Therapist interventions and patient outcome: addressing the common versus specific factor debate

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Summary

While innumerable studies have demonstrated the efficacy of CBT in patients with depression, the mechanisms responsible for depression reduction are not well understood.

Aim: This study explored the relationship between therapists' individual techniques and patients' symptoms of depression, cognitive errors, and coping. Of particular interest was the relative importance of techniques specific to CBT and those common to all therapies.

Method: CBT therapy sessions of 43 patients with major depressive disorder (MDD) were analyzed using observer-rated measures: the Comprehensive Psychotherapeutic Interventions Rating Scale (CPIRS; Trijsburg et al., 2002) for therapist interventions, and the Cognitive Errors Rating Scale (CERS; Drapeau, Perry, & Dunkley, 2008) and Coping Patterns Rating Scale (CPRS; Perry, Drapeau, & Dunkley, 2005) for patients' cognitive errors and coping strategies. The Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979) was used to assess symptoms of depression.

Results: Results of hierarchical multiple regressions, controlling for pre-treatment depression scores and early cognitive errors and coping scores, showed the common factor intervention 'rapport' as the only intervention that significantly predicted improvement. Among CBT interventions, only the structuring intervention 'scheduling and structuring activities' emerged as a *positive* predictor of symptoms of depression.

Discussion: These results provide further support for the importance of the therapeutic alliance in predicting depression outcome. While the lack of positive results on therapist CBT technique seem to cast doubt on their relative importance, it may also highlight the importance of measuring technique more contextually.

CBT, therapist technique, common factors, cognitive errors, coping

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THERAPIST INTERVENTIONS AND PATIENT OUTCOME: ADDRESSING THE COMMON VERSUS SPECIFIC FACTOR DEBATE

Cognitive behavioural therapy (CBT) is one of the most widely used, studied, and published models of therapy, with hundreds of outcome studies demonstrating its efficacy on a wide

range of psychosocial issues [1]. But while it has been subject to intense research over the past three decades, researchers are still investigating the precise mechanisms that contribute to improvement. This is paramount considering CBT's emphasis on skills acquisition and measuring the effectiveness of their use [2].

CBT is notable for its many identifiable therapy techniques that have been incorporated into treatment manuals, with the expectation that they may be administered with precision and measured for effectiveness. But evaluating their effectiveness in practice is complicated to measure. The techniques include cognitively based interventions aimed at identifying and changing maladaptive thinking, which have been shown to produce improvements in mood and symptoms of depression [3]. Problem-solving techniques are also used to identify adaptive coping with stressful life experiences [4]. CBT also includes behavioral interventions, which comprise behavioral activation and coping skills training. The former are targeted at increasing positively reinforced behavior and decreasing negative coping behaviors, such as escape and avoidance; however, these may also alleviate mood by providing evidence contrary to negative thoughts and beliefs. Behavioral activation may include activity monitoring, activity scheduling (such as assigning homework, scheduling pleasant activities), and social skills training. These interventions have been shown to be effective [5,6], with their effects lasting up to 2 years after completion of therapy [7].

Empirical findings indicate that specific CBT interventions have been successful in the treatment of depression, with modest to moderate effect sizes [8]. For example, a study conducted by Coombs, Coleman, and Jones [9] found that collaboratively exploring emotion in CBT related positively to outcome, whereas educative/directive process had no relationship to outcome. Hypothesis testing has been shown to be associated with improvement in depression [10], and interventions focused on direct interpersonal and developmental change have been associated with better functioning at the end of treatment [11]. A meta-analysis of 27 studies conducted by Kazantzis, Deane, and Ronan [12] revealed that assigning homework facilitated improvement in therapy.

CBT, COGNITIVE ERRORS, AND COPING STRATEGIES

A primary aim of CBT is to alleviate distress by modifying cognitive content and realigning thinking with reality. This is accomplished through various interventions that identify and deconstruct distortions in information processing, known as cognitive errors, which are believed to reinforce depressive thinking and maintain symptoms of depression [13]. Studies have demonstrated that cognitive errors, usually negative, are more common among depressed individuals than controls [e.g., 14,15]. One exception is the findings from a study conducted by Kramer and colleagues [16], who found that while patients with bipolar depression displayed a higher frequency of cognitive errors overall than matched healthy controls, there was no difference in number of negative cognitive errors between the two groups. CBT interventions such as reality testing and searching for alternative interpretations are common techniques for addressing maladaptive thoughts, as well as the use of thought records or feeling diaries, questioning and testing patients' assumptions, encouraging activities that were previously avoided, and relaxation and distraction techniques [17]. Studies have found that CBT for depression in adults is associated with a decrease in negative cognitions [18,19, 20].

CBT therapists also aim to replace maladaptive coping skills, beliefs, emotions, and behaviors with more adaptive ones. Coping strategies (CSs) are the affective, behavioral, and cognitive efforts made to respond to events that are viewed as stressful [21]. Depressed individuals have been shown to use more passive coping strategies such as wishful thinking, avoidance or withdrawal [22] than non-depressed populations. Through the use of interventions such as challenging reactions to stress, restructuring cognitions, teaching coping strategies to better manage stress, and developing a problem-solving outlook, coping strategies change and tend to become more adaptive over the course of psychotherapy [23]. Although no single coping strategy can be pronounced as "always good" or "always bad," in general, coping responses directed toward problem solving and regulating emotions have been found to be less dys-

functional compared to emotional-discharge responses [24].

THE COMMON VS. SPECIFIC FACTOR DEBATE

The idea that therapist technique is even worthy of additional study has been scrutinized by many who argue that nonspecific factors make the largest contribution to treatment outcome [e.g., 25,26], and that research efforts should be dedicated to better understanding them. Ahn and Wampold [27] conducted a meta-analysis on 27 component studies and found no evidence that specific ingredients of psychological treatment accounted for beneficial outcomes. They concluded that training models should focus on teaching practitioners interviewing skills, establishing a therapeutic relationship, and facilitating the therapeutic process. However, these likewise beg the question, '*How* do we accomplish these goals and what are the ingredients of a "good" therapeutic relationship?' Indeed, common factor variables like the working alliance equally need to be operationalized and measured, in order to explain *how* to build a strong alliance [see 28,29], rather than accept it as some mystical phenomenon.

There has also been increasing recognition that technique and the therapeutic alliance are mutually influential, and not distinct or rival forces [30]. Patients may disengage from therapy due to a therapist's poor use of skills, which prohibits a good working alliance from deepening or even developing [31]. Castonguay, Goldfried, Wiser, Raue, and Hayes [32] conducted a process-outcome study and found that the ineffective use of a cognitive intervention occurred only in those instances where there was a strained therapeutic alliance. In fact, the alliance itself has been empirically studied as a therapist technique [31], and therapist techniques have been further operationalized as involving aspects of the alliance.

THE STUDY OF TECHNIQUE: A CALL FOR BETTER MEASUREMENT

Psychotherapy process research is growing, especially in light of recognition of the overlap between technique and other factors involved in successful therapy. Even among the studies that have failed to demonstrate a solid link between therapist technique and treatment outcome, many researchers maintain that we should not dismiss the importance of technique due to a number of methodological issues that yield the conclusions – in the affirmative or not [e.g., 33, 34]. These include the following: the lack of comprehensive or specific measures to identify the countless CBT interventions [35], the challenge of rater bias and the use of self-report measures both among therapists and patients in measuring technique and patient variables [36], the need for more measures of competence specific to CBT [37], and the lack of measures developed on empirical rather than theoretical grounds [38]. The Cognitive Therapy Scale [CTS;39], for example, is the current standard for assessing therapist CBT competence, but researchers have remarked that it is not sufficiently comprehensive, nor is it based on empirical research [40].

A first goal of the present study was to iidentify specific: (1) CBT techniques and (2) therapist behaviors that are linked to the alliance. A second main objective was to determine which of these specific interventions are related to depression outcome, cognitive errors, and coping strategies.

METHOD

Participants

Participants were drawn from a larger dataset from a landmark component study conducted by Jacobson and colleagues [41,42]. The complete dataset included 152 patients randomly assigned to one of three treatment conditions: a treatment that focused exclusively on Behavioural Activation (BA), one that included both BA and the modification of Automatic Thoughts (AT) but excluded the focus on core schema, or the full Cognitive Therapy (CT) treatment. Inclusion criteria consisted of participants diagnosed with MDD as per the Structured Clinical Interview for DSM-III-R [43] and with a score of at least 20 points on the Beck Depression Inventory [BDI; 44]. Exclusion criteria included patients with co-morbid psychological or general med-

ical conditions, and those who were receiving concurrent psychotherapy, psychotropic medication, or requiring hospitalization due to imminent suicide risk or psychosis. Participants were required to complete at least 12 therapy sessions, with a maximum of 20. Participants who met inclusion criteria were matched on a set of demographic variables (e.g., age, marital status, education level), then randomly assigned to a treatment condition. Participants from the CT condition who received the complete cognitive treatment package as described by Beck and colleagues [44], were selected for this study based on its close approximation to cognitively oriented therapy in clinical practice.

Forty-three (*n* = 43) of the original 50 participants from this treatment arm were selected based on the availability of their therapy transcripts. For each participant, three therapy transcripts were selected and the data from each averaged to produce mean therapist interventions scores from an early, mid, and late session; this has been shown to improve the stability of the ratings [45]. The use of three similar time points has been used in previous psychotherapy research [e.g., 46]. With a few exceptions, third sessions were selected as an early time point as it was postulated that treatment would be underway with contractual arrangements completed. Sampling from the third session is also consistent with previous psychotherapy research studies [47]. Session six was selected as a mid-point for over 90% of participants (session 5 or 7 for remaining participants), since this has been previously shown to be representative of when reliable and clinically significant change first occurs and stabilizes during CBT treatment [48] and represents a rough mid-point of the average completed therapy sessions of participants. Penultimate sessions were selected as a late time point as a sample of therapist interventions toward the end of treatment.

Participants (n = 43) were primarily Caucasian (79.07%), as well as Native American (6.98%), African American (4.65%), and Asian (2.33%). Seven percent did not report their ethnicity. The participants ranged in age from 21 to 60 years (*M* = 38.81, *SD* = 8.65); most were female (*n* = 76.74%). Prior to beginning treatment, participants' mean score on the BDI was 29.63 (*SD* = 6.48). Most participants attended between

18 and 20 sessions of therapy; four attended between 11 and 17 sessions.

THERAPISTS

Four experienced therapists with previous CBT research experience participated in the study and received a year of training based on the original CBT manual [44] prior to the commencement of the study [41]. They provided a manualized form of complete CBT to all participants and were found to have excellent adherence to treatment protocols across sessions, as determined by a modified version of the Collaborative Study Psychotherapy Rating Scale developed by Hollon and colleagues [49], as well as competent delivery of CBT by the Cognitive Therapy Scale [50]. Two were male and two female, and they ranged in age from 37 to 49 years. Their post-doctoral clinical experience was considerable (*M* = 14.8; range: 7 to 20 years), with a notable average of 9.5 years of experience specific to cognitive therapy (range: 8 to 12 years). Therapists attended monthly meetings with the two primary authors of the original study (N. Jacobson & K. Dobson) to ensure treatment integrity.

MEASURES

Comprehensive Psychotherapeutic Interventions Rating Scale [CPIRS; 51]. The CPIRS is an observer-rated measure designed to determine the presence and distribution of therapist interventions in psychotherapy. It consists of 76 interventions from the most commonly utilized psychotherapy orientations: experiential, psychodynamic, directive behavioural, cognitive, group dynamic, and systemic. Interventions from common factor literature [52] are also included. A total of 31 therapist interventions were selected from the CPIRS: CBT interventions comprised 13 Cognitive interventions (related to changing cognitions), 4 Behavioral interventions (related to changing behavior), and 5 Structuring interventions (related to pacing and structuring therapy). Common Factor (CF) interventions included a total of 9 interventions: 5 Facilitating interventions and 4 Authoritative Support inter-

ventions; while both are considered to be supportive interventions common across all therapies, the latter tends to be more directive in tone. The CPIRS' construct validity has been established, demonstrating its ability to adequately discriminate among different psychotherapy orientations [51]. The ability of the CPIRS to distinguish Common Factor interventions from different psychotherapeutic orientations has been demonstrated in a previous study [see 53]. Two researchers were trained on the measure and coded all therapy sessions for CBT and CF interventions. Raters were blind to session number. A total of twenty percent of therapy sessions were rated in consensus to establish reliability. Consensus referred to both raters agreeing on the type and number of individual codes across a given session. The inter-rater reliability was found to be good, with an average ICC(2, 1) of 0.86 (range = .57 – .98).

Cognitive Errors Rating Scale [CERS – 3rd edition; 54]. The CERS is an observer-rated method developed to identify cognitive errors as they occur or are reported by a patient in session. It can be applied to any type of transcript to identify any of the 15 cognitive errors defined in the rating scale. These have been empirically derived from the work of Beck [55], Beck and colleagues [44], DeRubeis, Tang, and Beck [1], among others. The method includes a manual with definitions, rating procedures, and examples of each cognitive error. Each of the cognitive errors is further defined by valence, either positive or negative; a positively valenced CE signifies a bias toward distorting information positively while a negatively valenced CE reflects a bias toward distorting information negatively. For example, someone who engages in the cognitive distortion "labelling" might refer to someone as either a "saint" (positive labelling) or a "slob" (negative labelling). Previous studies have demonstrated the construct and theoretical validity of the method [e.g., 54,56]. It has been shown to be a clinically robust measure that can be applied to any type of transcript to identify individual CEs [e.g., 57,58]. It was applied to all transcripts to assess early therapy and late therapy CEs. Twenty percent of therapy sessions were rated in consensus to establish reliability. The inter-rater reliability was found to be good, with an average ICC(2, 1) = .84 (range = .60 – .99).

Coping Patterns Rating Scale [CPRS; 21]. The CPRS is an observer-rated system used to assess coping strategies in-vivo to any form of transcript. It identifies 12 strategies of coping based on the works of Skinner, Edge, Altman, and Sherwood [59]. Each coping strategy is further categorized as being expressed affectively, behaviorally, or cognitively. The method also includes a manual with codifying procedures. Previous studies have demonstrated the validity and reliability of the CPRS method [60,56]. An Overall Coping Functioning (OCF) score can be computed to measure the proportion of coping strategies related to perceiving stressors as challenges rather than threats; it is derived by dividing the number of challenge-oriented coping strategies by the total number of coping strategies [see 59 for details). Higher proportions indicate more adaptive coping. The CPRS has been used in previous research [e.g., 61,62], and was applied to all transcripts to assess early therapy and late therapy OCF scores. Twenty percent of therapy sessions were rated in consensus to establish reliability, and the inter-rater reliability was found to be good, with an average ICC(2, 1) = .87 (range = .49 – .96).

Beck Depression Inventory [BDI; 44]. The BDI measures the severity of specific symptoms and attitudes associated with depression. It has excellent psychometric properties and is widely used [63], and has been found to be sensitive to clinical change [64]. The BDI consists of 21 items and can produce a score ranging from 0 to 63, with higher total scores indicating more severe depressive symptoms. Patients' depressive symptomatology was measured prior to the commencement of therapy and after its completion using the BDI [41,42].

DATA ANALYSES

In order to maximize power by minimizing the number of variables in one analysis, a series of hierarchical multiple regressions were conducted. Of particular interest were the regression coefficients values, which reflect the unique predictive ability of the individual interventions. Predictor variables were grouped according to interventions belonging to the same category as defined within the CPIRS, with the aim of

measuring the smallest number of variables that would theoretically have a reasonable chance of revealing a relationship [65]. These five categories were thus considered distinct families on the basis of their similarities in purpose and content, as they were generated categorically in the development of the CPIRS. Hierarchical regressions were conducted between each category and patient depression outcome, late therapy cognitive errors, and late therapy OCF scores, totalling 15 regressions. For each regression, patients' pre-treatment depression score or early therapy cognitive error or OCF score were entered as control variables. Early therapy scores of each served as a form of baseline measure of the variable, whereas late therapy scores served as a sample of these variables nearing completion of therapy. This is in line with previous recommendations on assessing change across two time points [e.g., 66].

Given the nascent research area of therapist technique, the exploratory nature of this study, and the small sample size, correcting for multiple comparisons was taken with reservation from the perspective of generating rich data from a study with already modest power. Vasilopoulos, Morey, Dhatariya, and Rice [67] posit that multiple comparison corrections should be strongly considered for confirmatory analyses, but are less needed for exploratory analyses. Arguments have been made that such corrections stifle the generation of data needed for replication in the social sciences, and have led to calls to abandon such methods [see 67,68].[1] However, the bootstrapping technique was applied to all analyses to avoid overfitting and, to address the issue of Familywise error within each regression, results are presented with both adjusted and un-adjusted p – values. Adjustments to control the Familywise Error rate were conducted using an adjustment procedure in line with Gelman, Hill, and Yajima's [69] recommendations,

by means of Hochberg's [70] step-up method for multiple testing.

RESULTS

Preliminary analyses

Predictor variable. Frequencies of each of the 31 therapist interventions of interest were calculated for each session, and then averaged across the three time points as a representation of the interventions generally used across therapy. Therapists' mean total of CBT interventions ($M = 21.61$, $SD = 7.26$) prevailed over their use of CF interventions ($M = 10.66$, $SD = 3.46$). Within CBT, therapists' cognitive interventions outweighed ($M = 10.44$, $SD = 5.81$) both behavioral interventions ($M = 3.68$, $SD = 1.53$) and structuring interventions ($M = 7.49$, $SD = 2.20$). Within common factor interventions, facilitating interventions ($M = 5.70$, $SD = 2.83$) and authoritative support interventions ($M = 4.96$, $SD = 2.09$) were more evenly distributed.

Dependent variables. Participants' severity of depression was assessed using the BDI before the commencement of therapy and following its completion. A paired-samples t-test was conducted to compare pre – and post-depression scores. There was a marked significant difference in depression scores from before therapy ($M = 29.63$, $SD = 6.48$), to after therapy ($M = 9.23$, $SD = 9.16$); $t(42) = 14.89$, $p < .001$. Patient's mean total cognitive errors in their early session was $M = 10.44$, $SD = 6.47$, of which negative cognitive errors ($M = 9.74$, $SD = 6.50$) outweighed positive ones ($M = .70$, $SD = .96$). Their late therapy total CE score was similar, $M = 10.60$, $SD = 6.50$, of which negative cognitive errors ($MD = 8.80$, $SD = 6.08$) again outweighed positive ones ($M = 1.81$, $SD = 2.34$). The difference between total cognitive errors from early to late session was not significant, $t(42) = - .15$, $p = .89$, nor was

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[1]   It should be noted that many hierarchical regressions were conducted in a variety of ways in order to best explore the relationships between the variables. A correlation design was considered as a preliminary step, with regressions conducted only on those variables that were found to be significant. Alternatively, in order to limit the number of variables, individual interventions were collapsed and entered into a regression model either by total mean subcategory (e.g., cognitive and depression, behavioral and depression), or even broader (e.g., CBT and depression, and CF and depression). Results from the various analyses tended to produce very similar results, and it was determined that regression analyses on individual interventions grouped according to family would produce richer and more meaningful information to clinicians.

the difference for negative cognitive errors, $t(42)$ = − .90, p = .37, which remained similar. The increase in total number of positive cognitive errors between early and late session was found to be significant, $t(42)$ = − 3.05, p = .004. Patients' overall coping functioning (OCF) score was assessed in the early and late sessions. In the early session, patients' mean OCF score was M = .69, SD = .16, and this score significantly increased in the late session, (M = .77, SD = .20; $t(42)$ = − .2.02, p = .05). While there were significant differences in patients' pre – and post – depression and OCF scores from early to late therapy, patients' cognitive errors remained similar.

Results of evaluation of assumptions demonstrated non-normality of the data, and led to the use of bootstrapping for all analyses [71]. The number of bootstrapping resampling for all analyses was 2000. For all regressions, the assumptions of collinearity were met, indicating that the estimated relationships are valid representations of the data [65]. Due to non-normality of the data, the use of bias-corrected bootstrapped confidence intervals and standard errors was important for the reliability of any significant coefficients that emerged.

MAIN ANALYSES

Common factor interventions and depression outcome. The effects of therapist CF interventions on depression outcome was assessed by means of two hierarchical multiple regressions, each controlling for pre-treatment BDI score. The first investigated the relationship between the CF facilitating interventions and depression outcome. In step 1, patients' pre-treatment depression score resulted in an R of .38, with an R^2 of .14, R^2_{adj} = .12, (p =.012, f^2 = .17), indicating that pre-treatment depression score was predictive of post-treatment depression score, and accounted for a small amount of the variance in depression outcome. In step 2, empathy, acceptance, involvement, warmth, and rapport were entered into the regression. By calculating the change of R^2 and F values above and beyond pre-treatment depression, the level of contribution of the facilitating interventions was tested. After controlling for pre-treatment depression scores, these variables together did not signifi-

cantly predict depression outcome, with change statistics of ΔR^2 = .18, $F(4, 37)$ = 2.47, p = .06. Given the lack of observations of the intervention "acceptance," analyses could not be conducted on this variable. However, among the coefficients, rapport was found to be uniquely predictive of depression outcome, even after alpha adjustment, p = .05, 95% CI [-3.896, − .379]; the greater the incidence of rapport interventions, the lower the depression scores. No other coefficients were found to be significant (see Table 1). The second hierarchical regression was conducted with the four CF authoritative support interventions (collaboration, direct reassurance, responsibility outside patient, and reformulation of problem) and depression outcome, controlling for patients' pre-depression score. After controlling for pre-treatment depression, these variables together did not significantly predict depression outcome, with change statistics of ΔR^2 = .04, $F(4, 37)$ = .43, p = .79. No coefficients were found to be significant (see Table 1).

CBT interventions and depression outcome. A hierarchical regression was conducted between all five CBT structuring interventions (setting and following the agenda, assigning homework, reviewing homework, scheduling/structuring activities, and self-monitoring) and patients' post-depression score, controlling for pre-depression score. After controlling for pre-treatment depression score, these variables together significantly predicted depression outcome, with change statistics of ΔR^2 = .22, $F(5, 36)$ = 2.51, p = .047, f^2 = .58, and together accounted for 36.6% (R^2_{adj} = .26) of the variance in depression outcome. Among the coefficients, scheduling and structuring activities emerged as the only significant predictor of outcome after alpha adjustment, and was positively related to depression score, p = .03, 95% CI [2.095, 15.237]. This indicates that the greater use of scheduling/structuring interventions is related to higher depression scores. Results of all coefficients are presented in Table 1. For CBT behavioral interventions, a hierarchical regression was conducted between its four interventions (exploring new ways of behaving with others, therapeutic relationship as a model, skills training, and behavioral procedure) and patients' post-depression score, controlling for pre-depression score. After controlling for pre-treatment depression score, these variables together did not signifi-

cantly predict depression outcome, with change statistics of $\Delta R^2 = .05$, $F(4, 37) = .51$, $p = .73$. No coefficients were found to be significant. For CBT cognitive interventions, a hierarchical regression was conducted between its 12 interventions (cognitive themes, relationship of thoughts and feelings, record and report cognitions, exploring personal meaning of thought, recognizing cognitive errors, identifying underlying assumptions, distancing of beliefs, examining available evidence,

(prospective) testing of beliefs, searching for alternative explanations, realistic consequences, adaptive/functional value of beliefs, and practicing rational response) and patients' post-depression score, controlling for pre-depression score. After controlling for pre-treatment depression score, these variables together did not significantly predict depression outcome, with change statistics of $\Delta R^2 = .11$, $F(13, 28) = .33$, $p = .98$. No coefficients were found to be significant.

Table 1. Hierarchical Multiple Regressions Predicting Depression with Facilitating[1], Authoritative Support[2], Structuring[3], Behavioural[4], and Cognitive Interventions[5]

Regression	Predictor	B	β	95% CI	Uncorrected p	Hochberg p
1	Post-treatment					
	Step 1					
	Pre-treatment depression	.538	.380		.042*	
	Step 2					
	Pre-treatment depression	.512	.362	[.034, 1.043]	.052	.117
	Mean Warmth	-.148	-.003	[-26.277, 21.564]	.982	.982
	Mean Rapport	-2.069	-.391	[-3.896, – .379]	.010*	.05*
	Mean Empathy	1.911	.288	[-1.396, 5.286]	.070	.210
	Mean Involvement	1.429	.108	[-1.295, 5.467]	.457	.914
2	Post-treatment					
	Step 1					
	Pre-treatment depression	.538	.380		.043*	
	Step 2					
	Pre-treatment depression	.582	.412	[.153, 1.107]	.029*	.145
	Collaboration	.707	.137	[-.510, 1.948]	.247	.943
	Direct reassurance	-1.426	-.095	[-6.447, 3.478]	.551	.943
	Responsibility outside patient	-1.473	-.083	[-6.444, 3.564]	.481	.943
	Reformulation of problem	-.295	-.013	[-7.312, 7.954]	.943	.943
3	Post-treatment					
	Step 1					
	Pre-treatment depression	.538	.380		.043*	
	Step 2					
	Pre-treatment depression	.500	.353	[.054, .989]	.056	.252
	Set Agenda	-.278	-.033	[-2.372, 1.670]	.753	.753
	Assign Homework	-6.801	-.330	[-14.636, – .949]	.063	.252
	Review Homework	-3.853	-.167	[-9.102, 2.961]	.182	.364
	Scheduling Activities	9.499	.503	[2.095, 15.237]	.005**	.030*
	Self-Monitoring	-1.744	-.211	[-3.967, .665]	.142	.364
4	Post-treatment					

		B	β	95% CI	p	
	Step 1					
	Pre-treatment depression	.538	.380		.038*	
	Step 2					
	Pre-treatment depression	.544	.385	[.106, 1.101]	.051	.255
	Explore new relationships	1.671	.139	[-2.161, 10.575]	.512	.593
	Therapeutic relationship	19.163	.106	[-10.413, 31.824]	.118	.472
	Skills training	-1.542	-.181	[-4.422, 1.309]	.320	.593
	Behavioural Procedure	6.167	.034	[-12.914, 24.996]	.593	.593
5	Post-treatment					
	Step 1					
	Pre-treatment depression	.538	.380		.046*	
	Step 2					
	Pre-treatment depression	.574	.406	[-.187, 1.581]	.262	.882
	Cognitive themes	1.357	.105	[-7.959, 9.855]	.717	.882
	Relation of thoughts & feelings	-.945	-.065	[-14.582, 8.571]	.860	.882
	Record cognitions	-1.121	-.130	[-5.993, 5.653]	.675	.882
	Explore personal meaning	-.860	-.048	[-13.678, 12.957]	.882	.882
	Recognizing CEs	1.117	.143	[-7.857, 8.386]	.746	.882
	Identify underlying assumptions	1.802	.060	[-10.851, 21.285]	.797	.882
	Distancing of beliefs	1.753	.066	[-13.439, 17.066]	.751	.882
	Examine available evidence	-1.132	-.122	[-11.179, 8.052]	.723	.882
	Prospective testing of belief	4.623	.134	[-17.905, 25.793]	.669	.882
	Search for alternative explanation	.876	.078	[-7.761, 8.811]	.806	.882
	Realistic consequences	8.103	.235	[-12.551, 27.913]	.394	.882
	Adaptive value of belief	-3.173	-.144	[-14.894, 12.843]	.622	.882
	Practicing rational response	-2.579	-.343	[-10.388, 4.677]	.424	.882

*$p < .05$, **$p < .01$ Note: β significance based on bias-corrected (BCa) bootstrapping with 2000 samples.

Common factor interventions and cognitive errors. Two hierarchical multiple regressions were conducted with patients' total cognitive errors at the penultimate session as a dependent variable, and total early-session cognitive errors as a control variable. In step 1, patients' early therapy cognitive errors resulted in an R of .35, with an R^2 of .12, R^2_{adj} = .10, (p =.02, f^2 = .14), indicating that early therapy cognitive errors was predictive of late therapy cognitive errors. In step 2, after controlling for early therapy cognitive er-

rors, CF facilitating interventions together did not significantly predict patient cognitive errors, with change statistics of ΔR^2 = .04, $F(4, 37)$ = .41, p = .80. No coefficients were found to be significant (see Table 2). The second hierarchical multiple regression was conducted with the 4 CF authoritative support interventions and the same dependent variable and control variable. After controlling for early therapy cognitive errors, these variables together did not significantly predict patient cognitive errors, with change

statistics of $\Delta R^2 = .03$, $F(4, 37) = .30$, $p = .88$. No co-efficients were found to be significant.

CBT interventions and cognitive errors. The first of three hierarchical regressions was conducted between all 5 CBT structuring interventions and the same dependent variable and control variable. After controlling for early therapy cognitive errors, these variables together did not significantly predict cognitive errors, with change statistics of $\Delta R^2 = .11$, $F(5, 36) = 1.01$, $p = .43$. However, prior to alpha adjustment, reviewing homework emerged as the only unique predictor of cognitive errors, and was negatively associated with cognitive errors, $p = .03$, 95% CI [-10.262, .122]; the greater the incidence of reviewing homework, the less cognitive errors. After adjustment, this variable was no longer significant (see Table 2). For CBT behavioral interventions, a hierarchical regression was conducted between its four interventions, with the same dependent variable and control variable. After controlling for early therapy cogni-

tive errors, these variables together did not significantly predict cognitive errors, with change statistics of $\Delta R^2 = .07$, $F(4, 37) = .86$, $p = .50$. Prior to alpha adjustment, behavioral procedure emerged as a highly significant unique predictor of cognitive errors, indicating the higher the incidence of the intervention, the less cognitive errors. This variable remained significant after alpha adjustment. However, after visual inspection of the raw data, this intervention was virtually non-existent across the three time points and thus the meaningfulness of this finding cannot be justified or the finding interpreted. Results of all coefficients are presented in Table 2. For CBT cognitive interventions, a hierarchical regression was conducted between its 12 interventions with the same dependent variable and control variable. After controlling for early therapy cognitive errors, these variables together did not significantly predict cognitive errors, with change statistics of $\Delta R^2 = .26$, $F(13, 28) = .93$, $p = .54$. No coefficients were significant.

Table 2. Hierarchical Multiple Regressions Predicting Late Cognitive Errors (CEs) with Facilitating[1], Authoritative Support[2], Structuring[3], Behavioural[4], and Cognitive Interventions[5]

Regression	Predictor	B	β	95% CI	Uncorrected p	Hochberg p
1	Late therapy CEs					
	Step 1					
	Early therapy CEs	.354	.353		.030*	
	Step 2					
	Early therapy CEs	.368	.366	[.089, .691]	.021*	.105
	Empathy	-.536	-.114	[-2.191, 1.481]	.495	.973
	Involvement	-.072	-.008	[-2.356, 2.460]	.943	.973
	Warmth	-.141	-.004	[-18.662, 11.579]	.973	.973
	Rapport	-.443	-.118	[-1.420, 1.008]	.463	.973
2	Late therapy CEs					
	Step 1					
	Early therapy CEs	.354	.353		.025*	
	Step 2					
	Early therapy CEs	.377	.375	[-.035, .933]	.153	.765
	Collaboration	-.031	-.009	[-1.688, 1.131]	.969	.999
	Direct reassurance	.003	.000	[-3.485, 3.587]	.999	.999
	Responsibility outside patient	-1.885	-.149	[-6.877, 2.40]	.404	.999
	Reformulation of problem	1.205	.074	[-7.453, 6.584]	.720	.999
	Late therapy CEs					

	Step 1					
3	Early therapy CEs	.354	.353		.027*	
	Step 2					
	Early therapy CEs	.281	.280	[-.007, .590]	.064	.320
	Set agenda	.325	.055	[-1.445, 2.478]	.716	.716
	Assign homework	-2.313	-.158	[-6.502, 2.795]	.322	.716
	Review homework	-5.332	-.326	[-10.262, .122]	.032*	.192
	Scheduling activities	3.607	.270	[-1.70, 7.965]	.143	.572
	Self-monitoring	-.486	-.083	[-2.339, 1.104]	.570	.716
4	Late therapy CEs					
	Step 1					
	Early therapy CEs	.354	.353		.036*	
	Step 2					
	Early therapy CEs	.393	.391	[.006, .813]	.084	.336
	Explore new relationships	-2.072	-.243	[-4.557, 1.587]	.139	.417
	Therapeutic relationship	10.638	.083	[-2.932, 27.060]	.251	.502
	Skills training	.394	.065	[-1.154, 2.039]	.642	.642
	Behavioural Procedure	-22.151	-.173	[-32.385, − 12.732]	.004**	.020*
5	Late therapy CEs					
	Step 1					
	Early therapy CEs	.354	.353		.028*	
	Step 2					
	Early therapy CEs	.064	.064	[-.618, .715]	.830	.982
	Cognitive themes	1.653	.180	[-2.912, 7.062]	.400	.982
	Relation of thoughts & feelings	.490	.047	[-7.101, 7.950]	.866	.982
	Record cognitions	.128	.021	[-3.421, 4.649]	.939	.982
	Explore personal meaning	1.279	.101	[-5.901, 8.986]	.700	.982
	Recognizing CEs	1.044	.189	[-4.448, 4.330]	.587	.982
	Identifying underlying assumptions	.861	.040	[-9.646, 10.307]	.841	.982
	Distancing of beliefs	-1.089	-.058	[-14.146, 8.599]	.801	.982
	Examine available evidence	.039	.006	[-3.718, 7.665]	.982	.982
	Prospective testing of beliefs	-3.851	-.157	[-24.299, 6.185]	.625	.982
	Searching for alternative explanation	1.811	.228	[-2.258, 8.961]	.405	.982
	Realistic consequences	-4.634	-.189	[-19.705, 8.530]	.467	.982
	Adaptive value of belief	5.352	.342	[-3.096, 14.596]	.202	.982
	Practice rational response	-.272	-.051	[-4.648, 5.409]	.898	.982

*$p < .05$, **$p < .01$ Note: β significance based on bias-corrected (BCa) bootstrapping with 2000 samples.

Common factor interventions and coping (OCF score). Two hierarchical multiple regressions were conducted between the common factor interventions and patients' late OCF score. In step 1 of the hierarchical regression, patients' early therapy OCF score resulted in an R of .18, with an R^2 of .01 (p =.25), indicating that early therapy coping was not predictive of late therapy coping. After controlling for early therapy coping, CF facilitating interventions together did not significantly predict patient coping, with change statistics of ΔR^2 = .08, $F(4, 37)$ = .84, p = .51. No coefficients were found to be significant (see Table 3). For the second hierarchical regression, after controlling for early therapy coping, the four authoritative support interventions together did not significantly predict coping, with change statistics of ΔR^2 = .11, $F(4, 37)$ = 1.15, p = .35. No coefficients were significant.

CBT interventions and coping (OCF score). A hierarchical regression was conducted between all five CBT structuring interventions and patients' late therapy OCF score. After controlling for early therapy coping, these variables together did not significantly predict coping, with change statistics of ΔR^2 = .09, $F(5, 36)$ = .78, p = .57. No coefficients were found to be significant (see Table 3). A hierarchical regression was conducted between the four CBT behavioural interventions and patients' late therapy coping. After controlling for early therapy coping, these variables together did not significantly predict coping, with change statistics of ΔR^2 = .06, $F(4, 37)$ = .66, p = .62. No coefficients were found to be significant. For cognitive interventions, a hierarchical regression was conducted between its 12 interventions and patients' late therapy coping. After controlling for early therapy coping, these variables together significantly predicted coping, with change statistics of ΔR^2 = .50, $F(13, 28)$ = 2.28, p = .03, f^2 = 1.13. The use of cognitive interventions was found to account for a large amount of the variance in coping (R^2 = .530, R^2_{adj} =.294). However, none of the individual coefficients within this model were found to be significant. Results will be interpreted with this in mind.

Table 3 Hierarchical Multiple Regressions Predicting Late OCF Scores with Facilitating[1], Authoritative Support[2], Structuring[3], Behavioural[4], and Cognitive Interventions[5]

Regression	Predictor	B	β	95% CI	Uncorrected p	Hochberg p
1	Late therapy OCF					
	Step 1					
	Early therapy OCF	.221	.179		.227	
	Step 2					
	Early therapy OCF	.203	.164	[-.200, .582]	.304	.469
	Empathy	.016	.107	[-.048, .053]	.469	.469
	Involvement	-.054	-.187	[-.166, .068]	.359	.469
	Warmth	-.107	-.101	[-.408, .232]	.290	.469
	Rapport	.023	.196	[-.017, .066]	.260	.469
2	Late therapy OCF					
	Step 1					
	Early therapy OCF	.221	.179		.245	
	Step 2					
	Early therapy OCF	.155	.125	[-.244, .595]	.496	.919
	Collaboration	-.028	-.243	[-.067, .013]	.211	.919
	Direct reassurance	-.037	-.113	[-.200, .078]	.592	.919
	Responsibility outside patient	-.006	-.017	[-.178, .102]	.919	.919
	Reformulation of problem	-.079	-.159	[-.295, .188]	.535	.919
3	Late therapy OCF					

	Step 1					
	Early therapy OCF	.221	.179		.226	
	Step 2					
	Early therapy OCF	.270	.219	[-.116, .706]	.201	.515
	Set agenda	.027	.146	[-.036, .096]	.410	.515
	Assign homework	-.061	-.134	[-.194, .085]	.371	.515
	Review homework	.069	.136	[-.144, .231]	.464	.515
	Scheduling activities	.053	.128	[-.090, .220]	.486	.515
	Self-monitoring	.017	.093	[-.038, .069]	.515	.515
4	Late therapy OCF					
	Step 1					
	Early therapy OCF	.221	.179		.229	
	Step 2					
	Early therapy OCF	.149	.120	[-.220, .489]	.392	.392
	Explore new relationships	-.039	-.149	[-.152, .038]	.306	.392
	Therapeutic relationship	.324	.082	[.092, .664]	.081	.324
	Skills training	.032	.170	[-.029, .092]	.347	.392
	Behavioural procedure	.493	.124	[.114, .914]	.063	.315
5	Late therapy OCF					
	Step 1					
	Early therapy OCF	.221	.179		.235	
	Step 2					
	Early therapy OCF	.266	.215	[-.201, .728]	.265	.921
	Cognitive themes	-.049	-.172	[-.185, .072]	.382	.921
	Relation of thoughts & feelings	-.008	-.025	[-.233, .173]	.921	.921
	Record cognitions	.053	.279	[-.044, .137]	.197	.921
	Explore personal meaning	-.121	-.307	[-.345, .064]	.191	.921
	Recognizing CEs	.052	.303	[-.035, .187]	.335	.921
	Identifying underlying assumptions	-.067	-.101	[-.331, .240]	.603	.921
	Distancing of beliefs	.019	.033	[-.262, .355]	.855	.921
	Examine available evidence	.039	.190	[-.119, .230]	.517	.921
	Prospective testing of beliefs	-.108	-.143	[-.404, .363]	.569	.921
	Searching for alternative explanation	-.113	-.459	[-.251, .022]	.074	.921
	Realistic consequences	-.135	-.178	[-.521, .350]	.504	.921
	Adaptive value of beliefs	-.145	-.300	[-.430, .079]	.212	.921
	Practice rational response	.022	.132	[-.107, .105]	.651	.921

Note: β significance based on bias-corrected (BCa) bootstrapping with 2000 samples.

DISCUSSION

This exploratory study sought to identify which therapist techniques contributed to depression outcome and to patient cognitive errors and coping strategies. While patients demonstrated a marked improvement in depression symptoms and coping strategies following CBT, their use of cognitive errors went largely unchanged from early to late therapy, with the exception of a slight but significant increase in use of positive cognitive errors. Previous research has suggested a link between depressive symptoms and cognitive errors [58]. While positive cognitive errors were barely present in late therapy, of all of them observed, positive fortune telling was most common. Given that future-directed thinking plays an important role in depression [72], this may indicate a successful short-term "positive thinking" strategy utilized by patients to stimulate hope.

A number of unexpected results emerged within therapist interventions. For the most part, therapist common factor interventions had no impact on patients' coping strategies, cognitive errors, or outcome. However, rapport was found to negatively relate to symptoms of depression. Rapport interventions are defined as moments that reflect harmony between therapist and patient and getting along well. They not only captured therapist behaviors, but also patients' immediate responses. Examples of these interventions included exchanges where the therapist and patient were joking and laughing together, compliments were exchanged, the therapist was particularly validating (especially in a colloquial manner, e.g., "That was really shabby of them!"), the therapist shared his/her personal emotional response to a patient's problem, or the same opinion as the patient, or the therapist provided praise. Examples of comments therapists made during these back and forth exchanges included, "Geez! And they didn't even tell you! Wow;" "Well, we know how you are with confronta-

tion – you'll do anything to avoid it! [laughter];" "You look real' nice! Is that the stuff you bought for your mom?... Are those new shoes?;" "I'm glad that you're acknowledging that you deserve and need to eat and sleep and rest… I'm really glad that you did get that jacket for yourself… that's good, I like that." As an intervention reflective of the therapeutic alliance, and one that was observer – and not therapist-identified, this finding illustrates the importance of the therapeutic relationship in CBT, lending credence to the argument that rapport is one of the necessary and sufficient preconditions of therapeutic change [cf. 73] – particularly as no other CBT intervention was positively related to improvement in outcome, coping strategies, or cognitive errors. This also supports the idea that CBT therapists can reach high levels of rapport, amidst being suspect at times of neglecting the personal and emotionally supportive aspects of therapy [74]. There is evidence that better alliance precedes better outcome in CBT [75]. This finding reiterates the importance of being competent in interpersonal aspects of therapy, and teaching clinicians basic therapeutic skills that are not unique to a particular therapeutic modality. Therapists that practice with the therapeutic relationship in mind are characterized by an active, directive stance, with high levels of emotional support and encouragement [76], as was captured in the data. This can result in an experience that is integral to outcome.

Among CBT interventions, results showed that together cognitive interventions accounted for a large amount of the variance in patients' adaptive coping scores, while no individual intervention within the family was significant. This unusual finding may be explained by a combination of factors associated with the data: small sample size, large number of predictors, some influential cases, and a degree of theoretical multicollinearity[2]. While the twelve cognitive interventions defined in the CPIRS are distinct in their own right, each is more or less conceptually and

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[2]   For each analysis, results of the Variation Inflation Factor yielded values between 2 and 4, suggesting that multicollinearity was not present. Additionally, intercorrelations among predictors within the same family were generally moderate, with none exceeding $r = .7$. Cook's distance ($D > 4/n$) was applied to determine the presence of influential outliers and results revealed between 2 and 5 per analysis. Regressions were conducted with and without these cases, and generally revealed no difference to coefficient significance values. Removal of any potential outliers/influential cases was seen as unfavourable given the already small sample size. Results are presented with the complete sample.

practically related to its counterparts. It is unclear which specific interventions are at play. However, because of non-normality of the data, the bootstrapped confidence intervals and coefficients are significantly more trustworthy and worthy of interpretation. Future research could consider confirmatory analyses with far fewer cognitive predictors, controlling for related interventions to test their true effects.

Interestingly, out of the 22 CBT interventions, there was only one meaningful significant finding: scheduling and structuring activities, which was *positively* related to depression scores. While usually conducted in a collaborative way, these interventions included planning or structuring an activity with the patient and subdividing a task into smaller steps to increase the chance of completion. An example of this intervention was with a patient who struggles with mealtimes: "Well, you have to save your food. Serve it up and cover it, and reheat it in the oven later. Put some aluminum foil on it, sit down and drink some water and chat… Could you either fix something the night before, or have anything in the house that you could just take and eat?" Another example was a therapist providing suggestions to a patient who struggled with grief: "One thing that some people find helpful is to set aside some time for grieving. In other words, instead of making yourself so vulnerable to these feelings in terms of time and place and everything else, try to schedule some sort of time to devote, OK, I'm going to devote 10 or 15 minutes and you can decide the interval every night or once a week… and I'll go into my room or to my special place and I'll think about it…" This finding is somewhat in conflict with a competence study conducted by Shaw and colleagues [77] who found a positive relationship between competence on structuring techniques and outcome; however, this finding was significant only for therapist-rated depression scores, but not patients' self-report. One explanation for the current rather unintuitive finding might be that such interventions were perceived as unfavorably directive, or perhaps reflective of an activity that the patient was not interested in or willing to change. Further investigation into any patient characteristic, such as motivation to change or openness to suggestions, that may have interacted with this unexpected finding is needed. Stud-

ies have found that the relationship between certain techniques and outcome can be mediated by such characteristics [78,36].

Prior to alpha adjustment, reviewing homework was found to negatively relate to patient cognitive errors. With some exceptions, patients' homework usually involved thought records and thought diaries designed to enable patients to record, monitor, and evaluate distorted thoughts. Reviewing homework involved carefully reading and discussing patients' completed thought records. While this finding was no longer significant after adjustment, it may indicate a trend that with a larger sample size could remain significant. The use of automatic thought records is one of the most commonly used techniques in CBT [79] and this trend tentatively implies that the process of reviewing and evaluating a patient's thought records, which in this study often involved further discussion and troubleshooting challenges in the task, is a potentially important predictor of change in cognitive errors.

The common factor variable "rapport" was unique among the therapist variables studied in its reflection of the interaction between therapist and patient. While this study identified specific instances of rapport, it did not explain why rapport developed in the first place. However, if we consider any possible interactive effects between rapport and technique, it is possible that patients' perceptions of therapist competence and use of certain technique may have facilitated their rapport [80]. Studies have shown, for example, that the therapist's confidence in their skills and conveying credibility to patients is crucial to keeping patients and building their trust that therapy can help [31], overcoming alliance ruptures [28], and engaging patients in their therapy [81] – all ingredients of the working alliance. Indeed, patient outcome is affected by variables other than the quality of the treatment provided, and if nothing else, the results of this study underscore the complexity of therapy and its bi-directional nature.

LIMITATIONS

This study provides a preliminary profile of the types of interventions that occur in CBT; howev-

er, further investigation is warranted to corroborate and expand upon the results that emerged. The general lack of significant findings among CBT interventions should be interpreted with some considerations in mind. First, Duncan, Miller, and Sparks [82] claim that after partialling out the influence of common factors, patient variables, and therapist variables, approximately 10-20% of the effect attributable to the specific therapy is left; detecting this effect is highly vulnerable to a study's power. Second, therapist technique was investigated in isolation, without consideration of therapist-patient interaction. Its measure reflected observations of the presence of interventions, rather than the quality, timing, and context of how interventions were delivered. Like any form of communication, therapy is a responsive interaction between two people, with each constantly eliciting complementary or compensatory adjustments to one another [83]. It is possible that important patient variables that were not captured in this investigation, such as attitude about therapy, belief about causes of depression, and expectancy of treatment outcome [see 26], interacted with technique in a manner that masked its influence.

While the present study's sample size and use of three time points is ample relative to other studies in psychotherapy process research [see 57,34 as examples], a larger sample size would likely have resulted in more robust findings. While sessions that represented early, middle, and late time points were carefully selected to better capture the process of therapy, it is possible that the use of a greater number of sessions may better represent what occurred throughout the course of therapy. The exploratory nature of this study called for the analysis of many variables, which limited the statistical power and increased the likelihood of incurring Type I error. The power to detect a true effect was of particular concern in light of the number of variables, as well as the study's sample size. Thus, efforts were made to use a limited number of well-chosen variables for each analysis, especially in the selection of those used in regression, as recommended by Tabachnik and Fidell [65]. It is possible that future outcome research that compares processes of very good versus poor outcome, with a larger sample and additional variables, could better examine the complex interaction of technique, and other therapist and patient variables that contribute to improvement.

CONCLUSION

Despite intensive study on process and outcome in cognitive behavioral therapy, there is surprisingly little research on the value of specific CBT techniques. While we concede that it is difficult to tease apart treatment-specific effects from common factors, the present study endeavored to isolate a variety of therapist interventions and did manage to identify a large number of CBT-specific and common factor interventions using reliable and valid measures of therapist and patient variables. Conclusions pertaining to the merit of CBT techniques based on the study's results must be made with caution and consideration of their measurement. These results suggest that the mere presence and amount of specific CBT techniques do not seem to have a bearing on patient improvement. They provide a good descriptive base of specific therapist techniques, which informed on the common and specific "active" ingredients in change. It is hoped that these findings may pique the interest of future researchers interested in further investigating these techniques in a manner that captures the dynamic nature of therapy.

Despite the study's low power, rapport was the only influential technique on outcome, which suggests at first glance that this common factor, at least, does seem to bear greater magnitude on outcome than any CBT technique assessed in this study on its own. If this intervention as measured in this study is taken to be a reflection of the alliance, it provides a more concrete conceptualization of the specific therapist behaviors that contribute to it, which is largely understudied in psychotherapy research [74]. As such, it partly responds to calls for exposing what the alliance *looks like* in real sessions [e.g., from 28,29]. The clinical implications of the findings may include underscoring the importance of building a strong rapport with patients in training programs: the therapeutic relationship makes people feel better. The use of therapy recordings given by supervisors or role models could be invaluable tools in identifying specific therapist characteristics that may bolster a stronger rapport: small

talk, informal exchanges, and validation, active listening, and support. Therapists are advised to be mindful of the signs of increasing or worsening rapport, as this seems to have widespread implications for the patient, practitioner, and health care delivery at large. As for specific CBT techniques, this study found no evidence for the value of technique. However, due to the size of the study and the manner in which technique was studied, results are only suggestive. Future studies with greater power and careful attention to the interaction of patient-therapist variables may better detect the successful techniques at play.

REFERENCES

1. DeRubeis RJ, Webb CA, Tang TZ, Beck AT. Cognitive therapy. In K. S. Dobson (Ed.), Handbook of cognitive-behavioral therapies (3rd ed.). New York: Guilford; 2010.

2. Hundt NE, Mignogna J, Underhill C, Cully JA. The relationship between use of CBT skills and depression treatment outcome: A theoretical and methodological review of the literature. Behavior therapy. 2013, 1;44(1):12-26.

3. Patel V, Araya R, Chatterjee S, Chisholm D, Cohen A, De Silva M, Hosman C, McGuire H, Rojas G, van Ommeren M. Treatment and prevention of mental disorders in low-income and middle-income countries. The Lancet. 2007, 15;370(9591):991-1005.

4. Bell AC, D'Zurilla TJ. Problem-solving therapy for depression: a meta-analysis. Clinical Psychology Review. 2009, 1;29(4):348-53.

5. Cuijpers P, Van Straten A, Warmerdam L. Behavioral activation treatments of depression: A meta-analysis. Clinical psychology review. 2007a, 1;27(3):318-26.

6. L. Problem solving therapies for depression: A meta-analysis. European Psychiatry. 2007b Jan 1;22(1):9-15.

7. Mazzucchelli T, Kane R, Rees C. Behavioral activation treatments for depression in adults: a meta‐analysis and review. Clinical Psychology: Science and Practice. 2009, 1;16(4):383-411.

8. Kawaharada M, Yoshioka E, Saijo Y, Fukui T, Ueno T, Kishi R. The effects of a stress inoculation training program for civil servants in Japan: a pilot study of a non-randomized controlled trial. Industrial Health. 2009;47(2):173-82.

9. Coombs MM, Coleman D, Jones EE. Working with feelings: The importance of emotion in both cognitive-behavioral and interpersonal therapy in the NIMH Treatment of Depression Collaborative Research Program. Psychotherapy: Theory, Research, Practice, Training. 2002;39(3):233.

10. Whisman MA. Mediators and moderators of change in cognitive therapy of depression. Psychological Bulletin. 1993 Sep;114(2):248.

11. Hayes AM, Castonguay LG, Goldfried MR. Effectiveness of targeting the vulnerability factors of depression in cognitive therapy. Journal of Consulting and Clinical Psychology. 1996 Jun;64(3):623.

12. Kazantzis N, Deane FP, Ronan KR. Homework assignments in Cognitive and Behavioral Therapy: A meta‐analysis. Clinical Psychology: Science and Practice. 2000 Jun 1;7(2):189-202.

13. Sacco WP, Beck AT. Cognitive theory and therapy. 1995; In E. Edward Beckham and William R. Leber (Eds.), Handbook of Depression: Treatment, Assessment and Research (2nd ed.). New York: Guilford Press.

14. Clark, D. A., Beck, A. T., & Alford, B. A. (1999). Scientific foundations of cognitive theory and therapy of depression. New York: John Wiley & Sons Canada, Ltd.

15. Sato Y. Individualistic and collectivistic cognitions on depressive and nondepressive Chinese and Caucasian college students. 2004; Dissertation Abstracts International: Section B: The Sciences and Engineering, 64(12-B), 2004, pp. 6340.

16. Kramer U, Bodenmann G, Drapeau M. Cognitive errors assessed by observer ratings in bipolar affective disorder: relationship with symptoms and therapeutic alliance. The Cognitive Behaviour Therapist. 2009 Jun;2(2):92-105.

17. Keshi AK, Basavarajappa P, Nik MM. Effectiveness of cognitive behavior therapy on depression among high school students. Journal of Basic and Applied Scientific Research. 2013;3(2):147-58.

18. Coleman D. Psychodynamic and cognitive mechanisms of change in adult therapy: A pilot study. Bulletin of the Menninger Clinic. 2005 Jun 1;69(3):206.

19. Kolko DJ, Brent DA, Baugher M, Bridge J, Birmaher B. Cognitive and family therapies for adolescent depression: Treatment specificity, mediation, and moderation. Journal of consulting and clinical psychology. 2000 Aug;68(4):603.

20. Kwon SM, Oei TP. Cognitive change processes in a group cognitive behavior therapy of depression. Journal of Behavior Therapy and Experimental Psychiatry. 2003 Mar 1;34(1):73-85.

21. Perry JC, Drapeau M, Dunkley D. The Coping Pattern Rating Scale manual. 2005; Montreal, QC: McGill University. Unpublished manual.

22. Jensen MP, Turner JA, Romano JM. Changes after multidisciplinary pain treatment in patient pain beliefs and coping are associated with concurrent changes in patient functioning. Pain. 2007 Sep 1;131(1-2):38-47.

23. Kozier B. Fundamentals of nursing: concepts, process and practice. Pearson Education; 2008.

24. Rafnsson FD, Jonsson FH, Windle M. Coping strategies, stressful life events, problem behaviors, and depressed affect. Anxiety, Stress, and Coping. 2006, 1;19(3):241-57.

25. Goldfried MR. What should we expect from psychotherapy? Clinical Psychology Review. 2013, 1;33(7):862-9.

26. Lambert MJ, Barley DE. Research summary on the therapeutic relationship and psychotherapy outcome. Psychotherapy: Theory, research, practice, training. 2001;38(4):357.

27. Ahn HN, Wampold BE. Where oh where are the specific ingredients? A meta-analysis of component studies in counseling and psychotherapy. Journal of Counseling Psychology. 2001 Jul;48(3):251.

28. Safran JD, Muran JC. Negotiating the Therapeutic Alliance: a relational treatment guide. Guilford Press; 2000.

29. Sexton TL, Ridley CR, Kleiner AJ. Beyond common factors: Multilevel-process models of therapeutic change in marriage and family therapy. Journal of Marital and Family Therapy. 2004 Apr 1;30(2):131-49.

30. Goldfried MR, Davila J. The role of relationship and technique in therapeutic change. Psychotherapy: theory, research, practice, training. 2005;42(4):421.

31. Hill CE. Therapist techniques, client involvement, and the therapeutic relationship: Inextricably intertwined in the therapy process. Psychotherapy: Theory, Research, Practice, Training. 2005;42(4):431.

32. Castonguay LG, Goldfried MR, Wiser S, Raue PJ, Hayes AM. Predicting the effect of cognitive therapy for depression: A study of unique and common factors. Journal of consulting and clinical psychology. 1996 Jun;64(3):497.

33. Blow AJ, Sprenkle DH, Davis SD. Is who delivers the treatment more important than the treatment itself? The role of the therapist in common factors. Journal of marital and family therapy. 2007, 1;33(3):298-317.

34. Hilsenroth MJ, Defife JA, Blagys MD, Ackerman SJ. Effects of training in short-term psychodynamic psychotherapy: Changes in graduate clinician technique. Psychotherapy Research. 2006, 1;16(03):293-305.

35. Fairburn CG, Cooper Z. Therapist competence, therapy quality, and therapist training. Behaviour Research and Therapy. 2011, 1;49(6-7):373-8.

36. Ogrodniczuk JS, Piper WE, Joyce AS, McCallum M. Different perspectives of the therapeutic alliance and therapist technique in 2 forms of dynamically oriented psychotherapy. The Canadian Journal of Psychiatry. 2000, 45(5):452-8.

37. Rakovshik SG, McManus F. Establishing evidence-based training in cognitive behavioral therapy: A review of current empirical findings and theoretical guidance. Clinical Psychology Review. 2010; 30(5):496-516.

38. Strunk DR, Brotman MA, DeRubeis RJ, Hollon SD. Therapist competence in cognitive therapy for depression: predicting subsequent symptom change. Journal of consulting and clinical psychology. 2010, 78(3):429.

39. Young JE, Beck AT. Cognitive Therapy Scale (unpublished manuscript). Philadelphia, PA: University of Pennsylvania. 1988.

40. Trepka C, Rees A, Shapiro DA, Hardy GE, Barkham M. Therapist competence and outcome of cognitive therapy for depression. Cognitive Therapy and Research. 2004, 1;28(2):143-57.

41. Jacobson NS, Dobson KS, Truax PA, Addis ME, Koerner K, Gollan JK, Gortner E, Prince SE. A component analysis of cognitive-behavioral treatment for depression. Journal of consulting and clinical psychology. 1996, 64(2): 295.

42. Jacobson NS, Dobson KS, Truax PA, Addis, ME, Koerner K, Gollan JK, et al. A component analysis of cognitive-behavioral treatment for depression. Prevention and Treatment. 2000 3:295–304.

43. Spitzer RL, First MB, Gibbon M, Williams JB. Structured Clinical Interview for DSM-III-R: Patient Edition (SCID-P). New York State Psychiatric Institute; 1987.

44. Beck AT, Rush AJ, Shaw BF, Emery G. Cognitive Therapy of Depression. New York: The Guilford Press; 1979.

45. Krupnick JL, Sotsky SM, Simmens S, Moyer J, Elkin I, Watkins J, Pilkonis PA. The role of the therapeutic alliance in psychotherapy and pharmacotherapy outcome: findings in the National Institute of Mental Health Treatment of Depression Collaborative Research Program. Journal of consulting and clinical psychology. 1996 Jun;64(3):532.

46. Flückiger C, Del Re AC, Wampold BE, Symonds D, Horvath AO. How central is the alliance in psychotherapy? A multilevel longitudinal meta-analysis. Journal of counseling psychology. 2012; 59(1):10.

47. Von Der Lippe AL, Monsen JT, Ronnestad MH, Eilertsen DE. Treatment failure in psychotherapy: The pull of hostility. Psychotherapy Research. 2008 Jul 1;18(4):420-32. Available from: doi: 10.1080/10503300701810793

48. Leichsenring F, Rabung S, Leibing E. The Efficacy of Short-term Psychodynamic Psychotherapy in SpecificPsychiatric Disorders: A Meta-analysis. Archives of general psychiatry. 2004, 1;61(12):1208-16.

49. Hollon SD, Evans MD, Auerbach A, DeRubeis RJ, Elkin I, Lowery A, Kriss M, Grove W, Tuason VB, Piasecki J. Development of a system for rating therapies for depression: Differentiating cognitive therapy, interpersonal psychotherapy, and clinical management pharmacotherapy. Unpublished manuscript. 1988.

50. Young J, Beck AT. Cognitive therapy rating scale manual. Unpublished manuscript, University of Pennsylvania. 1980.

51. Trijsburg RW, Frederiks GC, Gorlee M, Klouwer E, Hollander AD, Duivenvoorden HJ. Development of the comprehensive psychotherapeutic interventions rating scale (CPIRS). Psychotherapy Research. 2002 Sep 1;12(3):287-317. Available from: doi: 10.1093/ptr/12.3.287.

52. Frank JD. Therapeutic components shared by all psychotherapies. In Cognition and psychotherapy 1985 (pp. 49-79). Springer, Boston, MA.

53. Trijsburg RW, Lietaer G, Colijn S, Abrahamse RM, Joosten S, Duivenvoorden HJ. Construct validity of the comprehen-

sive psychotherapeutic interventions rating scale. Psychotherapy Research. 2004 Sep 1;14(3):346-66.

54. Drapeau M, Perry JC, Dunkley D. The Cognitive Errors Rating System manual (3ʳᵈ ed.). Montreal, QC: McGill University. Unpublished manual; 2008.

55. Beck AT. Cognitive Therapy and the Emotional Disorders. New York: International 1. Universities Press; 1976.

56. Kramer U, Drapeau M. Étude de validation de la version française des échelles de codage du coping et des erreurs cognitives (CE-CAP) sur une population non clinique. In Annales Medico-psychologiques, revue psychiatrique 2011 Sep 1 (Vol. 169, No. 8, pp. 523-527). Elsevier Masson.

57. Blake E, Dobson KS, Sheptycki AR, Drapeau M. Changes in cognitive errors over the course of cognitive therapy for depression. Journal of Cognitive Psychotherapy. 2016 Feb 1;30(1):16-34.

58. Pothier B, Dobson KS, Drapeau M. Investigating the relationship between depression severity and cognitive rigidity through the use of cognitive errors. Archives of Psychiatry and Psychotherapy. 2012 Jun 1;2:35-40.

59. Skinner EA, Edge K, Altman J, Sherwood H. Searching for the structure of coping: a review and critique of category systems for classifying ways of coping. Psychological bulletin. 2003; 129(2):216.

60. Drapeau M, Perry JC, Blake E, D'Iuso, D. The validity and reliability of the CE-CAP methods. Canadian Psychological Association Annual Convention, Ottawa, June; 2007.

61. Kramer U, Drapeau M. The cognitive errors and coping patterns of child molesters as assessed by external observers: A pilot study. The Open Criminology Journal. 2009;2:24-8.

62. Kramer U. The Role of Coping Change in Borderline Personality Disorder: A Process‐Outcome Analysis on Dialectical Behaviour Skills Training. Clinical psychology & psychotherapy. 2017, 1;24(2):302-311.

63. Yin P, Fan X. Assessing the reliability of Beck Depression Inventory scores: Reliability generalization across studies. Educational and Psychological Measurement. 2000; 60(2):201-23.

64. Edwards BC, Lambert MJ, Moran PW, McCully T, Smith KC, Ellingson AG. A meta‐analytic comparison of the Beck Depression Inventory and the Hamilton Rating Scale for Depression as measures of treatment outcome. British Journal of Clinical Psychology. 1984; 1;23(2):93-9.

65. Tabachnick BG, Fidell LS. Using multivariate statistics. Allyn & Bacon/Pearson Education; 2007.

66. Dalecki M, Willits FK. Examining change using regression analysis: Three approaches compared. Sociological Spectrum. 1991; 11(2):127-45.

67. Vasilopoulos T, Morey TE, Dhatariya K, Rice MJ. Limitations of significance testing in clinical research: a review of multiple comparison corrections and effect size calculations with correlated measures. Anesthesia & Analgesia. 2016; 122(3):825-30.

68. Brandt J. INS presidential address: Neuropsychological crimes and misdemeanors. The Clinical; 2005, 21(4):553-68.

69. Gelman A, Hill J, Yajima M. Why we (usually) don't have to worry about multiple comparisons. Journal of Research on Educational Effectiveness. 2012, 1;5(2):189-211.

70. Hochberg Y. A sharper Bonferroni procedure for multiple tests of significance. Biometrika. 1988 Dec 1;75(4):800-802.

71. Mooney CZ, Duval RD, Duvall R. Bootstrapping: A nonparametric approach to statistical inference. Sage; 1993 Aug 9.

72. Kagan LJ, MacLeod AK, Pote HL. Accessibility of causal explanations for future positive and negative events in adolescents with anxiety and depression. Clinical Psychology & Psychotherapy. 2004; 11(3):177-86.

73. Berg C, Raminani S, Greer J, Harwood M, Safren S. Participants' perspectives on cognitive–behavioral therapy for adherence and depression in HIV. Psychotherapy Research. 2008; 18(3):271-80.

74. Critchfield KL, Henry WP, Castonguay LG, Borkovec TD. Interpersonal process and outcome in variants of cognitive–behavioral psychotherapy. Journal of clinical psychology. 2007; 63(1):31-51.

75. Linden M. Therapist–patient alliance, patient–therapist alliance, mutual therapeutic alliance, therapist–patient concordance, and outcome of CBT in GAD.

76. Keijsers GP, Schaap CP, Hoogduin CA. The impact of interpersonal patient and therapist behavior on outcome in cognitive-behavior therapy: A review of empirical studies. Behavior Modification. 2000; 24(2):264-97.

77. Shaw BF, Elkin I, Yamaguchi J, Olmsted M, Vallis TM, Dobson KS, Lowery A, Sotsky SM, Watkins JT, Imber SD. Therapist competence ratings in relation to clinical outcome in cognitive therapy of depression. Journal of Consulting and Clinical Psychology. 1999; 67(6):837.

78. Connolly M, Crits-Christoph P, Shappell S, Barber J, Luborsky L, Shaffer C. Relation of transference interpretations to outcome in the early sessions of brief supportive-expressive psychotherapy. Psychotherapy Research. 1999; 9(4):485-95.

79. Bennett-Levy J. Mechanisms of change in cognitive therapy: The case of automatic thought records and behavioural experiments. Behavioural and Cognitive Psychotherapy. 2003;31(3):261-77.

80. Bedi RP, Davis MD, Williams M. Critical Incidents in the Formation of the Therapeutic Alliance from the Client's Perspective. Psychotherapy: Theory, Research, Practice, Training. 2005;42(3):311.

81. Tryon GS. Engagement in counseling; 2002. In G. S. Tryon (Eds.), Counseling based on process research: Applying what we know (pp. 1-26). Boston: Allyn & Bacon.

82. Duncan BL, Miller SD, Sparks JA. The heroic client: A revolutionary way to improve effectiveness through client-directed, outcome-informed therapy. John Wiley & Sons; 2011 Mar 10.

83. Stiles WB. Responsiveness as an obstacle for psychotherapy outcome research: It's worse than you think. Clinical Psychology: Science and Practice. 2009;16(1):86-91.