procedure. On the other hand, patients in effectiveness trials tend to be less uniform (i.e., they may have multiple and differing comorbidities), and not all may be in treatment voluntarily. Thus, levels of patient motivation and expectancies for treatment may vary more in effectiveness trials, and thus, increased levels may be more likely to be statistically related to outcome in effectiveness trials over efficacy trials where motivation and expectancy levels may be restricted in range given the greater homogeneity of participants.

Time of assessment also significantly moderated the overall ES, with greater mean effects found for attitudes measured “early” in treatment (i.e., within the first 3 sessions), as compared to pre-treatment measures of treatment attitudes. CBT treatments rely heavily on didactic methods in the beginning phases of treatment. Patients are given a lot of information about the components of treatment, and about the psychological disturbance that they are seeking help for. This early “socialization” of the patient to the CBT model serves to prepare the patient for treatment, and to directly deal with the patient’s sense of hopelessness, or doubts about treatment (DeRubeis, Tang, & Beck, 2001). Thus, it is not surprising that attitudinal measures taken after this early phase of treatment related most to positive therapeutic outcome. It is not implausible to believe that even a patient with low pre-treatment motivation and expectancy can have more positive beliefs about treatment, if a CBT therapist emphasizes the early phase of treatment, and directly addresses any negative cognitions about treatment, early on.

Year of publication was also found to moderate the overall ES. Just as for the therapist experience variable, studies published in the 1990s yielded significantly larger effect sizes over more recent studies published between 2000 and 2006. This suggests a historical effect (i.e., declining effect sizes over time), although studies published between 1970 and 1989 were not significantly different from those published in the 1990s. These results are instead better explained by the finding that attitude measure was also a moderator of effect size. The Reaction to Treatment Questionnaire (RTQ; Holt & Heimberg, 1990) yielded the largest effect sizes over other measures, and all of the studies included within the current analyses which used the RTQ were published in the 1990s. Thus, the year of publication moderator is most likely a statistical rather artefact rather than a clinically meaningful one.

The RTQ is a measure of a client's credibility of treatment, and assesses both a patient's perceived credibility of the treatment rationale and confidence that the treatment will work. The RTQ is specific to treatment for social phobia. Thus, it may be that greater expectancies are required from people suffering from social phobia rather than other diagnoses. Social phobia, especially the generalised subtype, tends to be a rather chronic and longstanding problem that frequently originates early in life. Many people who have social phobia frequently report that they have been socially anxious for their entire lives, and thus may have less confidence that a treatment, especially a time-limited one such as CBT, can help them with their longstanding problem. Lower expectancies of successful treatment have in fact been reported by individuals with the generalised subtype of social phobia (Safren et al., 1997). However, presenting problem was not a significant moderator of effect size in the current meta-analysis. Perhaps the moderator effect relates more to a specific factor within the RTQ scale itself rather than to social phobia per se. Unfortunately, measures of expectancy and treatment credibility are limited and in need of

improvement, which precludes any definitive conclusions from being drawn at this time as to their moderating effects. Many of the studies using such expectancy measures often do not report their psychometric properties (i.e., the RTQ) or have not been adequately psychometrically validated. Comparisons between measures are limited, as there is currently no “gold standard” measure of expectancy (Dew & Bickman, 2005). A next logical step for researchers is to develop a psychometrically sound measure of expectancy for success in CBT treatment, in order to draw more definitive conclusions about the importance of this variable in contributing to positive outcome.

Conclusions

The current meta-analysis demonstrated the therapeutic alliance, therapist experience, therapist competence, pre-treatment symptom severity, homework compliance and clients' attitudes and motivation towards therapy to be significantly related to outcome in CBT. The largest effect size was found for therapist competence, and the smallest for therapist experience. This suggests that CBT is an efficacious treatment for a variety of Axis I disorders across varying levels of therapist experience, provided that the therapist is competent in delivering treatment and adhering to the CBT model.

The findings thus have implications for the training and practice of trainee CBT clinicians. They highlight the importance of regularly evaluating trainees against standardized and valid CBT competency scales (i.e., CTS) to ensure that a minimal standard of competency is delivered. The results also have implications for the practice of more experienced therapists. The list of valid and supported treatments generated by the Task Force of the Division 12 of the APA has affected clinical service provision in North America. Increasingly, ESTs are being held as the standard of care in the field of clinical psychology. The influence of managed health care and

third-party payers has also changed the face of psychological service provision (e.g., reimbursing shorter term therapies and/or ESTs only). Thus, it is not unreasonable to assume that some practitioners may describe themselves as offering CBT services. The standard of CBT that many practitioners claim to offer is currently unknown. Routine, standardized assessments of service provision should be incorporated into models of ethical service provision in order to confirm that claims of offering CBT are in fact, sustained. This is not a political debate, but rather one of public safety and ethical service provision, in that patients have a right to be assured that they are receiving a minimal standard of psychological care.

The findings from the current project are based on meta-analytic analyses. Meta-analytic reviews are not without their limitations however. The strict inclusion criteria for the current meta-analysis coupled with the paucity of research in CBT on some of the variables explored (e.g., therapist experience) resulted in a small number of studies being included for some of the analyses. In addition, most of the studies included in the current meta-analysis did not provide sufficient information about treatment drop-outs. Thus, the current meta-analysis did not allow for treatment completer vs. non-completer comparative analyses. It would be interesting to explore the impact of the therapist and client factors explored on early termination from CBT. Future directions of research might also include expanding the range of disorders explored in the current meta-analysis to include other Axis I and personality disorders as well, and examining if the results from the current meta-analysis change.

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Psychology, 68, 114-124.

Table 1

Description of Studies Included in the Alliance Meta-analysis

Author	Year	P.P. ^a	Setting	Alliance measure	Therapy	Sample size
Bennun & Schindler	1988	Phobia	Community/Clinic	TPR ^b	BT	35
Borkovec, Newman, Pincus, & Lytle	2002	GAD	Community/Clinic	PSR ^c	CBT	69
Burns & Nolen-Hoeksema	1992	Depression	Community/Clinic	PSR	CBT	185
Castonguay, Goldfried, Wiser, Raue, & Hayes	1996	Depression	Community/Clinic	WAI ^d	CT	30
Clark, et al.	2006	Social Phobia	Community/Clinic	TPR	CT	39
Cloitre, Stovall-McClough, Miranda, & Chemtob	2004	PTSD	Community/Clinic	WAI	BT	34
Connors, Carroll, DiClemente, Longabaugh, & Donovan	1997	Alcoholism	Hospital, Outpatient	WAI	BT	239
Constantino, Arnow, Blasey & Atras	2005	Eating Disorder	Hospital, Outpatient	PSR	CBT	72
DeRubeis & Feeley	1990	Depression	Hospital, Outpatient	CSPRS ^e , PHAS ^f	CBT	25
Dunn, Morrison & Bentall	2006	Psychosis	Hospital, Inpatient	CALPAS ^g	CBT	29
Gaston, Marmar, Gallagher, & Thompson	1991	Depression	Hospital, Outpatient	CALPAS	CBT	17

Gaston, Thompson, Gallagher, Cournoyer, & Gaston	1998	Depression	Community/Clinic	CALPAS	CBT	31
Holtzworth-Munroe, Jacobson, DeKlyen, & Whisman,	1989	Marital	Community/Clinic	PSR	BT	32
Hoogduin, deHaan, & Schaap	1989	OCD	Community/Clinic	RI ^h	ERP	60
Keijzers, Hoogduin, & Schaap	1994	OCD	Community/Clinic	TPR	BT	40
Keijzers, Hoogduin, & Schaap	1994b	Panic disorder	Community/Clinic	RI	BT	60
Keijzers, Schaap, Hoogduin & Lammer	1995	Panic disorder	Community/Clinic	CIP ⁱ	BT	30
Keijzers, Schaap, Hoogduin & Peters	1991	Anxiety	Community/Clinic	RI	BT	37
Krupnick et. al.	1994	Depression	Hospital, Outpatient	VTAS ^j	CBT	54
Loeb et al.	2005	Bulimia	Hospital, Outpatient	VTAS	CBT	81
Miller, Taylor, & West	1980	Alcoholism	Community/Clinic	TAES ^k	BT	41
Morris & Suckerman	1974	Phobia	Community/Clinic	RI	BT	8
Persons & Burns	1985	Combination	Community/Clinic	PSR	CT	17
Rabavilas, Boulougouris, & Perissaki	1979	OCD	Community/Clinic	PSR	BT	36

Raue, Castonguay, & Goldfried	1993	Combination	Community/Clinic	WAI	CBT	18
Raue, Goldfried, & Barkham	1997	Combination	Community/Clinic	WAI	CBT	57
Ryan & Gizynski	1971	Combination	Community/Clinic	TR ¹	BT	13
Safran & Wallner	1991	Combination	Hospital, Outpatient	WAI, CALPAS	CT	22
Santiago et al.	2006	Depression	Hospital, Outpatient	WAI	CBASP ^m	324
Strauss et al.	2006	OCPD	Community/Clinic	CALPAS	CT	30
Taft, et al.	2003	Partner Abuse	Community/Clinic	WAI	CBT	87
Treasure, et al.	1999	Eating Disorder	Hospital, Outpatient	WAI, VTAS	CBT	19
Turner & Ascher	1979	Insomnia	Hospital, Outpatient	PSR	BT	50
Williams & Chambless	1990	Agoraphobia	Community/Clinic	PSR	BT	33
Vogel, Hansen, Stiles & Götestam	2006	OCD	Hospital, Outpatient	PSR	CBT	37
Wilson, Fairburn, Agras, Walsh, & Kraemer	2002	Bulimia	Community/Clinic	HRQ ⁿ	CBT	110
Woody & Adessky	2002	Social phobia	Community/Clinic	WAI	CBT	53
Zuroff et al.	2000	Depression	Hospital, Outpatient	VTAS, BLRJ ^o	CBT	148

- ^aP.P. = Presenting problem
- ^bTPR = Therapist-Patient Rating
- ^cPSR = Other Patient Self-Report
- ^dWAS = Working Alliance Scale
- ^eCSPRS = Collaborative Study Psychotherapy Rating Scale
- ^fPHAS = Penn Helping Alliance Scale
- ^gCALPAS = California Psychotherapy Alliance Scales
- ^hRI = Relationship Inventory
- ⁱCIP = Coding System of Interaction in Psychotherapy
- ^jVTAS = Vanderbilt Therapeutic Alliance Scale
- ^kTAES = Truax Accurate Empathy Scale
- ^lTR = Therapist Rating
- ^mCBASP = Cognitive Behavioural Analysis System of Psychotherapy
- ⁿHRQ = Helping Relationship Questionnaire
- ^oBLRI = Barret-Leonard Relationship Inventory

Table 2

Description of Studies Included in the Therapist Experience Meta-analysis

Author	Year	P.P.	Setting	Experience assessed	Therapy	Sample size
Bright, Baker, & Neimeyer	1999	Depression	Community/Clinic	Type of degree	CBT	40
Dilley, Balch, & Balch	1979	Obesity	Community/Clinic	Years of experience practicing BT	BT	30
Foa, Hembree, Cahill, Rauch, Riggs, Feeny, & Yadin	2005	PTSD	Community/Clinic	Type of degree	CBT	175
Huppert, Bufka, Barlow, Gorman, Shear, & Woods	2001	Panic disorder	Hospital, Outpatient	Years of overall experience	CBT	183
Kubany, et al.	2004	PTSD	Hospital, Outpatient	Type of degree	CBT	45
Levitz & Stunkard	1974	Eating disorder	Community/Clinic	Type of degree	BT	127
Markowitz, Kocsis, Fishman, Spielman, Jacobsberg, Frances, Klerman, & Perry	1998	Depression	Hospital, Outpatient	Years of experience practicing CBT	CBT	27
McLean, & Hakstian	1979	Depression	Hospital, Outpatient	Years of overall experience	BT	40
Project MATCH Research Group	1998	Alcoholism	Hospital, Outpatient	Yrs of experience practicing CBT	CBT	376
Sanchez-Craig, Spivak, & Davila	1991	Alcoholism	Hospital, Outpatient	Yrs of experience practicing BT	BT	96

Stokes, Blore, & Meats	1996	Anxiety	Hospital, Outpatient	Years of overall experience	BT	20
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Table 3

Description of Studies Included in the Therapist Competence and Skill Meta-analysis

Author	Year	P.P.	Setting	Competence assessed	Therapy	Sample size
Bennun & Schindler	1988	Phobia	Community/Clinic	Competence	BT	35
Bright, Baker, & Neimeyer	1999	Depression	Community/Clinic	Adherence	CBT	40
Castonguay, Goldfried, Wisner, Raue, & Hayes	1996	Depression	Community/Clinic	Adherence	CT	30
Davidson, Scott, Schmidt, Tata, Thornton, & Tyrer	2004	Parasuicide	Hospital, Outpatient	Competence	CBT	45
DeRubeis & Feeley	1990	Depression	Hospital/Outpatient	Adherence	CT	25
Feeley, DeRubeis, & Gelfand	1999	Depression	Hospital/Outpatient	Adherence	CT	25
Holtzworth-Munroe, Jacobson, DeKlyen, & Whisman,	1989	Marital	Community/Clinic	Competence	BT	32
Loeb et al	2005	Bulimia	Community/Clinic	Adherence	CBT	243
Rabavilas, Boulougouris, & Perissaki	1979	OCD	Community/Clinic	Competence	BT	36
Ryan & Gizynski	1971	Combination	Community/Clinic	Competence	BT	13
Shaw, Elkin, Yamaguchi, Olmsted, Vallis, Dobson, Lowery, Sotsky, Watkins,	1999	Depression	Community/Clinic	Competence	CBT	36

& Imber

Trepka, Rees, Shapiro,
& Hardy

2004

Depression

Community/Clinic

Competence

CBT

21

Table 4

Description of Studies Included in the Pre-Treatment Symptom Severity Meta-analysis

Author	Year	P.P.	Setting	Severity Rater	Therapy	Sample size
Black, Wesner, Gabel, Bowers, & Monahan	1994	Depression	Community/Clinic	P ^a	BT	20
Burns & Nolen-Hoeksema	1992	Depression	Hospital/Outpatient	P	CBT	37
Dunn, Morrison, & Bentall	2006	Psychosis	Hospital/Inpatient	T ^b	CBT	29
Elkin et. al.	1995	Depression	Community/Clinic	T	CBT	21
Fahy & Russell	1993	Bulimia	Hospital/Outpatient	P	CBT	39
Garety et. al.	1997	Psychosis	Hospital/Outpatient	T	CBT	53
Hawton, Catalan, & Fagg	1992	ED ^c	Community/Clinic	T	BT	36
Howard, Turner, Olkin, Mohr	2006	Depression	Hospital/Outpatient	P	CBT	22
Jarrett, Eaves, Grannemann, & Rush	1991	Depression	Hospital/Outpatient	T, P	CT	37
Keijsers, Hoogduin, & Schaap	1994	OCD	Community/Clinic	T	BT	40
Keijsers, Hoogduin, & Schaap	1994b	PD	Community/Clinic	T	BT	60
Ledley et. al.	2005	Social Phobia	Community/Clinic	T, P	CBT + MED	236

Persons, Bostrom, & Bertagnolli	1999	Depression	Community/Clinic	P	CBT	23
Persons, Burns, & Perloff	1988	Depression	Community/Clinic	P	CBT	35
Santiago et. al.	2006	Depression	Hospital/Outpatient	T	CBT	324
Shapiro et. al.	1994	Depression	Community/Clinic	P	CBT	117
Shaw et. al.	1999	Depression	Community/Clinic	T, P	CBT	3
Simons & Thase	1992	Depression	Hospital/Outpatient	T, P	CBT	53
Spangler, Simons, Monroe, & Thase	1997	Depression	Hospital/Outpatient	P	CBT	53
Startup & Edmonds	1991	Depression	Community/Clinic	P	CBT	25
Taylor, Fedoroff, Koch Thordarson, & Fecteau	2001	PTSD	Community/Clinic	T, P	CBT	50
Thase et. al.	1994	Depression	Community/Clinic	T	CBT	84
Thase, Simons, Cahalane, McGeary, & Harden	1991	Depression	Hospital/Outpatient	T, P	CBT	59
Thase, Simons, & Reynolds	1993	Depression	Hospital In/Outpatient	T, P	CBT	142
Vogel, Hansen, Stiles, & Götestam	2006	OCD	Hospital/Outpatient	T	CBT	37

^aP = Patient^bT = Therapist

^cED = Erectile Dysfunction

Table 5

Description of Studies Included in the Homework Compliance Meta-analysis

Author	Year	P.P.	Setting	HW ^a Type	Time Assessed	Therapy	Sample size
Addis & Jacobson	1996	Depression	Community/Clinic	Varied	Early	CT BT	50 48
Addis & Jacobson	2000	Depression	Community/Clinic	Varied	Early, Mid ^b	CBT	147
Barlow, O'Brien, & Last	1984	Agoraphobia	Community/Clinic	Exposure	Continuous	CBT	28
Blanchard et al.	1991	Headaches	Community/Clinic	Relaxation	Continuous	BT	33
Bryant, Simons, & Thase	1999	Depression	Hospital, Outpatient	Varied	Continuous	CBT	26
Burns, & Nolen-Hoeksema	1991	Varied	Community/Clinic	Varied	Mid	CBT	307
Burns & Spangler	2000	Depression	Community/Clinic	Varied	Post ^c	CBT	521
Burns & Spangler	2001	Depression	Community/Clinic	Varied	Continuous	CBT	521
Carroll, Nich, & Ball	2005	Cocaine Dependence	Community/Clinic	Varied	Continuous	CBT	50
Coon & Thompson	2003	Depression	Hospital, Outpatient	Varied	Continuous	CBT	58
Dunn, Morrison, & Bentall	2006	Psychosis	Hospital, Inpatient	Varied	Early	CBT	29
Edelman & Chambless	1993	Agoraphobia	Community/Clinic	Exposure	Continuous	CBT	56
Edelman & Chambless	1995	Social Phobia	Community/Clinic	Varied	Continuous	CBT	52

Hawton, Catalan, & Fagg	1992	ED	Community/Clinic	Varied	Early	BT	36
Hoelscher, Lichstein, & Rosenthal	1984	Anxiety	Community/Clinic	Relaxation	Post	BT	21
Hoelscher, Lichstein, & Rosenthal	1986	Anxiety	Community/Clinic	Relaxation	Continuous	BT	33
Holtzworth-Munroe, Jacobson, DeKlyen, & Whisman,	1989	Marital	Community/Clinic	Varied	Continuous	BT	32
Ingram & Salzberg	1990	Substance Abuse	Hospital, Outpatient	Exposure	Continuous	BT	43
Jannoun, Munby, Catalan, & Gelder	1980	Agoraphobia	Community/Clinic	Exposure	Continuous	CBT	25
Kazdin & Mascitelli	1982	Unassertiveness	Community/Clinic	Varied	Continuous	BT	34
Kornblith, Rehm, O'Hara, & Lamparski	1983	Depression	Community/Clinic	Varied	Continuous	BT	23
Leung & Heimberg	1996	Social Phobia	Community/Clinic	Varied	Early, Mid, Post	CBT	104
Startup & Edmonds	1994	Depression	Community/Clinic	Varied	Early, Post	CBT	25
Taft, et al.	2003	Partner Abuse	Community/Clinic	Varied	Continuous	CBT	87
Taylor, Agras, Schneider, & Allen	1983	Hypertension	Community/Clinic	Relaxation	Continuous	BT	23

Taylor, Fedoroff, Koch, Thordarson, & Fecteau	1999	PTSD	Community/Clinic	Varied	Continuous	CBT	50
Westra & Dozois	2006	Anxiety	Hospital, Outpatient	TR ^d	Early, Post	CBT	55

^aHW = Homework

^bMid = Mid-treatment

^cPost = Post-treatment

^dTR = Thought Records

Table 6

Description of Studies Included in the Attitudes Towards Therapy Meta-analysis

Author	Year	P.P.	Setting	Attitude Variable	Time Assessed	Therapy	Sample size
Addis & Jacobson	1996	Depression	Community/Clinic	Positive Expectancy	Early	CT BT	48 50
Addis & Jacobson	2000	Depression	Community/Clinic	Positive Expectancy	Early	CT	149
Borkovec & Nau	1972	Phobias	Community/Clinic	Positive Expectancy	Early	BT	50
Borkovec, Newman, Pincus, & Lytle	2002	GAD	Community/Clinic	Positive Expectancy	Pre ^a	CT	69
Chambless, Tran, & Glass	1997	Social Phobia	Community/Clinic	Positive Expectancy	Early	CBT	59
Clark et al.	2006	Social Phobia	Community/Clinic	Positive Expectancy Perceived Helpfulness	Pre	CT BT	29 30
deHaan et al.	1997	OCD	Hospital, Outpatient	Motivation	Pre	CBT + meds	99
Dugas et al.	2003	GAD	Community/Clinic	Positive Expectancy	Early	CBT	52
Freeston et al.	1997	OCD	Hospital, Outpatient	Positive Expectancy + Credibility	Pre	CBT	15
Goossens, Vlaeyen, Hidding, Kole-Snijders, & Evers	2005	Chronic Pain	Hospital, Outpatient	Positive Expectancy	Pre	CBT	171

Hawton, Catalan, & Fagg	1992	ED	Community/Clinic	Motivation	Pre	BT	34
Huppert et. al.	2006	PD	Hospital, Outpatient	Motivation	Pre	CBT	205
Kazdin & Mascitelli	1982	Unassertiveness	Community/Clinic	Positive Expectancy	Early	BT	68
Keijzers, Hoogduin, & Schaap	1994	OCD	Community/Clinic	Motivation	Pre	BT	40
Keijzers, Hoogduin, & Scaap	1994b	PD	Community/Clinic	Motivation	Pre	BT	60
Mathews, Johnston, Shaw, & Geller	1974	Anxiety	Hospital, Outpatient	Positive Expectancy Motivation	Averaged	BT	36
Mathews et al.	1976	Anxiety	Hospital, Outpatient	Positive Expectancy	Mid ^b	BT	36
Ryan & Gizynski	1971	Anxiety	Community/Clinic	Positive Expectancy	Post ^c	BT	14
Safren, Heimberg, & Juster	1997	Social Phobia	Community/Clinic	Positive Expectancy	Early	CBT	92
Thompson & Gallagher	1984	Depression	Hospital, Outpatient	Hoped for change, Positive Expectancy	Pre	CT	46
Treasure et al.	1999	Bulimia	Hospital, Outpatient	Motivation	Pre	CBT	87
Vogel, Hansen, Stiles, & Götestam	2006	OCD	Hospital/Outpatient	Positive Expectancy Motivation	Pre	CBT	37
Westra & Dozois	2006	Anxiety	Hospital, Outpatient	Positive Expectancy	Averaged	CBT	55
Wilson, Fairburn, Agras,	2002	Bulimia	Community/Clinic	Positive Expectancy	Pre	CBT	154

Walsh, & Kraemer

^aPre = Pre-treatment
^bMid = Mid-treatment
^cPost = Post-treatment

Table 7.

Analysis of Variance for Year of Publication by Alliance Effect-size

	SS	df	MS	F	p
Between Groups	0.98	3	.33	2.84*	.04
Within Groups	7.49	65	.11		
Total	8.48	68			

Note.* $p < .05$

Table 8.

Analysis of Variance for Year of Publication by Therapist Experience Effect-size

	SS	df	MS	F	p
Between Groups	0.51	2	.25	3.82 *	.03
Within Groups	1.80	27	0.07		
Total	2.31	29			

Note.* $p < .05$

Table 9.

Analysis of Variance for Presenting Problem by Competence Effect Size

	SS	df	MS	F	p
Between Groups	3.70	2	1.85	19.66*	.000
Within Groups	2.26	24	0.09		
Total	5.96	28			

Note. * $p < .001$

Table 10.

Analysis of Variance for Year of Publication by Competence Effect Size

	SS	df	MS	F	p
Between Groups	1.85	3	0.62	3.46*	.03
Within Groups	4.10	23	0.18		
Total	5.96	26			

Note.* $p < .05$

Table 11.

Analysis of Variance for Competence Measure by Competence Effect Size

	SS	df	MS	F	p
Between Groups	4.13	4	1.03	12.42*	.00
Within Groups	1.83	22	0.08		
Total	5.96	26			

Note.* $p < .01$

Table 12.

Analysis of Variance for Outcome Measure by Competence Effect Size

	SS	df	MS	F	p
Between Groups	1.63	2	0.82	4.53*	.02
Within Groups	4.33	24	0.18		
Total	5.96	26			

Note.* $p < .05$

Table 13.

Analysis of Time of Assessment by Competence Effect Size

	SS	df	MS	F	p
Between Groups	2.07	3	0.69	4.08*	.02
Within Groups	3.89	23	0.17		
Total	5.96	26			

Note.* $p < .05$

Table 14.

Analysis of Variance for Presenting Problem by Pre-Treatment Symptom Severity Effect Size

	SS	df	MS	F	p
Between Groups	1.02	2	0.51	5.07*	.01
Within Groups	4.05	40	0.10		
Total	5.07	42			

Note.* $p < .05$

Table 15.

Analysis of Variance for Year of Publication by Attitudes Towards Therapy Effect Size

	SS	df	MS	F	p
Between Groups	0.401	2	0.20	5.36*	0.01
Within Groups	1.71	46	0.04		
Total	2.10	48			

Note.* $p < .05$

Table 16.

Analysis of Variance for Time of Assessment by Attitudes Towards Therapy Effect Size

	SS	df	MS	F	p
Between Groups	0.37	2	0.18	4.89*	0.01
Within Groups	1.73	46	0.04		
Total	2.10	48			

Note.* $p < .05$

Table 17.

Analysis of Variance of Expectancy Measure by Attitudes Towards Therapy Effect Size

	SS	df	MS	F	p
Between Groups	0.71	2	0.36	11.83*	0.000
Within Groups	1.391	46	0.03		
Total	2.10	48			

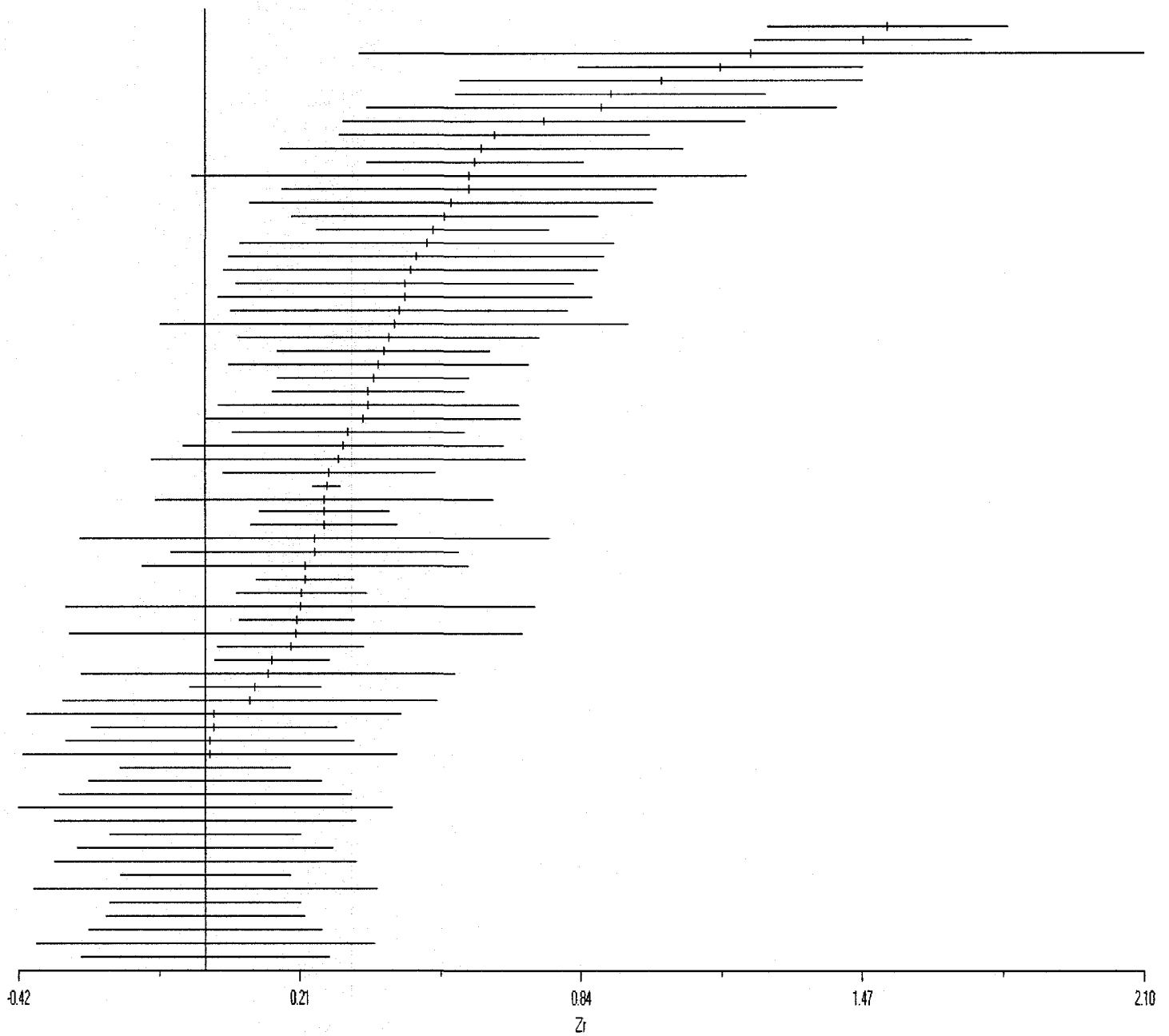
Note. * $p < .001$

Table 18. Summary of All Meta-Analytic Results

Variable	Significant	Post-hoc Analyses	Non-significant
ALLIANCE (ES = 0.27)	a. year of publication	a. 79-89 > 00-06	Presenting problem, treatment setting, CBT type, outcome measure, rater, trial type, alliance measure, time of assessment
EXPERIENCE (ES = 0.10)	a. year of publication b. trial type	a. 90-99 > 00-06 b. effectiveness > efficacy	Presenting problem, treatment setting, CBT type, outcome measure, rater, type of trial, how experience was measured
COMPETENCE (ES = 0.44)	a. presenting problem b. tx setting c. yr of publication d. trial type e. competence msr f. outcome msr g. time of assessment h. competence variable	a. parasuicide > depression b. outpatient > community c. 00-06 > 90-96 and 99 d. efficacy > effectiveness e. MACT > ther/client rating > CTS f. client and therapist report > BDI g. post or across and averaged > mid; early tx h. competence > adherence	Rater, CBT type

SYMPTOM SEVERITY (ES = 0.22)	a. presenting problem b. CBT type c. trial type none	a. psychosis > depression; anxiety b. BT > CBT c. effectiveness > efficacy	treatment setting, year of publication, rater, severity rating
HOMEWORK COMPLIANCE (ES = 0.26)			presenting problem, year of publication, treatment setting, CBT type, rater, time of assessment, type of trial, homework type, homework compliance measure
ATTITUDES TOWARDS TX (ES = 0.21)	a. year of publication b. type of trial c. time of assessment d. expectancy measure	a. 90s > 00-06 b. effectiveness > efficacy c. early > pre-treatment d. RTQ > NML; 'other'	Presenting problem, treatment setting, CBT type, type of attitude, rater, outcome measure

Figure 1. Individual Effect sizes for the Alliance Variable (with 95% CI)



Note. CI = Confidence Interval

Figure 2. Individual Effect sizes for the Therapist Experience and Training Variable (with 95% CI)

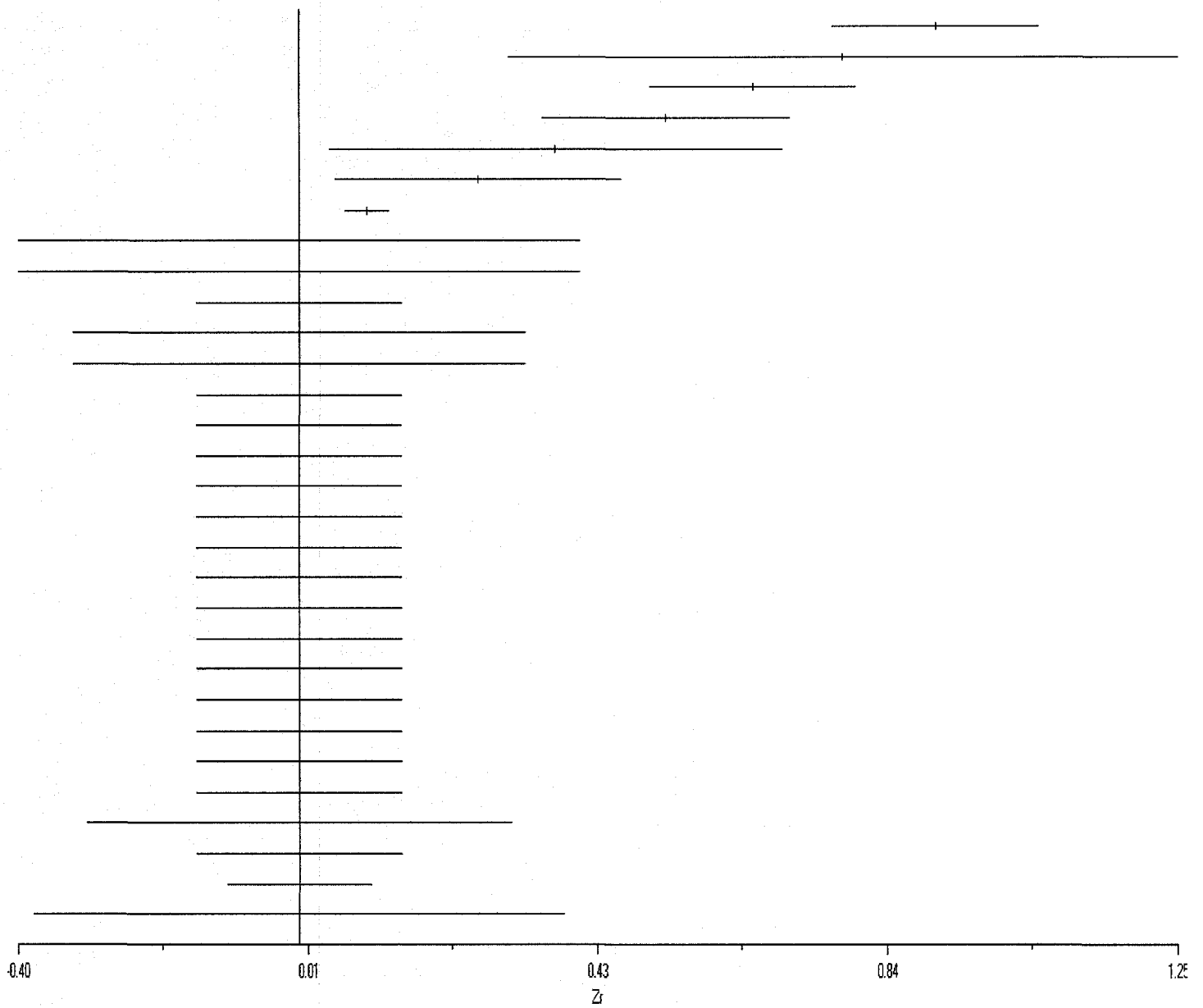


Figure 3. Individual Effect sizes for the Therapist Competence Variable (with 95% CI)

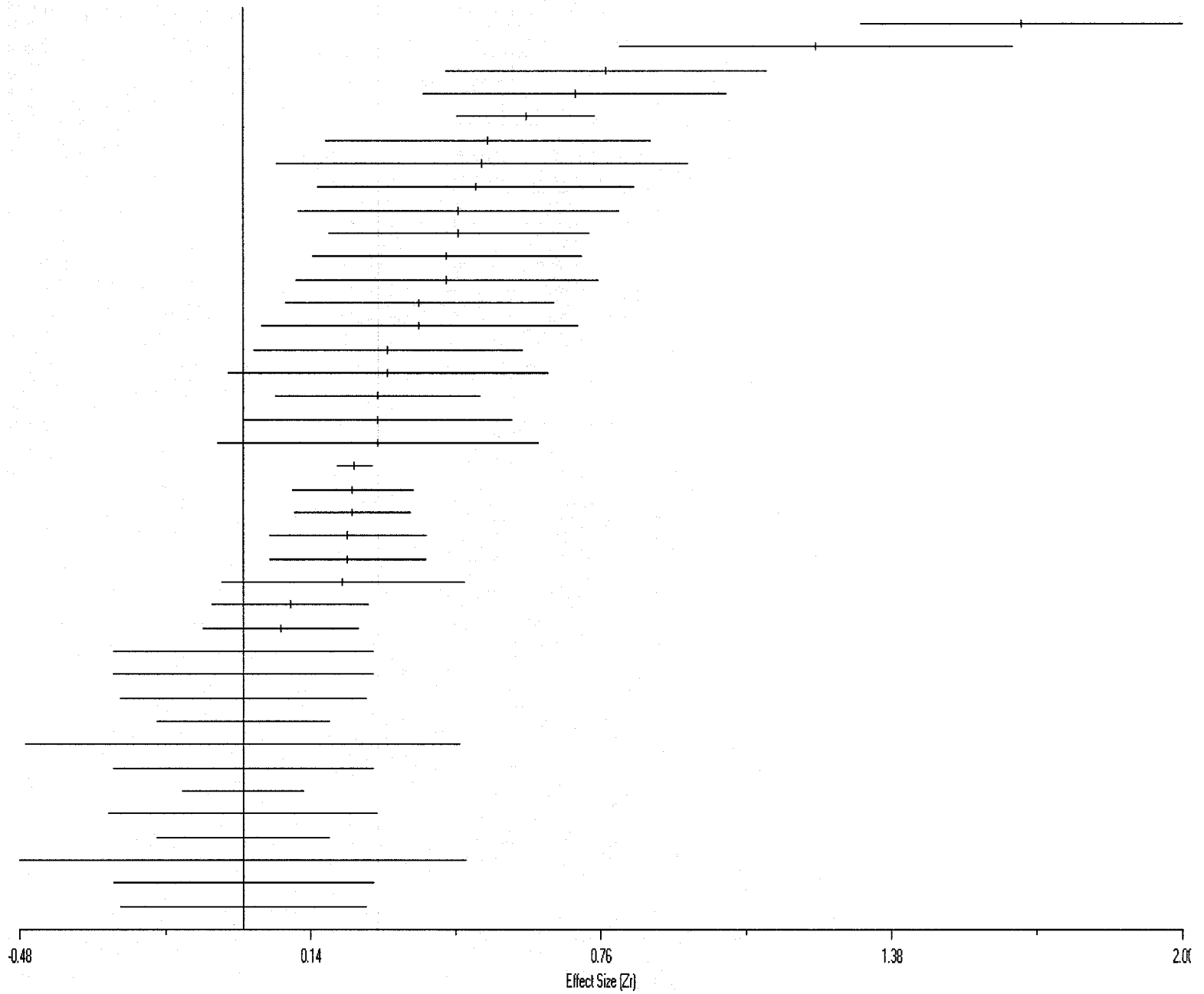


Figure 4. Individual Effect sizes for the Pre-Treatment Symptom Severity Variable (with 95% CI)

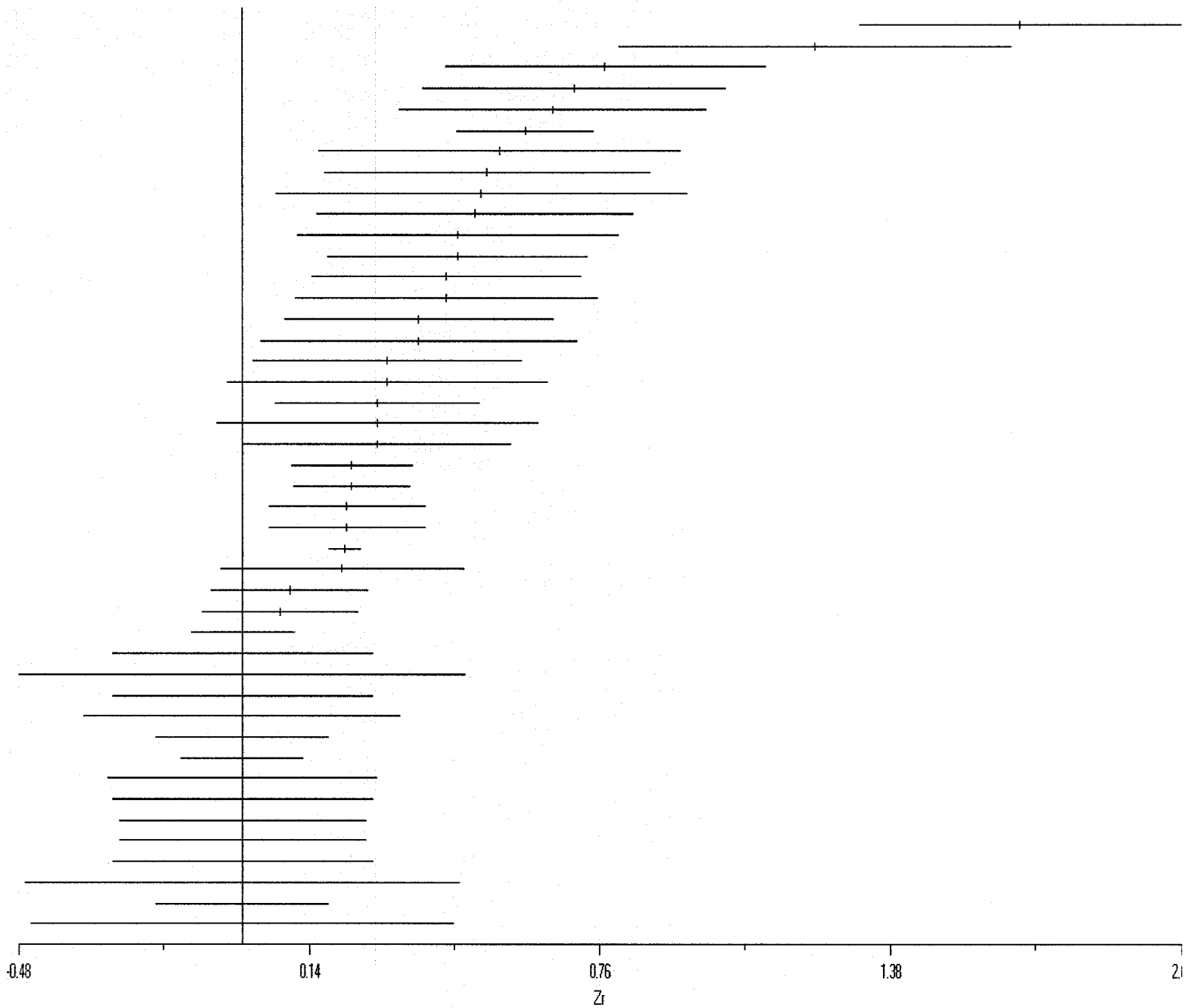


Figure 5. Individual Effect sizes for the Homework Compliance Variable (with 95% CI)

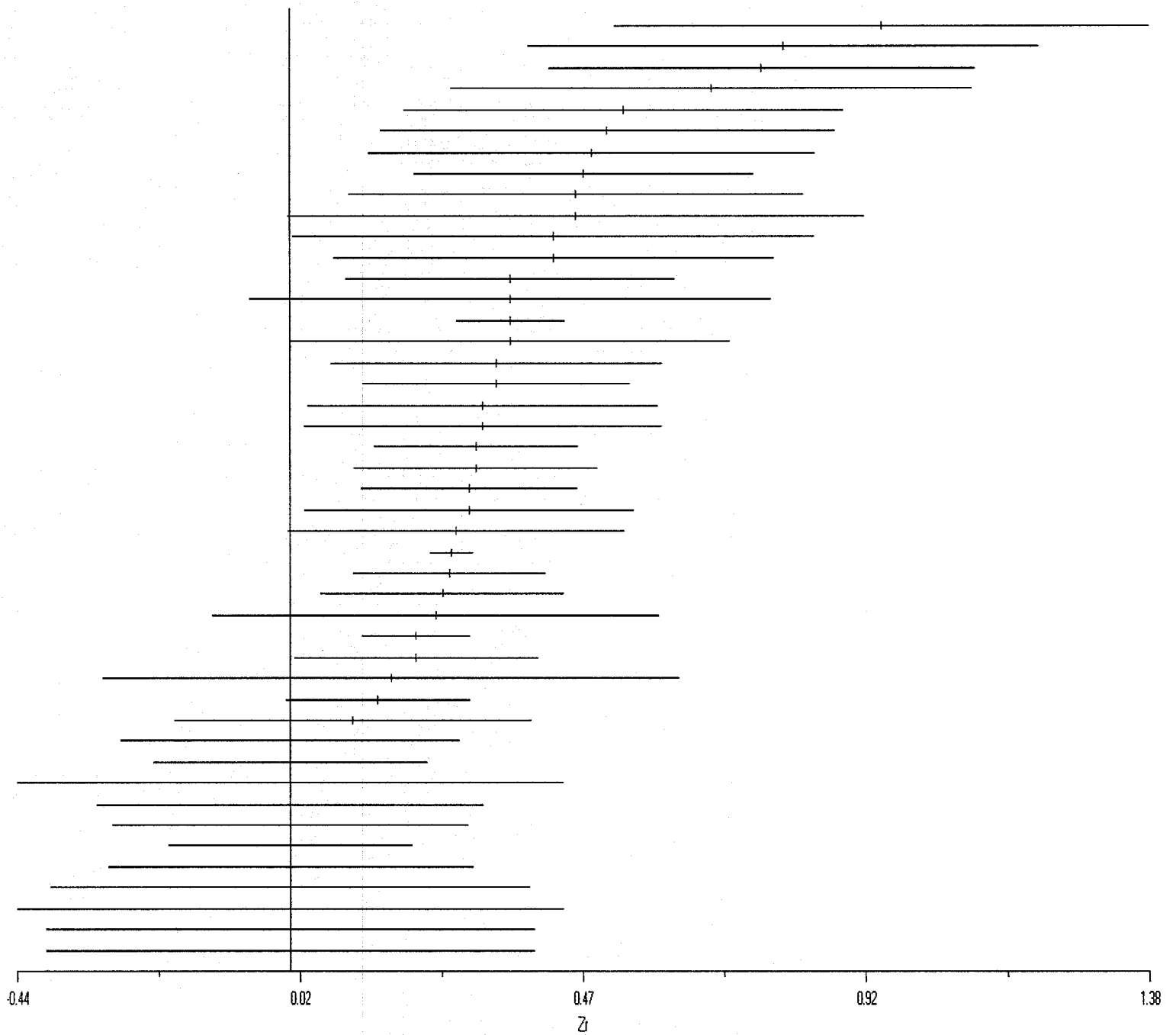
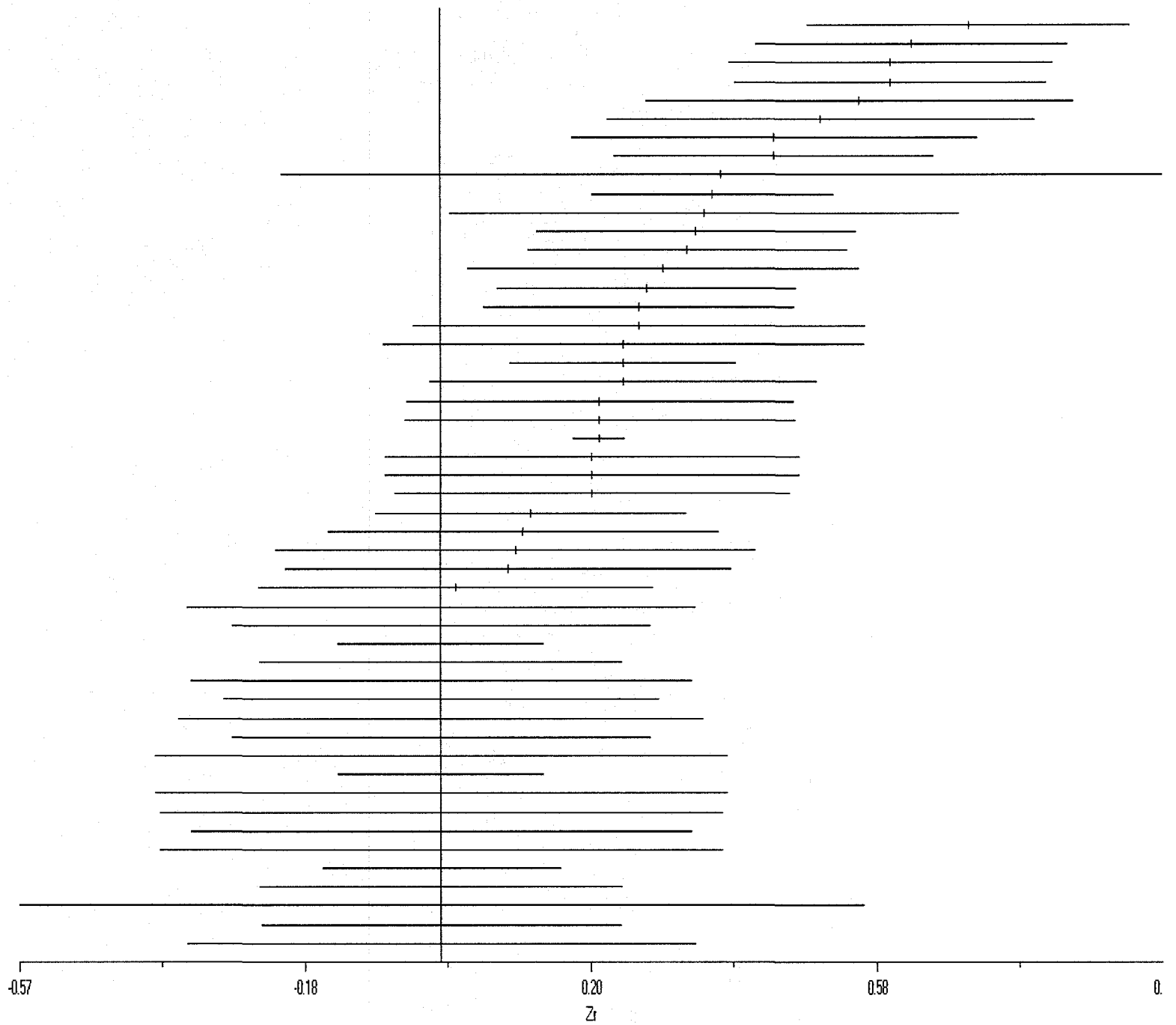


Figure 6. Individual Effect sizes for the Attitudes Towards Therapy Variable (with 95% CI)



General Discussion

This project confirmed that almost twenty years later, Dobson's (1989) conclusions about the efficacy of cognitive behavioural therapy for depression are still valid. His original findings were confirmed even when statistical modifications were made in order to correct for statistical limitations in his original meta-analysis (i.e., the use of unweighted effect sizes). This finding has been heavily replicated to an extent that CBT is now considered an empirically supported treatment for depression, as well as for a variety of other psychological disorders (Chambless et al., 1998). Thus, further replications confirming the efficacy of CBT for depression and anxiety disorders would not contribute significantly to the literature at this time. Empirically supported treatments (ESTs) are by no means definitive or exhaustive however. The American Psychological Association's Division 12 Taskforce on the Promotion and Dissemination of Psychological Research has clearly stated that the current list of ESTs is a work in progress, and that more research is needed on the specific client characteristics that can moderate outcome (see Chambless et al. 1998 for a discussion). This sentiment has also been recently echoed elsewhere in the literature (i.e., Horvath and Bedi, 2002). In other words, the future direction of research on ESTs must put more emphasis on the moderators of outcome in order to add something meaningful to the extant data.

The current project attempted to add to the literature by doing just this. Moderators of successful outcome for CBT for depression were explored in order to add to the data beyond what was offered by Dobson's original research. Group therapy was shown to moderate effect size. Moderators of successful CBT outcome were also explored for problems other than depression including panic disorder, social phobia, obsessive compulsive disorder, agoraphobia, post-traumatic stress disorder, simple phobia, generalized anxiety disorder, substance abuse,

eating disorders, marital problems, suicide, and insomnia. Given the range of diagnoses, additional variables, and more complex statistical analyses within the larger meta-analysis, interrater reliability codings were explored in order to ensure the accuracy of the codings. An additional unique aspect of this project was the exploration of both client and therapist factors that could potentially influence outcome in CBT, such as therapist's training and competence, a client's level of pre-treatment symptomatology, homework compliance, and attitudes regarding treatment. Lastly, the therapeutic alliance, a process variable shared between the client and therapist was also examined. All of these variables were explored within the context of the aforementioned presenting problems, thus providing for a more elaborative and densely informative account of what has been presented in the literature thus far.

The findings have been summarized and discussed in the previous meta-analysis, but a few findings emerged that are worth noting here. First, therapist competence was found to have the largest overall effect size ($ES = 0.44$). Although a therapist's competence should always be ensured and monitored, the findings suggest that it should be particularly attended to when clients are being treated for suicidal intent or para-suicidal behaviours. This finding may have implications for the training of novice therapists, or experienced therapists who are new to the practice of CBT, in that greater attention should be paid to ensure that a therapist is fully competent in the delivery of CBT treatment. Additional assessments of competence may be necessary when working with populations who are at a high-risk for suicidal gestures. As competence also had the largest number of moderating variables, more research is needed in order to better ascertain the components of competence that interact with client variables to produce better outcomes. Homework compliance was significantly related to outcome ($ES = 0.26$), but was not related to any of the moderator variables explored. The therapeutic alliance

(ES = 0.27) had one moderating variable (year of publication). This suggests that these variables are univocally important in CBT, and are robust to the moderator variables explored.

It is also interesting to note that although significant, the smallest effect size was found for the therapist experience variable. This perhaps suggests that CBT is an effective treatment across varying levels of therapist experience, assuming that therapists are competent. Type of trial was a moderator however, thus further research should be directed towards exploring the conditions under which a therapist's experience must be more closely attended to (i.e., effectiveness trials).

Meta-analyses are not without their limitations, as is true of the current study. Large quantitative reviews are only as good as the studies that they include, as the old adage "garbage in, garbage out" goes. Great care was taken not to include studies that were methodologically unsound, had small sample sizes, or did not sufficiently measure outcome or the specific variable that was being explored. In addition, strict inclusion criteria were defined and carefully adhered to in order to adhere to the initial methodological protocol and to ensure a high quality of included studies. Inter-rater reliability provided an additional measure of overall quality and consistency of coding. A criticism of meta-analyses is that they are oversimplified summaries of combined results which overlook individual or mediating effects (Vatz, 1991). The current meta-analysis went beyond simply averaging effect sizes. Although overall effect sizes were reported, the focus was on exploring other individual factors that were potentially contributing to those effect sizes. Meta-analyses have also been criticized because they typically include only published data (Egger, Smith, & Sterne, 2001), which may result in a bias towards significant results. This was controlled for by calculating fail-safe N statistics for each variable (all of which were large) and including nonsignificant results and conservatively assigning them an effect size

of zero. Another criticism is that there is not standard, unanimously accepted method to conduct a meta-analysis and no agreement as to the criteria for including and excluding studies (Fagard, Staessan, & Thijis, 1996). However, a rigorously conducted analysis, with stringent inclusion criteria, and sound methodological calculations protect against these biases.

The findings in the current meta-analysis are by no means conclusive. Six variables were chosen for detailed analysis, and there are certainly others that should be explored. One criticism of psychotherapeutic research is that it does not adequately control for effects within minority populations, and that general findings do not actually translate well to minorities. In terms of ESTs, none are specific to minorities, nor have any criteria been established to demonstrate therapeutic efficacy in minority groups (Chambless et. al., 1998). Certainly, the majority of studies included in the current analysis did not report the ethnic background of their participants, nor other potentially moderating factors such as socio-economic status or level of education. This is clearly a limitation of the research findings, especially given that Canada is one of the most culturally diverse nations in the world. It would be erroneous to assume that the current results can generalize to all of the different cultural and ethnic groups. Clearly, more research is needed, using culturally appropriate and validated assessment measures before we can generalize these results across groups. Moreover, although the current project was limited to adults between the ages of 18 and 65, it is important to note that these results do not translate to children, nor to the geriatric population, where the results could be entirely different. Lastly, studies examining personality disorders were not included in the current meta-analysis, thus the results are not generalizable to Axis II presentations. For example, there are some reports indicating the increased difficulty of achieving a good therapeutic alliance with persons with personality disorders (e.g., Andreoli et al., 1993). Thus, the current results might have looked quite

differently if Axis II disorders were also included in the analyses. Unfortunately, this exclusion was not intentional, but rather a manifestation of the paucity of research that fit within the search criterion for the alliance variable.

The current meta-analysis confirmed that CBT is still an efficacious treatment for depression, and provided additional information as to factors that moderate that efficacy for disorders beyond depression. Although the presence of each moderator (e.g., a good therapeutic alliance) is not predictive of successful outcome in CBT on its own, each one represents a proportion of the overall variance of outcome. Even if those variances are small, they provide a more complete picture as to what constitutes a better treatment outcome in CBT. The effect sizes can also inform clinical practice, in that they highlight the process factors that clinician's need to attend to. The overall response rates for CBT for depression and anxiety disorders hovers between 65-80% of those who complete treatment. Understanding the variables that moderate effect size can help improve the response rate even further. Considering that about 20-25% of people will suffer from a diagnosable psychiatric illness at some point in their lives (Kessler, Chiu, Demler, Walters, 2005), even improving the response rate of CBT by just 1% would help thousands of additional people suffering from mental illness. Moreover, it would be a great contribution to advancing strides in mental health treatment, as well as fine tuning our knowledge about CBT such that clinician's will be better able to deliver scientifically supported treatments to their clients, which essentially is the cornerstone of ethical service provision.

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