

THERE'S NO 'I' IN GCBT: IDENTIFYING PREDICTORS OF GROUP-LEVEL OUTCOME  
IN TRANSDIAGNOSTIC GROUP COGNITIVE BEHAVIORAL THERAPY FOR ANXIETY

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A Thesis

Presented to

The Faculty of the Department

Of Psychology

University of Houston

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In Partial Fulfillment

Of the Requirements for the Degree of

Master of Arts

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By

Daniel J. Paulus

December, 2014

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## ABSTRACT

Anxiety disorders represent a prevalent and impairing class of disorders. While individual and group cognitive-behavioral interventions have been efficacious in treating anxiety, this research typically looks at individuals or study condition as the unit(s) of analysis. Thus, an understudied area in group therapy is in the investigation of outcome with therapy group as the unit of analysis. Using data from 43 transdiagnostic CBT groups representing a heterogeneous composition of anxiety disorders, this study analyzed data at the level of therapy group to investigate predictors of group-level change associated with this treatment. Results demonstrated that gender heterogeneity and group cohesion positively predict group outcome while racial/ethnic heterogeneity negatively predicts outcome. However, results suggest that negative effects of racial/ethnic heterogeneity were limited to only the most diverse groups, which may need to integrate more multicultural perspectives in order to better integrate the different cultural identities. Results and implications are discussed in terms of CBT group composition and the implementation of culturally sensitive strategies into evidence-based treatments.

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There's No 'I' in GCBT: Identifying Predictors of Group-Level Outcome in  
Transdiagnostic Group Cognitive Behavioral Therapy for Anxiety

**Chapter 1**

**Introduction**

**Research Question**

Cognitive-behavioral therapy (CBT) is currently viewed as the gold standard treatment for anxiety, with meta-analytic data (Deacon and Abramowitz, 2004; Olatunji, Cisler and Deacon, 2010; Norton & Price, 2007) supporting that notion. Group cognitive-behavioral therapy (GCBT) is an attractive treatment option for anxiety, with many potential benefits (Whitfield, 2010), though there is a considerably smaller body of research conducted on GCBT relative to individual CBT. Transdiagnostic GCBT (T-GCBT; Norton, 2006, 2012a) extends the benefits of GCBT and allows individuals with any anxiety disorder to be treated in a group under the assumption of a common pathology and function (e.g., Barlow, 2004; Craske, 1999) despite differences in observable form and formal diagnostic category. In a given therapy group, there are similarities among members, contributing to a tendency for more similar outcomes among the individuals in a group (Moerbeek & Wong, 2008) compared to those in individual therapy. While strategies exist to control and parcel out common variance and statistical dependence associated with members of the same therapy group (e.g., Baldwin, Murry & Shadish, 2005), there are no studies to date that attempt to analyze group therapy at the level of group. If individuals in a group are more likely to have similar outcomes, it is of interest to identify factors that affect the group as a whole.

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Organizational research (Castaño, Watts & Tekleab, 2013) has shown that group cohesion is related to group-level performance in a number of settings (e.g., sports, business). Analogous to that approach, the current study will attempt to identify predictors of group-level outcome in the therapy setting. Theorized predictors include: group size, participant age variance, therapist experience, attendance and drop-out rates, therapeutic alliance and group cohesion as well as group heterogeneity based on diagnosis, gender and racial/ethnic identification.

## Chapter 2

### Review of Previous Literature

#### *Cognitive-Behavioral Therapy for Anxiety Disorders*

Anxiety disorders represent a highly prevalent class of psychological disorders (Kessler et al., 2005) with extensive economic costs estimated at \$42.3 Billion annually in the United States (Greenberg et al., 1999) making them the most costly class of psychological disorders (Rice & Miller, 1998). These disorders are associated with intense suffering, higher rates of unemployment (Leon, Portera, & Weissman, 1995) and impaired quality of life (Barrera & Norton, 2009; Olatunji, Cisler & Tolin 2007). Moreover, symptoms of anxiety have been linked to increased risk for suicidal ideation, over and above depressive symptoms (Norton, Temple & Pettit, 2008). Having an anxiety disorder has also been implicated as a risk factor for the onset of both suicidal ideation and suicide attempts and to increase those risks in individuals with comorbid mood disorders (Sareen et al., 2005).

Great progress has been made in the treatment of anxiety disorders, with many studies indicating the efficacy of cognitive and behavioral interventions. Deacon and Abramowitz (2004) conducted a literature review identifying meta-analyses of psychotherapy for the individual anxiety disorder diagnoses, concluding that cognitive and behavioral approaches appear to be the psychological treatments of choice for the various anxiety diagnoses. Olatunji, Cisler and Deacon (2010) followed up on that review with a more recent meta-analyses including additional evidence supporting common-held notion that combined cognitive-behavioral therapies (CBT) are the *gold standard* treatments for anxiety. Norton and Price

(2007) noted that much of the meta-analytic data to date was specific to each anxiety disorder diagnosis, as was the case in the reviews conducted by Deacon and Abramowitz (2004) and Olatunji and colleagues (2010), thus disallowing comparison across anxiety diagnoses. Therefore, they performed a meta-analysis including *any* anxiety diagnosis (excluding specific phobia due to ambiguity in terminology use throughout the literature), identifying 108 randomized clinical trials of CBT for an anxiety disorder, and found significantly larger treatment effect sizes for CBT as compared to no treatment or placebo, providing further evidence for the efficacy of CBT in treating anxiety.

### ***Group Cognitive-Behavioral Therapy for Anxiety Disorders***

In particular, group format CBT (GCBT) has been efficacious in treating specific anxiety disorders with a growing body of evidence supporting GCBT for Social Anxiety Disorder (SoAD; Heimberg et al., 1990), Generalized Anxiety Disorder (GAD; Dugas et al., 2003), Panic Disorder with or without Agoraphobia (PDA; Telch et al., 1993), Obsessive-Compulsive Disorder (OCD; Anderson & Rees, 2007), and Post-Traumatic Stress Disorder (PTSD; Barrera, Mott, Hofstein & Teng, 2013). Additionally, much of the literature indicates comparable efficacy for individual CBT (ICBT) and GCBT in treating SoAD (Scholing & Emmelkamp, 1993; Taylor, 1996; Gould, Buckminster, Pollack, Otto & Yap, 1997), GAD (Covin, Ouimet, Seeds & Dozois, 2008; Gould, Otto, Pollack & Yap, 1997), PDA (Néron, Lacroix & Chaput, 1995; Telch et al., 1993;), and OCD (Fals-Stewart, Marks & Schafer, 1993). At present, no studies have been published with direct comparison of ICBT versus GCBT for PTSD (Barrera et al., 2013). Encouragingly, it seems that group-format



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psychotherapies in general are not differentially effective relative to their individualized counterparts. GCBT has been described as an extension of ICBT and may potentially lack certain group properties present in other forms of group therapy (for review see Burlingame, MacKenzie & Strauss, 2004; Fuhriman & Burlingame, 1994). GCBT, though, has gained favor primarily due to the ability to apply CBT principles to multiple patients simultaneously, with group processes not necessarily serving as the focal point of treatment or considered the active therapy ingredients (e.g., Bieling, McCabe & Antony, 2013). However, as will be discussed later in more detail, this does not dismiss the presence, or impact, of these group processes. Indeed, as Shafran and colleagues (2009) discuss, even when the active ingredients of change are due to the therapeutic mechanisms, the non-specifics are still important.

GCBT was originally conceived as a modification of existing ICBT into a group format (e.g., Burlingame et al., 2004) with the goal of capitalizing on practical advantages. Certainly, beyond being empirically supported, group treatments in general have useful benefits relative to their individual formatted counterparts. For example, group therapy can maximize resources (Erickson, 2003) such as therapist time, allowing them to make contact with more patients in need over a shorter period of time. Instead of individual one-hour appointments with each patient, groups can be run with a number of individuals in one time block. Due to this, group therapy can also reduce the waiting period for patients in areas where access to skilled clinicians is limited due to the aforementioned efficiency of therapist time. With group treatments, patient no-shows become less of a scheduling interference

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for clinicians; while there is a high dropout in group therapy (e.g., Heimberg, Salzman, Holt & Blendell, 1993) and all patients may not show up to each session, it is unlikely that all patients would miss the same session. Therefore, group therapy can run as planned without the need for individual rescheduling. In sum, GCBT allows for more people to be helped, and in a more efficient way. As noted by Erickson (2003) the similar effect sizes obtained from ICBT and GCBT studies of anxiety disorders seem to offer GCBT an edge due to the more efficient use of resources described.

The reduced strain on therapists and other health care resources is important not only to offset the economic costs of treatment but because it can also allow treatment to be offered at a lower cost. For example, in studying PDA, Otto, Pollack and Maki (2000) found that the median cost of GCBT for one person over the course of a year was less than half the cost of individual CBT and less than  $\frac{1}{4}$  that of pharmacotherapy (including clinic visits). Similarly, for SoAD, GCBT was deemed to be the most cost-effective intervention (Gould, Buckminster et al., 1997). Given that cost of psychological treatment has been cited as a barrier to seeking psychological treatment for anxiety disorders (e.g., Olfson et al., 2000), it is important to be cognizant of ways to reduce financial burden on patients, without limiting providers' ability to be reasonably compensated for services. In addition to the obvious benefit of assuaging distress sooner, reducing barriers to psychological treatment can further ease the financial strain on the healthcare system as individuals with untreated anxiety tend to frequently overuse primary care services (Katon et al, 1990; Manning & Wells, 1992) and have higher general health care

costs (Simon, Ormel, VonKorff & Barlow, 1995). Indeed, Greenberg and colleagues (1999) estimate that \$23 billion are spent on unnecessary medical costs associated with people with anxiety. Taken together, it seems one way to more efficiently utilize resources for anxiety disorder treatment is to provide timely psychological treatments so that individuals suffering from anxiety can get the targeted care they need, which then may have the effect of reducing additional costs from other types of providers.

Group treatments, though, are not without their challenges. One downfall of group therapy involves the logistics of scheduling and filling groups (e.g., Piper, 2008). Even in high volume specialized settings (e.g., anxiety-specific clinics), depending on patient intake patterns, it may take weeks or months before finding enough patients with the same anxiety diagnosis interested in group therapy during the same day at the same time. Due to this, patients would have to remain on waitlists until a group was large enough to be run, or settle for a smaller group, abating much of the benefit of group treatment. Meanwhile, patients may grow frustrated and discontinue treatment initiation. Evidence from the substance use literature suggests that the waiting period before treatment is one of the most common barriers to treatment (Appel, Ellison, Jansky & Oldak, 2004; Farabee, Leukefeld & Hayes, 1998), with longer waits linked to decreased treatment follow-through (Festinger, Lamb, Kountz, Kirby & Marlowe, 1995; Hser, Maglione, Polinsky & Anglin, 1998). It is reasonable to expect wait-time function as a similar obstacle for anxiety patients, particularly when many individuals have already experienced

lengthy delays prior to seeking treatment in the first place (Thompson, Issakidis & Hunt, 2008).

An additional problem is that it may not be feasible to run concurrent diagnosis-specific groups for each type of anxiety, depending on resources, which could further contribute to waitlist backlog. For example, one would need a therapist (or co-therapists) trained in the treatment of each specific diagnosis, therapy space suitable to run multiple groups, and clinic resources to track and monitor concurrent waitlists and schedules for each group. Start date for each group may then need to be delayed, adding to back-log before a particular group starts, which, as stated earlier could potentially be a deterrent to therapy. While group therapies have been shown to be efficacious and, when logistics are organized can be an efficient method for delivery of treatment, there is considerable effort that goes into setting up a therapy group and this effort is compounded when multiple types of groups need to be run. It is clearly a challenge to balance efficient delivery of group therapy while at the same time not creating new roadblocks to care.

### ***Transdiagnostic Group Cognitive-Behavioral Therapy for Anxiety Disorders***

One potential way to mitigate the challenges associated with diagnosis-specific groups is through a transdiagnostic conceptualization of anxiety. Transdiagnostic theories of anxiety emphasize the overlap common across anxiety diagnostic categories, and implicate a single core pathology (Barlow, 2004; Craske, 1999) rather than the specific observable form (i.e. DSM criteria) of each anxiety diagnosis. In this way, pathological anxiety is regarded as *one disorder* with multiple manifestations rather than as separate anxiety disorders. In support of this theory,

many have commented on how the similarities of the components (cognitive, behavioral, and physiological responding) and treatment (psychoeducation, cognitive restructuring and exposure; Barlow & Lehman, 1996) of the different anxiety disorder diagnoses may outweigh the apparent differences between them (Barlow, Allen & Choate, 2004; Norton, 2006), with said differences theorized to be in content rather than function (Norton & Hope, 2005).

Transdiagnostic therapies also provide a new treatment option for anxiety disorders that do not neatly map onto established DSM categories, such as Anxiety Disorder Not Otherwise Specified (ADNOS) as well as patients with multiple comorbid anxiety disorders (Norton et al., 2013). Given that there is a paucity of research on the treatment of ADNOS (McManus, Shafran & Cooper, 2010) a transdiagnostic approach emphasizing the underlying core anxiety rather than the specific manifestation may be more appropriate. Prevalence rates of ADNOS vary considerably, but with estimates of 8% (Keller, 2002) and even 67% (McLaughlin, Geissler & Wan, 2003) in samples of anxiety disorder patients, it appears that ADNOS is not an uncommon occurrence in the realm of anxiety.

Anxiety disorders are also complicated by their high comorbidity rates (Brown, Campbell, Lehman, Grisham & Mancill, 2001; Kessler et al., 2005), with diagnostic comorbidity having been described as the rule not the exception (Nemeroff, 2002). With transdiagnostic treatments, diagnostic comorbidity can be better handled, treating a patient's underlying anxiety disorder together rather than each cluster of symptoms sequentially (e.g., undergoing PDA treatment, then a SoAD

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treatment, etc.) as evidence-based treatments tend to be focused on one single diagnosis (McManus et al., 2010).

Transdiagnostic treatments have shown promise in reducing anxiety (McEvoy, Nathan & Norton, 2009; Norton & Philipp, 2008; Reinholt & Krogh, 2014). In light of the evidence in support of transdiagnostic treatment and aforementioned benefits of GCBT, a transdiagnostic group CBT (T-GCBT; Norton, 2006, 2012a) has been developed. With this, the benefits of GCBT can be retained allowing groups to be filled and run quicker due to increased flexibility (i.e. any anxiety disorder can be run in the same group). T-GCBT, then, circumvents some of the logistic challenges, such as needing to run different groups for each anxiety disorders or waiting for enough patients with the same disorder to come in for treatment.

T-GCBT has demonstrated efficacy (Norton, 2008) with randomized clinical trials indicating non-inferiority of T-GCBT compared to relaxation training (Norton, 2012b) and diagnosis-specific GCBT (Norton & Barrera, 2012). Moreover, evidence suggests that T-GCBT may be better than diagnosis-specific GCBT at remedying comorbid diagnoses (Norton et al., 2013). There is also evidence for reduction of depressive symptoms over the course of T-GCBT treatment (Norton, Hayes & Hope, 2004) despite depressive symptoms not being overtly addressed. Thus, T-GCBT appears to be an accommodating treatment package with the ability to impact a range of primary and comorbid affective disorders, whether or not they are directly targeted.

Notably, it appears that diagnostic composition of the groups does not impact individuals' outcome (Chamberlain & Norton, 2013). Practically speaking,

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this supports the justification of filling groups with any anxiety diagnosis, without regard to specific composition and allowing maximum flexibility in clinical use. This also helps to alleviate concerns about composing a group of heterogeneous individuals. Such concerns may be justified particularly because, traditionally, group CBT aims to gather individuals based on similarities such common diagnoses and experiences (Whitfield, 2010).

While T-GCBT may *appear* to be assembling groups based on differences due to the inclusion of (nominally) different disorders it is actually not so different from other group therapies in this regard. Group members' similarities are emphasized at a broad level and anxiety difficulties are framed as "fears or anxieties of..." whether the anxiety is related to public speaking, uncontrollable thoughts, spiders, etc. Discussion of traditional diagnostic labels is avoided while the common core pathology of fear and anxiety (e.g., Barlow, 2004; Craske, 1999) is underscored. As such, it is made clear that despite the observable differences in the phenotypic expression of anxiety, each person in the group is experiencing a rather similar problem with anxiety, albeit in unique personally relevant ways. In this manner, the group is brought together among the common theme of fear and anxiety in the same way a group for SoAD might be brought together despite a wide array of social fears (e.g., public speaking, dating, being assertive).

In light of the promising results with T-GCBT, it will be important to see how the treatment fares in future effectiveness trials. The T-GCBT model has the potential to streamline evidence-based anxiety disorder treatment dissemination due to its flexibility and simplicity (e.g., Norton & Hope, 2005). Addis, Wade, and

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Hatgis (1999) cite training expenses and time burden as potential barriers to the dissemination of empirically supported treatments. And, as noted by Norton and Hope (2005) these are pertinent issues with regard to anxiety disorders as clinicians may need to purchase six or more separate empirically supported treatment packages, one for each separate anxiety diagnosis, with atypical presentations like ADNOS left in treatment limbo. Such costs (and the associated trainings) are unrealistic, leading to calls for more accessible treatment manuals (Hollon et al., 2002).

With approaches like T-GCBT, one manual can provide the basis for the treatment of these disorders, making it more likely that clinicians will actually utilize the treatment. Further, given that HMOs are moving towards more coverage of time-limited group therapy and decreasing use of individual treatments (e.g., Taylor et al., 2001), T-GCBT could be a better fit within the evolving health care system in the United States. Given the high prevalence of anxiety disorders overall (Kessler et al., 2005) and in primary care settings (Vermani, Marcus & Katzman, 2011), it is crucial to find efficient, time-limited, evidence-based, and practical treatment options that patients will have access to and that clinicians will realistically use; transdiagnostic options have emerged with a bright future in this regard. It is essential to note that while T-GCBT aims to provide a single treatment package that is applicable to as many people as possible, it is *not* intended to be a one-size-fits-all solution. Rather, like any manualized therapy, it describes common techniques and practices, which must then be tailored to each person.



***Group Processes: Group as Vehicle of Delivery or as Vehicle of Change***

As alluded to earlier, when working with group-based therapy, there are unique therapeutic dynamics at play (Yalom, 1995) such as interpersonal interactions among group members and group climate (Burlingame et al., 2004). Traditionally, these therapeutic properties are thought of within dynamic, process-based groups, which focus on the "here-and-now" of therapy, the "in betweenness" or space between the therapist and patients (Yalom, 2011). Yalom (2011) further describes a process-based therapy as a microcosm of a patient's social interactions, such that interpersonal issues manifest in the here-and-now of the therapeutic context. The therapist can then see, first hand, the problems occurring in the patients' lives based on their interactions with the therapist and intervene given this direct experience interacting with the patient. On the other hand, structured groups, such as GCBT, focus more on specific strategies and organization (Burlingame et al., 2004) apportioning less attention to in-the-moment reactions or of eliciting the subtleties of patients' issues within the therapeutic relationship.

While GCBT may have been developed in such a way as to more efficiently deliver ICBT techniques, with the group theorized more as an efficient vehicle of therapeutic delivery rather than a specific vehicle of change, per se, group therapy cannot be conceptually reduced to concurrent individual therapy. As Fuhrman and Burlingame (1994) mention, groups provide opportunities for interpersonal learning and are not venues where individuals are sequentially treated while others wait. This is also a key component in the rationale of many structured groups, including T-GCBT. By bringing people together in a group who have heterogeneous

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presentations of anxiety and *appear* to have vastly different afflictions due to the observable differences associated with different manifestations of anxiety, group members can learn more about anxiety and even gain insight into how their own anxiety is perceived from someone else's perspective. Again, keeping in mind that these differences are more in the topography of the anxiety symptoms and specific situational impairments, rather than the function(s) of the anxiety.

Heimberg and colleagues (1993) remark how the GCBT setting is more effective for anxiety as compared to ICBT because, among other things, anxiety patients are more adept at identifying cognitive factors like thinking errors in others than they are in doing so for themselves. The group setting helps shift the focus of attention from self to group (Bieling et al., 2013). One possible explanation for this shift could be due to the self-focused negative attention bias that has been linked to anxiety and other negative affectivity disorders (e.g., Mor & Winquist, 2002). When monitoring the self, self-focused bias towards negative features may interfere with more rational thinking and identifying alternative interpretations, whereas the bias is not present in the evaluation of others, allowing for a more impartial interpretation. Correspondingly, group members are encouraged to help one another, for example, during cognitive restructuring patients assist in pointing out rigidity and bias in thinking patterns. This also ensures that the group members are more engaged and active throughout, not idly waiting for their "turn".

In T-GCBT, the group serves as a team of anxiety experts (e.g., Heimberg et al., 1993) where each functions akin to a pseudo-therapist, bringing a unique perspective that can be used to help one another, with therapists serving as

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facilitators of the therapeutic and group processes. Certainly, a common goal in CBT is to work collaboratively with patients and to slowly hand the reins of control over from the therapist to the patient. This is done in many ways such as when designing in-session and homework exposure situations and their difficulty as well as an overall emphasis on "being your own cognitive therapist" mindset (e.g., Hope, Heimberg & Turk, 2010) which can prepare patients for life after therapy where they will have to choose whether or not to implement the CBT skills that they have learned in therapy.

Group members can also be a great source of feedback and praise (Piper, 2008; Bieling et al., 2013), which are particularly useful in exposure-based GCBT (like T-GCBT) where patients are practicing new skills while approaching fearful stimuli. Furthermore, the group setting may help reduce the perceived stigma, embarrassment or shame common in anxiety (Alonso et al., 2008) as patients can see others suffering from similar problems (e.g., Piper, 2008), helping to normalize their experience (Whitfield, 2010).

By engaging in any group therapy, layers are added to the usual interactions that occur in dyadic therapy (Burlingame, Fuhriman & Johnson, 2001). Factors that involve one therapist and one patient in dyadic therapy are still present in group therapy, while other unique factors are added in group therapy. Burlingame and colleagues (2001) succinctly summarize this notion saying, "In group psychotherapy, the context is a system of many individuals and relationships, instead of a single relationship between two individuals as in individual therapy." For example, while the therapeutic alliance between a clinician and patient is an

important variable factoring into outcome (Priebe & McCabe, 2006), shifting from the individual to group format, even with essentially the same protocol, may lead to more complexity of alliance. Instead of one therapist's alliance with one patient, the therapist(s) must monitor her/his relationship with *each* patient, among other things.

One example of an added layer that the therapist has to be conscious of within group settings is group cohesion. Cohesion has been defined in a number of ways across multiple disciplines of study (Bruhn, 2009). Some definitions of group cohesion include: attachment to and intense emotional ties with the group leader and members (Freud, 1921), interdependence of group members (Lewin, 1943), the cement binding group members together and maintaining their relationships (Festinger, 1950), and commitment to the group (Piper, Marrache, Lacroix, Richardsen & Jones, 1983). Yalom (1995) as well as Burlingame and colleagues (2001) contend that for group therapy, cohesion *is* the therapeutic relationship/alliance, including all the different alliances inherent in group therapy such as: patient-to-patient, patient-to-therapist, patient-to-group, therapist-to-therapist, therapist-to-patient(s) and therapist-to-total group.

It seems that irrespective of the specific therapeutic content, new levels of interpersonal interaction invariably come into play when using a group-based intervention, relative to an individualized one. While a valid distinction may be made over the *degree* of impact or focus of these group process variables in process-based versus structured groups (e.g., Burlingame et al., 2004), it is undeniable that they are important features present in all group therapies, partly because group

dynamics are present in *all types* of groups (Bieling et al., 2013), regardless of whether they are therapeutic or not. This is evidenced by the myriad theories of collective behavior, such as contagion theory (Le Bon, 1896), which postulates that crowds assume a life of their own. All things considered, merely being in a group setting transforms the nature of human interaction.

Additionally, group cohesion has been suggested as a general therapeutic factor (Budman et al., 1989; Ogrodniczuk, & Piper, 2003) present in most, if not all, therapies regardless of theoretical orientation or style. Furthermore, Glass and Arnkoff (2000) showed that GCBT patients value group process variables as important therapy factors. It behooves therapists and researchers to be mindful of these auxiliary factors, even when they are not the direct targets of the intervention or of direct theoretical concern. Above all else, though, whether focusing on process variables or not, the ultimate focus should be on patient outcome.

### ***Measuring Outcome in Group Therapy***

Traditionally, outcome in therapy is measured at the individual level, regardless of whether treatment was delivered in an individual or group format. Indeed, this is often the basis of how the efficacy of a given therapy is determined: the amount of patients in one condition that improves as compared to that of another condition. This is, of course, a logical and necessary approach to take given that, ultimately, the desire is to learn how treatments affect individuals and to get estimates of treatment impact, what proportion of individuals respond to treatments.

While it may be of interest to know the overall proportion of individuals who respond to treatment regardless of the method of treatment delivery, statistically, it can be problematic to ignore the treatment modality (Baldwin, Murray & Shadish, 2005). This is particularly germane when comparing outcome of individual therapy to group therapy, where one would want to factor out the effect of being in a particular group through such methods as multilevel modeling (e.g., Moerbeek & Wong, 2008) so that individuals could properly be compared across the different treatment conditions. It is important to account for the effect of being in a therapy group because interactions among members in group therapy can create statistical dependencies among the individuals (Herzog et al., 2002) due to common factors affecting the group members concurrently.

These dependencies are sometimes referred to as clustering effects (Moerbeek & Wong, 2008) where patients within the same therapy group are expected to have more similar outcomes than patients in different therapy groups. Due to the non-independence of data from patients in a given group, Baldwin and colleagues, (2005) advise that sample sizes and degrees of freedom for analyses should be based on the number of groups, rather than the number of individuals in the study, and that individuals should be nested into groups for analysis to account for the common variance among the individuals in a group.

While nesting participants into groups is one method to account for dependencies among group members, ultimately it still evaluates individuals' outcomes to an intervention. Given the body of work implicating process factors for therapy groups cited earlier as well as expectations of clustering effects, one area of

research that, until now, has been neglected in the literature is the analysis of group-level outcome. Curiously, there are no current metrics or even rules of thumb to determine the relative success of particular group in group therapy research. However, it is important to make inferences at the group level, as that is the level of intervention of group therapy. While individuals are still being treated and interventions are tailored to each person as best they can be in group therapy (Whitfield, 2010), most therapeutic techniques affect the entire group contemporaneously. As such, the treatment effects should be examined at the same level of the intervention, *in addition* to the individual level. Investigating the multiple levels of analysis, may better aid the goal of more completely understanding treatment effects in group therapy.

While common factors affect all members of a given group synchronously, these factors presumably have a varying degree of impact from group to group due to the distinctiveness of each group. Every group will have different members, therapists, group composition, feelings of cohesion, etc. Each group as a unit is as unique as each individual patient that walks through the door seeking treatment. If features are affecting the group members simultaneously it is important to identify them and evaluate their effect across therapy groups and look at the outcome for group members *as a unique set*. By doing this, it is possible to evaluate not only individuals' success to therapy, but also whether the group was successful as a whole. Because higher order common factors are at play, it is reasonable to assume that they play a role in the individuals' success and should be accounted for directly, instead of being parceled out so that individuals can be compared.

Group therapy cannot be carved at the joints into individual pieces. It has been said that the group as a whole is greater than the sum of its individual members (McDougall, 1920); therefore it is crucial to examine *group* as the level of analysis in addition to the traditional method of studying individuals and factoring out common-group effects. With this method of statistical analysis, research can evaluate what sorts of factors lead particular groups to be relatively more or less successful. For example, factors that have been studied at the individual level of analysis might have important implications for group composition (see theoretically relevant factors, below). Additionally, future work on more structured groups, such as T-GCBT may benefit from more overt emphasis and consideration of the same common factors and process variables already at play in addition to the theoretically specific therapeutic ingredients.

Identifying factors of more effective groups should yield benefits at the individual level, as group-level success should trickle down to the individuals comprising the groups. After all, if a group as a whole is more successful, that should mean that more individuals that make up the group are having success. Lastly, by identifying and finding ways to enhance certain common factors, it is possible that future work can improve outcome in group therapies. As the current literature so far has shown little evidence of differential effectiveness between ICBT and GCBT (e.g., Erickson, 2003), it is currently unknown what distribution of treatment successes is. For example, it is possible that many of the successful patients came from relatively more successful groups, whereas other groups may have been less



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effective. Alternatively, group may have little effect, with successes more or less randomly distributed among different groups.

With that in mind, if research can identify ways to make more successful groups, there may be more individual cases of success overall at the individual level. Currently, it is also unknown what the response rates of group therapy are in a typical or average group. Moreover, there are no established criteria for how to define a "successful" group, for example with calculations of reliable/clinically significant change (e.g., Hageman & Arrindell, 1999; Jacobson & Truax, 1991) as there are for individuals. Again, part of this is because data are often reported at an aggregate level, typically looking at response rates of individuals as a proportion of experimental conditions *not* specifically at the level of the specific therapy groups. Examining the data with a new perspective, such as with group as the level of analysis, could help provide new insight to this area of research.

### ***Theoretically Relevant Factors***

Group size, therapeutic alliance, diagnostic and cultural homogeneity have been suggested as variables of interest in group therapy research (Baldwin et al., 2005). Group size could potentially be a factor for many reasons. First, T-GCBT is a time-limited therapy. There are 12 sessions each lasting two hours, which is the case whether the group consists of four patients or eight. It is possible, then, to simply have more time for each individual (be it one-on-one discussion, homework review, or number of exposures) when the group is smaller. In non-therapy settings, smaller groups have been shown to have higher cohesion than larger ones (Carron & Spink, 1995). However, too small of a group may not provide the environment

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needed to yield effective group processes, such as social support (Yalom, 1995) and may limit the benefits of efficiency (i.e. more patients per therapist hour) that help to make T-GCBT so valuable.

Similarly, if a group gets too big there could be less perceived focus on one's personal struggles, even less perceived group cohesion due to possible loss of intimacy. It has also been said that with groups that are too large, the setting may become too didactic (Whitfield, 2010), possibly downplaying helpful group interactions. Groups that are too large may also leave individuals less likely to speak up and participate, thus reducing their engagement in the therapy potentially leading to less treatment gain or even increased likelihood of dropout altogether.

Therapy dropouts and attendance patterns are key factors to consider. Overall, GCBT has a higher dropout rate than ICBT (Heimberg et al., 1993) making it of practical interest both as a predictor outcome and as observable variable of interest for future research. While groups may be of a given size to start, there is great variability within group therapy. Individuals may drop out of therapy at any given point without notice or attend sporadically. It will be important to evaluate the effects of attendance and dropout rate as it relates to the group as a whole.

Therapeutic alliance is a noteworthy non-specific process variable to consider. However, when looking at group level factors, group cohesion may be more of a relevant factor given that it incorporates the different relationships inherent in groups rather than a specific relationship of patient/therapist (e.g., Burlingame et al., 2001). Group cohesion is a fundamental group variable, showing relationships to participation, group acceptance, self-disclosure, and dropout

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(Yalom, 1995). Norton, Hayes and Springer (2008) showed that higher ratings of alliance and group cohesion were related to better outcomes for individuals at the end of treatment and that increases in ratings of cohesion over the course of therapy were related to better outcome. Consequently, they will be relevant factors to consider at the group level.

Diagnostic heterogeneity is particularly germane to T-GCBT, given that each group may have a unique composition. While diagnostic heterogeneity has been shown to have no effect on outcome on individuals (Chamberlain & Norton, 2013) aggregated across therapy groups, it remains to be seen if this effect holds up when using group as the unit of analysis.

Heterogeneity based on patient racial/ethnic identification is also an important factor to consider as it may help to tap into the diversity factor of the group. While a review by Horrell (2008) shows that CBT appears to be an effective treatment for racial/ethnic minorities, there is little agreement about how to best provide CBT to people from diverse backgrounds (Pantalone, Iwamasa & Martell, 2009). One reason for this may be the underrepresentation of racial/ethnic minorities in treatment research studies (e.g., Alvidrez, Azocar, & Miranda, 1996). However, given that demographics in the United States have rapidly changed over the past few decades and are expected to continue to change with a greater percentage of the population being of racial/ethnic minority status within the next few decades (U.S Census, 2011) it will be important to continue to study CBT outcome in minority samples and to investigate the role of racial/ethnic

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composition in group therapy, particularly with group as the unit of analysis to see the specific impact of various racial compositions on outcome.

Additionally, within CBT, Hofmann (2006) notes how people from different ethnic backgrounds may think and reason in different ways. For example, he notes how Westerners are more prone to discount contradictory evidence while those from Eastern cultures are more likely to resolve contradiction and find compromise. This may be problematic during such exercises as cognitive restructuring, where certain techniques are used to find information that disproves negative automatic thoughts or listing evidence for and against a given outcome or explanation. If patients reason in this compromising way, these strategies may not actually be as helpful in overcoming automatic thoughts. Hofmann (2006) suggests that CBT may need to be altered for certain cultural groups to account for these differences in reasoning.

Likewise, given evidence that there are gender differences in the prevalence (Wang et al., 2005) and experience of symptomatology (McLean & Hope, 2010) of anxiety it will be important to look for effects of patient gender heterogeneity at the group level. Further, it is unknown if there is any effect of gender composition imbalance on outcome and, if so, whether it is dependent on which gender is in the majority. All three heterogeneity variables (diagnostic, racial/ethnic and gender) are also of importance given suggestions that increasing *homogeneity* in CBT groups may increase cohesion (Bieling et al., 2013).

And, since therapist characteristics can play a role in outcome (e.g., Crits-Christoph et al., 1991), it will be important to investigate therapist experience,

examining general therapy experience as well as specific experience with the particular group therapy being employed. Therapist experience is an important factor in treatment outcome research, especially since many studies are conducted at a training facilities consisting primarily of graduate student therapists.

Group member age composition is also an interesting factor to consider. As anxiety disorders can onset throughout the lifespan (Kessler et al., 2005) the age at which someone actually seeks treatment can be quite variable. At the group level, it will be important to see if groups who are more spread out in age have differential outcome relative to ones that are more clustered. Once again, since groups are often brought together on similarities (e.g., Burlingame et al., 2004), it is important to investigate potential outcome differences based on group age and/or age composition. A group with members more spread out with regards to age may not relate as well to one another or form a cohesive bond. Furthermore, as noted by Piper, Ogrodniczuk, Joyce, Weideman and Rosie, (2007) there is potential for group members to feel isolated or be rejected by other members if there are differences on some characteristic deemed important by the group. This provides more justification to investigate diagnostic, gender, racial/ethnic and age composition at the group level, as these may be meaningful features for the group as a whole.

These variables could give insight into any potential future considerations of group composition. Currently, T-GCBT has been conducted on a first-come first-serve basis, with no restrictions placed on group composition, provided the individuals are appropriate for group treatment. Any differential efficacy as a result of one or more of these variables could indicate need to more carefully compose

groups, which could diminish the flexibility of T-GCBT as it has been currently modeled. Other variables (e.g., therapist-related) can give insight into common factors that affect the group members concurrently and lead to potentially disparate outcomes between groups. Any differences noticed in these variables could indicate need to more overtly focus on process variables in training or even specifically mention in T-GCBT protocol.

***Cohesion and Outcome: Examples from Interdisciplinary Work***

Though there may be potential benefit of evaluating group therapy using data from each *group* as an observation, there is no research utilizing this methodology in group therapy, to date. However, recent work in organizational research provides a precedent for such an approach. Though not in a therapeutic setting, a meta-analysis (Castaño, Watts & Tekleab, 2013) examined the relationship of group cohesion and task performance at the group level. They identified and examined a number of different types of groups including those in business settings, educational/school groups, sports teams, military units and laboratory-setting groups. Overall, they found that cohesion was positively related to performance. This was the case whether the cohesion was more task oriented, socially oriented, or a general cohesion measure, though they concluded that the more general cohesion measures had a lower effect size implicating the use of relatively more specific measures of cohesion when possible. Conceptualizing therapy outcome as form of performance, there is a clear parallel to the current research question.

Interestingly, this meta-analysis also included as potential moderators, measurement level (individuals' ratings aggregated to group-level vs. unitary group

ratings made by consensus or an observer) and group setting type (business, sports, military, etc.) Differentiating effects based on group settings is critical for interpretation of the findings because each of these settings will differ based on how groups are composed (randomly, performance-based, self-selection, etc.) As such, members may have differing abilities and motivations that contribute to outcome/performance as well as different motivations and desires to even be a part of a group. In a therapy setting, at least for anxiety, individuals choose to be there and have a vested interest in success of the group, insofar as it relates to improvement of their distress. Of note, Castaño and colleagues (2013) made no mention of measuring group performance/outcome in the context of a therapy.

Given the application of findings to these other group settings, examining therapy groups is a logical extension of this work and would provide a novel addition to this area of research. Interestingly, group cohesion was identified as a key antecedent (Festinger, 1950) for many performance-based studies (for review, see Castaño et al., 2013) again paralleling therapy research where cohesion has been implicated as an important group process variable (Burlingame et al., 2001; Yalom, 1995).

Due to the level-of-analysis issue, there are multiple ways to measure the constructs of interest. Data can be collected from individuals in the group and aggregated (by averaging, for example) to form a group data point. Alternatively, someone external (e.g., supervisors, therapists, observers) can rate the group as a whole, avoiding the need to aggregate. The Castaño et al. (2013) results revealed no

significant moderation of the cohesion-performance relationship based on such a measurement method.

### **Summary and Hypotheses**

The study investigated factors related to group level outcome after a 12-week therapy protocol using data from individuals, aggregated to the group level for analysis. Support for aggregating individuals' ratings to the group-level is provided by the results of Castaño et al. (2013), which demonstrated no effects of measurement-level. It was hypothesized that therapeutic alliance would be positively related to group-level outcome. Likewise, group cohesion was expected to positively predict outcome, given that cohesion is conceptualized as a more general measure of group alliance (Burlingame et al., 2001; Yalom, 1995). Group size was expected to have a non-significant effect on outcome, given the limited range in patients typically enrolled in GCBT.

Higher attendance and lower dropout rates, both aggregated to the group level were expected to relate to better outcomes. Average starting severity of the patients' primary diagnosis was expected to be related to worse outcome for clinically significant change, but not reliable change, consistent with evidence from research on SoAD that shows that more severe anxiety responds well to treatment (i.e. improvement) but that individuals remain more impaired at treatment termination (Hope, Herbert & White, 1995). Diagnostic heterogeneity and therapist experience (both in terms of the number of previous T-GCBT groups, and overall years of experience) were predicted to not have non-significant effects on outcome, consistent with work conducted at the individual level (Chamberlain & Norton,



2013; Norton, Little & Wetterneck, 2014). Possible relationships with gender and racial/ethnic heterogeneity as well as participant age variance were explored, as these factors could affect the feelings of being similar and homogenous (e.g., Baldwin et al., 2005; Whitfield, 2010). Age variance was expected to be negatively related to outcome, with groups having a larger age spread performing less positively and being less cohesive.

## **Chapter 3**

### **Methodology**

#### **Participants**

This study examined archival data collected from numerous open and randomized controlled trials (e.g., Norton, 2008, 2012b; Norton & Barrera, 2012) from the University of Houston's Anxiety Disorder Clinic between 2004-2013. All participants were enrolled in a 12-week T-GCBT program using Norton's (2012a) protocol. Data from 43 T-GCBT groups, a total of 221 individuals was used for the current set of analyses.

Demographic information was collected using categories from the introductory section of the Anxiety Disorder Interview Schedule for DSM-IV (ADIS-IV; Brown, DiNardo & Barlow, 1994). The sample was 58.4% White/Caucasian, 20.4% Hispanic/Latino, 9% African American, 6.3% Asian American, 0.5% Native American and 5.4% "Other/Mixed". The sample was relatively well balanced with regards to gender with 50.7% women and 49.3% men with a mean age of 33.4 (SD=10.7 years). The primary diagnoses were as follows: 46.6% SoAD, 23.1% PDA, 17.2% GAD, 5% OCD, 4.1% ADNOS, 3.2% Specific Phobia, 0.5% PTSD and 0.5% Adjustment Anxiety. These racial/ethnic, gender, and primary diagnosis categories were used for calculation of heterogeneity (see below; Blau, 1977).

#### **Measures**

**Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV).** The ADIS-IV is a semi-structured clinician-administered diagnostic interview that assesses the presence and severity of anxiety and related disorders including mood and

substance use disorders. Inter-rater reliability ranged from 0.67-0.86, with the exception of dysthymia, for which there was a kappa coefficient of 0.22 (Brown, DiNardo, Lehman & Campbell, 2001). The ADIS-IV was used to determine primary diagnosis and severity for each patient prior to enrollment into T-GCBT. Severity on the ADIS-IV is indicated on a 0-8 CSR (clinician severity rating) scale for each diagnosis with of 4 or higher indicating clinically significant interference and distress.

**Working Alliance Inventory-Short Form, Patient Version (WAI).** The short form of the WAI (Tracey & Kokotovic, 1989) was administered at the end of odd-numbered sessions (1, 3, 5, 7, 9 and 11). There are 12 total items (e.g., “\_\_\_ and I trust each other”), assessing three areas of the therapeutic alliance (tasks, goals, and therapeutic bond). Each item is a statement that is rated on a scale from 1 (never) to 7 (always). Two items are reverse-scored and then all items are summed to a total score. Internal consistencies of the short form WAI have been reported to be between 0.84 and 0.94 (Dunkle & Friedlander, 1996). Validity of the scale is supported by findings that the WAI is predictive of patient outcome (for discussion, see Dunkle & Friedlander, 1996). For a given session, WAI scores were aggregated for the group by averaging scores of individuals.

**Gross Cohesiveness Scale (GCS).** The GCS (Stokes, 1983) is a 9-item self-report scale. Items are rated on various likert scales from 0-8 and summed across the 9-items for a total score. A sample item “how well do you like the group you are in” has anchors of 0 (dislike very much), 4 (not like or dislike), and 8, (like very much). The GCS was administered at the end of even-numbered sessions (2, 4, 6, 8,

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10, and 12). The GCS has shown acceptable reliability and validity and has been used as a measure of group cohesion in GCBT studies (e.g., Heimberg et al. 1998) and T-GCBT studies (e.g., Norton et al., 2008). As with the WAI, GCS scores were aggregated to the group-level.

**State-Trait Anxiety Inventory, Form Y (STAI).** The STAI (Spielberger, Gorsuch, Lushene, Vagg & Jacobs, 1983) is a self-report measure with two versions, state (STAI-S) and trait (STAI-T). While trait anxiety is more commonly used for measures of stable anxiety, the state version was used for the current study since it would be measured on a weekly basis over 12-weeks, allowing for more variation to be observed over the course of therapy. Additionally, those with elevated state anxiety are presumed to have more intense and frequent elevations in state anxiety (Spielberger & Sydeman, 1994). There are 20 items reflecting how participants might be feeling "right now" on a 4-point likert scale with the following anchors: not at all, somewhat, moderately, and very much. Ten items are positively worded (e.g., "I feel calm") and are reverse scored. Form Y is an updated version of the initial Form X, which had items more closely related to depression and/or weaker psychometric properties (Antony, Orsillo & Roemer, 2002). The STAI has relatively good reliability (0.86-0.95; Spielberger et al., 1983). Elevated STAI scores have been observed in testing situations (Lazarus & Opton, 1966). The STAI-S was administered before each session.

The STAI-S was chosen as the outcome variable for this study for two reasons. First, because it was collected weekly, more data was available and outcome analysis was not limited only to those who attended a post-treatment

assessment; data could be modeled for all patients who began treatment. Therefore, the STAI-S maximized the number of participants available for analysis. This was critical for the particular research design, given the need to represent as many of the group members as possible in order to best capture the group as a whole.

Second, the STAI-S is able to assess anxiety more generally (Antony et al., 2002). As noted by Norton and Robinson (2010), it can be difficult to assess outcome of anxiety across diagnoses given that self-report questionnaires are typically developed with a specific target diagnosis or do not operate commensurately within different diagnostic groups. Given that this study is using a transdiagnostic sample with patients from eight different primary diagnosis categories and a number of comorbid diagnoses, the STAI-S served as a measure of anxiety that cut across diagnostic labels. Additionally, the STAI-S has been shown to correlate highly with measures of depression as well as anxiety (e.g., Savard, Laberge, Gauthier, Ivers & Bergeron, 1998). Therefore, the STAI-S may be tapping into underlying negative affectivity, which is hypothesized to be highly related to the single core pathology (e.g., Barlow, 2004; Craske, 1999) upon which transdiagnostic approaches such as T-GCBT are built.

## **Procedures**

Patients were assessed by graduate students trained to administer the ADIS-IV at the University of Houston Anxiety Disorder Clinic. Individuals with a primary anxiety disorder diagnosis were enrolled into the 12-week program. No restrictions were placed on comorbid diagnoses, provided the patient was still deemed

appropriate for group therapy. Select measures were also collected weekly, before (STAI-S) and after (WAI, GCS) session.

### **Data Preparation**

Data was aggregated from the individual to the group level for the purposes of this study with each therapy group considered one observation, as group was the unit of analysis. For group size, rather than use size at the start of therapy, a variable for "true group" size was used. This was defined as the number of individuals who were enrolled and attended at least three of the first six sessions. The rationale was to use the size of the group that attended and performed as a group and contributed to the therapeutic process, cohesion, etc. Given that the dependent variables of interest were proportion of group making reliable and/or clinically significant change, it was necessary to use a group size that related to the number of *active* (i.e. attending) group members as closely as possible so as not to unnecessarily reduce that proportion due to the high dropout rate typical in group therapy (e.g., Heimberg et al., 1993). Further, interest was in the proportion of these individuals, (those who attended a sufficient number of sessions) who made change, not the proportion of treatment *initiators*. By ruling out individuals who only attended one or two sessions, it was possible to target groups consisting of people more actively engaged in the treatment.

GCS and WAI were aggregated to the group level by averaging ratings for the group for a given session. Importantly, Norton and colleagues (2008) demonstrated that there is variability around the intercept and slope of GCS in a transdiagnostic sample, indicating that cohesion ratings are not fixed indicators. Despite ratings of

cohesion being generally high, there is variation over time to be considered when using the GCS. In light of this, GCS from session 6 (half-way through treatment) and WAI from session 7 were chosen as predictors in the current study, as there would be adequate time for these process variables to develop by these time points.

Dropout rate was calculated as the proportion of the group that discontinued treatment based on the number of patients originally enrolled (i.e. attended at least one session) in the group. For all other predictors, only patients included in the "true group" size were used for calculation. Attendance rate was defined as the proportion of attendances possible. For example, if the "true group" size consisted of six individuals, there would be a total of 72 possible attendances over the course of the 12-session protocol and the attendance rate would be calculated based on the number of individual attendances divided by 72 possible attendances. Average severity was calculated as the mean CSR score from the ADIS-IV for primary diagnoses of patients in a given group. The variance ( $s^2$ ) of the ages of the members of each group was calculated as an estimate of age spread among the members.

For diagnostic, racial/ethnic, and gender heterogeneity, respectively, data from the members of each group were used to calculate three separate h-values (heterogeneity; Blau, 1977)<sup>1</sup> based on the number of individuals in each category, for example, men and women for gender heterogeneity. Therapist experience was calculated in terms of number of years as a therapist as well as the number of previous T-GCBT groups run previously, both calculated at the time at which the

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<sup>1</sup> Heterogeneity ( $h$ ) =  $(1 - \sum p_i^2)$

$p$  = proportion of group members in a category and  
 $i$  = the number of different categories for a given variable

particular group started. Importantly, if the same therapist(s) ran multiple groups, which occurred frequently, the experience values were updated to represent experience at the time at which the group began. For example, if a therapist was running his/her first group, the number of prior groups would be 0, and for his/her second group run, the number of prior groups would be 1, etc. Both therapist experience variables combined experience of the two co-therapists that facilitated each T-GCBT group into a single value for each group (i.e. one value for years of experience and one value for total number of previous T-GCBT groups run).

The outcome variable (STAI-S) was used to compute two dependent variables: reliable change index (RCI) and clinically significant change (CSC; Hageman & Arrindell, 1999; Jacobson & Truax, 1991) for each group. RCI determines statistical reliability of change and indicates whether or not observed change is greater than would be expected due to random error. RCI, then, can determine whether or not a patient has improved on a measure. CSC elaborates upon the RCI and determines whether or not the improvement qualifies for clinically significant change (i.e. recovery). To be classified as recovered, a patient's post-treatment score must satisfy the RCI criterion and lie beyond a particular cutoff score. The present study used cutoff type c as the criteria, which is considered the "least arbitrary" (Jacobson & Truax, 1991). It requires and takes into account norm distributions of "functional" and "dysfunctional" populations, indicating the point at which a given score falls closer to the functional mean than the dysfunctional mean. Antony and colleagues (2002) reported norm data for the STAI-S, which was used for calculation in this study.



Modifications to Jacobson and Truax's (1991) RCI and CSC were carried out according to recommendations made by Hageman and Arrindell (1999) to account for the measurement error in the use of cutoff points. Hageman and Arrindell contend that the original RCI and CSC are "unreliable" and that the CSC in particular is "too optimistic" with regards to classifying patients as recovered. The modified RCI and CSC factor in a "safety margin" and take into misclassification risk. Further, they correctly classify patients with at least 95% certainty (Hageman & Arrindell, 1999).

Additionally, because the STAI-S was administered before each session, the problem of missing post-treatment data could better be dealt with, as data could be substituted from the last available data point. As such, the first and last available STAI-S score for each patient were used. For example, if a person did not attend the last two sessions, his/her STAI-S from session 10 would be used as the "post-treatment" score in calculation of RCI and CSC, as that was the last data point available.

RCI and CSC were first calculated as an aggregate for the entire sample, *all participants* together, regardless of group. This determined whether or not each individual made met criteria for RCI (improvement) and, if so, if s/he also achieved CSC (recovery). Then, for each group, two variables were calculated for each group: the proportion of the "true group" size that made RCI and CSC, respectively. The RCI and CSC proportion variables were subjected to multiple regression analyses with the above variables entered as predictors.

## Chapter 4

### Results

#### Correlations amongst Predictors

As can be seen in Table 1, there were significant correlations among several of the planned predictors. Significantly correlated predictors were not entered into the regression models. There was a significant correlation between WAI and GCS [ $r(41)=0.48, p=0.001$ ]. Given that the current study involves the investigation of *groups* and therapeutic alliance has been described as conceptually subsumed within cohesion in group therapy (e.g., Yalom, 1995), the WAI was dropped in favor of GCS. Dropout [ $r(41)=-0.46, p=0.002$ ] and attendance [ $r(41)=0.52, p<0.001$ ] rates were significantly correlated with GCS, and with one another [ $r(41)=0.83, p<0.001$ ]. Due to a priori interest in cohesion, GCS was a preferred predictor. As a result, dropout and attendance rates were not entered into the models. Dropout rate was not significantly correlated with either RCI [ $r(41)=-0.10, p=0.516$ ] or CSC [ $r(41)=-0.02, p=0.923$ ]. Attendance rate, though, was significantly correlated with RCI [ $r(41)=0.30, p=0.048$ ] but not with CSC [ $r(41)=0.11, p=0.497$ ]. Not surprisingly, the two variables for therapist experience (total years as a therapist and number of prior T-GCBT groups run) were significantly correlated [ $r(41)=0.52, p<0.001$ ]. Number of prior T-GCBT groups was chosen due to the more direct link to the study, given that the measure specifically has to do with transdiagnostic group experience. While number of years as a therapist is certainly an important factor, experience directly related to the treatment at hand was of more direct theoretical interest in this study.

After removing WAI, dropout rate, attendance rate, and years of experience as a therapist, eight predictors ("true group" size, diagnostic heterogeneity, gender heterogeneity, racial/ethnic heterogeneity, age variance, average starting severity, prior T-GCBT groups run by the co-therapists, and group cohesion) remained. These eight variables were entered into multiple regression models with backwards deletion using SPSS v.21. Backwards deletion was chosen as the method due to the exploratory nature of this study. With eight potential predictors, the goal was to identify the best possible model for the data, as opposed to incremental contribution by many variables. Therefore, the objective was to initially identify as many possible predictors as possible and then to statistically narrow them down to the most robust ones.

### **Descriptive Statistics**

"True group" size ranged from four to eight with an average of five patients per group. The starting severity (CSR) for groups ranged from 4.67 to 6.80 with an average group severity of 5.64. As a reference point, a CSR of a 6 is considered severe. Group age average ranged from 23.75 to 44.25 years. There was a wide range of age variance ( $s^2$ ) between groups, from 6.92 (SD=2.63) to 335.59 (SD=18.32) with a mean age variance of 115.39 (SD=10.74). The average number of prior T-GCBT groups run (combined between two co-therapists) was 4.58 (SD=2.67) with a range of 0 to 11 total prior T-GCBT groups. The average group GCS rating, as measured at the end of session 6 (half-way through treatment), was 58.51 (SD=6.48) with a range of 44.0 to 69.0.

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Diagnostic Heterogeneity ranged from 0.0 to 0.78 with an average value of 0.53 (SD=0.18), which is fairly heterogeneous. The heterogeneity calculation factors in both the number of categories being represented, in this case diagnoses, as well as the number of individuals represented by each category. A heterogeneity value of 0.0 indicates a completely homogenous group (i.e. all members sharing the same diagnosis) and a value of 0.5 indicates a group with two diagnoses represented, with an equal number of patients in each category. The highest value for this sample (0.78) indicated five diagnosis categories being represented with two patients in three of the categories and one patient in each of the remaining two categories.

Gender heterogeneity ranged from 0.0 to 0.5 with an average value of 0.39 (SD=0.13). In this study, only two gender categories were represented (men and women), therefore, the maximum heterogeneity value possible was 0.5. Nineteen groups had majority-men patients, 18 had majority-women, and six were completely gender-balanced groups ( $h=0.5$ ). Three groups were completely homogeneous ( $h=0.0$ ) with one homogenous group of men and two homogenous groups of women.

Racial/Ethnic heterogeneity ranged from 0.0 to 0.75 with an average value of 0.46 (SD=0.22). Again, this study used the six racial/ethnic categories from the ADIS-IV (White/Caucasian, African American, Asian American, Native American, Hispanic/Latino, and "Mixed/Other"). Five groups were completely racial/ethnically homogeneous ( $h=0.0$ ) and all five racial/ethnically homogeneous groups were White/Caucasian (i.e., there were no minority-only groups). The median value ( $h=0.48$ ) indicated two categories represented with 60% of patients in

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one category and 40% in the other. The two groups with the highest heterogeneity value ( $h=0.75$ ) had four racial/ethnic groups represented with an equal number of patients in each category.

For RCI, of the 221 individuals, 110 (49.8%) made reliable change and 111 (50.2%) did not. Of the 110 who met RCI criteria, 52 (47%) did not pass the cutoff for CSC (i.e. they improved statistically but did not recover; Hageman & Arrindel, 1999), while 58 (53%) passed the cutoff for CSC and are deemed recovered. Overall, 26.2% of the current sample achieved CSC, which is comparable to a reported average of 23% of GCBT patients recovered post-treatment, using the STAI-T (Fisher & Durham, 1999). At the group level, RCI proportion ranged from 0-100% indicating that some groups had no members reaching the RCI cutoff while others had every member reach the RCI cutoff. The average group proportion meeting RCI criteria was 50.25% ( $SD=0.21$ ). For CSC, groups ranged from 0-75% showing that maximum proportion of groups reaching CSC was 75%. The average group proportion reaching CSC cutoff was 26.27% ( $SD=0.19$ ).

### **Reliable Change Index (RCI)**

Group proportion deemed "improved" according to RCI was regressed onto the eight predictors in a multiple regression and no predictors were significant [ $R^2 = 0.09$ ,  $F(8,34) = 0.41$ ,  $p=0.906$ ].  $\beta$ 's ranged from -0.12 to 0.15 and  $t$ 's ranged from -0.67 to 0.90 (all  $p$ 's  $\geq 0.372$ ). Using backwards deletion, no predictor emerged as significant; all variables were deleted from the model.

### **Clinically Significant Change (CSC)**

The same multiple regression procedure was conducted using group CSC proportion as the outcome variable. Using backwards deletion, a total of six models were run (see Table 2). Sequentially, diagnostic heterogeneity, "true group" size, therapist experience in terms of number of prior T-GCBT groups run, average starting severity, and participant age variance were removed from the respective models. The sixth and final model [ $R^2 = 0.31$ ,  $F(3,39) = 5.82$ ,  $p=0.002$ ] consisted of three significant predictors: gender heterogeneity ( $\beta=0.29$ ,  $t=2.15$ ,  $p=0.038$ ), racial/ethnic heterogeneity ( $\beta=-0.41$ ,  $t=-3.07$ ,  $p=0.004$ ), and GCS ( $\beta=0.34$ ,  $t=2.55$ ,  $p=0.015$ ). This model resulted in a total  $R^2$  change of 0.03 from the first ( $R^2 = 0.34$ ) to the last ( $R^2 = 0.31$ ) model.

### **Gender Majority**

To follow-up on the effect of gender majority, the multiple linear regression was repeated with gender heterogeneity dummy-coded, to compare majority-men and majority-women (reference) groups. Racial/ethnic heterogeneity and GCS were also included as predictors, as they were significant in the main model. It was expected that majority-men groups might not perform as majority-women well due to differences in social-emotional and task behavior. For example, research on (non-therapy) groups has shown that men interrupt others more often than women, while women tend to engage in more positive social-emotional behavior than men do, (e.g., Eagly, 1987). The model was significant [ $R^2 = 0.24$ ,  $F(3,33) = 3.45$ ,  $p=0.028$ ]. Racial/ethnic heterogeneity ( $\beta=-0.35$ ,  $t=-2.28$ ,  $p=0.029$ ), and GCS ( $\beta=0.35$ ,  $t=2.28$ ,  $p=0.029$ ) remained significant while gender majority ( $\beta=0.17$ ,  $t=1.11$ ,

$p=0.276$ ), was not significant, indicating no difference in outcomes between majority-men and majority-women groups.

### **Racial/Ethnic Heterogeneity**

To follow-up on the significant negative effect of group racial/ethnic heterogeneity on group-level outcome, a repeated measures ANOVA was conducted on pre-treatment and post-treatment STAI-S scores with racial/ethnic minority status as a between-subjects factor. For these analyses, racial/ethnic minority individuals ( $n=92$ ) were combined into a single category across specific racial/ethnic groups and compared to non-racial/ethnic minority individuals ( $n=129$ ). The hypothesis was that racial/ethnic minority participants would experience less treatment benefit than non-racial/ethnic minorities. There was a main effect of time [ $F(1,219) = 135.11, p < 0.001$ ] with significantly higher pre-treatment scores ( $M=48.53$ ) than post-treatment scores ( $M=38.61$ ) showing that anxiety scores, as measured by the STAI-S, were reduced significantly from pre- to post-treatment, overall. Contrary to the hypothesis, there was no significant main effect of racial/ethnic minority status [ $F(1,219) = 1.29, p = 0.257$ ] and the interaction of time and racial/ethnic minority status was non-significant [ $F(1,219) = 1.00, p = 0.318$ ] suggesting that the pattern of STAI-S reduction is not different between racial/ethnic minority and non-racial/ethnic minority patients. Further, a Chi-Square test was run to assess differences in individual CSC status based on racial/ethnic minority status. Again, contrary to the hypothesis, achieving CSC was not related to racial/ethnic minority status [ $\chi^2 = 1, n=221 = 0.33, p=0.565$ ].

The same repeated-measures ANOVA and Chi-Square analyses were carried out a second time, restricted to participants from the 21 groups that were more highly diverse (i.e., above the median  $h$ -value of 0.48). In these 21 groups, there were 69 racial/ethnic minority patients and 39 non-racial ethnic minority patients. The same pattern of results emerged. There was a main effect of time [ $F(1,106) = 60.81, p < 0.001$ ] with significantly higher pre-treatment scores ( $M=48.28$ ) than post-treatment scores ( $M=38.86$ ) and no significant main effect of racial/ethnic minority status [ $F(1,106) = 0.45, p = 0.504$ ] or interaction of time and racial/ethnic minority status [ $F(1,106) = 0.358, p = 0.551$ ]. And again, the Chi-Square test of racial/ethnic minority status on individual CSC status was non-significant [ $\chi^2 = 1, n=108) = 1.25, p=0.263$ ].

To test whether outcomes differed for racial/ethnic minorities as a result of group racial/ethnic heterogeneity, a repeated-measures ANOVA was run on racial/ethnic minorities' pre-treatment and post-treatment STAI-S scores with racial/ethnic heterogeneity as between-subjects factor. For this analysis, racial/ethnic minority individuals from the 21 groups above the median  $h$ -value were categorized as coming from highly diverse groups ( $n=69$ ), compared with those from the 22 groups at or below the median  $h$ -value ( $n=23$ ). Again, there was a main effect of time [ $F(1,90) = 31.29, p < 0.001$ ] with significantly higher pre-treatment scores ( $M=47.15$ ) than post-treatment scores ( $M=38.22$ ). However, contrary to the hypothesis, there was no significant main effect of group diversity [ $F(1,90) = 0.73, p = 0.395$ ] and the interaction of time and group diversity was non-



significant [ $F(1,90) = 1.96, p = 0.165$ ], suggesting that racial-ethnic minorities did not have differential outcome in more or less racial/ethnically diverse groups.

This ANOVA was also run on non-racial/ethnic minorities from the high ( $n=39$ ) and low ( $n=90$ ) diverse groups with the same pattern of results. There was a main effect of time [ $F(1,127) = 68.58, p < 0.001$ ] with no main effect of group diversity [ $F(1,127) = 0.01, p = 0.925$ ] or interaction of time with group diversity [ $F(1,127) = 1.56, p = 0.214$ ]. In sum, there was no evidence to suggest that individuals did better or worse in high vs. low diverse groups, regardless of whether or not they were of racial/ethnic minority status.

Finally, a quadratic fit of the regression of CSC onto racial/ethnic heterogeneity was run. The model, though, only trended towards significance [ $R^2 = 0.13, F(2,42) = 2.97, p = 0.063$ ]. Due to the relatively close proximity to the critical, yet contentious,  $p = 0.05$  cutoff, additional analyses assuming a curvilinear fit of the data were conducted. Visually inspecting the data, there appeared to be a cluster of data points with below-average performance; the seven most racially/ethnically heterogeneous groups, had relatively low group CSC proportions (four groups with 0.0%, two with 20%, and one with 14.3%), all falling below the mean of 26.3%.

In light of this, a linear regression of CSC onto racial/ethnic heterogeneity was run excluding those seven groups. Doing so resulted in a non-significant model [ $R^2 = 0.03, F(1,35) = 1.00, p = 0.324$ ] suggesting that the lower success rates in the seven most highly diverse groups may have been driving the original negative effect of racial/ethnic heterogeneity obtained in the original model.

## **Chapter 5**

### **Discussion**

The primary goal of this study was to identify and examine predictors of group-level outcome in T-GCBT. Data from individuals was aggregated to the group-level and subjected to multiple regression analyses. With regards to RCI, none of the current predictors were significantly related to outcome. However, when looking at CSC, three of eight predictors emerged as significant. These results suggest that, using the current predictors, it is possible to model group rates of recovery, as measured by CSC, but not group rates of statistical change via RCI. Nonetheless, CSC may be of more practical interest, given that it goes beyond RCI to include "external standards" (Jacobson & Truax, 1991) which help to determine efficacy. Indeed, while RCI indicates statistical improvement, CSC allows further classification of whether or not that change is clinically relevant (i.e. whether or not the patient has recovered).

Gender heterogeneity was a significant predictor of group-level CSC. The more balanced a group was (with two groups, higher heterogeneity ratings indicate balance, with  $h=0.5$  as the maximum possible value), with regards to patient gender, the better the outcome. This finding is encouraging given that, at least in the current sample, which includes patients from six primary diagnosis categories, men and women are fairly equally represented among treatment seekers; in this sample, the gender representation was almost exactly 50/50 (50.7% women and 49.3% men) so it is promising to know that having groups composed of heterogeneous genders is

not only not detrimental to group outcome, but that it is associated with *improved* outcome.

On the other side of the coin, however, groups less balanced on gender have less successful group-level outcomes, with regard to CSC. This is of concern, particularly since only six of 43 groups were gender-balanced. Follow-up tests on this finding examined differential effects based on majority-men or majority-women groups, to see if diminished outcome in more gender-homogenous groups is gender-specific. The sample was comparable regarding groups with a gender majority; there were 19 majority-men groups and 18 majority-women groups. A follow-up multiple linear regression dummy coding for group gender majority (with majority women groups as the reference) indicated no significant difference on group-level CSC between either majority-men and majority-women groups. Thus, relative to the most heterogeneous groups (in this case, groups balanced on gender) effects are not significantly different for majority-men or majority-women groups.

Taken together, it appears that group-level outcome is not affected by a majority of a particular gender but that groups do perform better when gender is more balanced among group members. Important to note, this gender heterogeneity effect was obtained while controlling for racial/ethnic heterogeneity and group cohesion, demonstrating that its effects are present over and above effects of racial/ethnic heterogeneity and group cohesion. Future research should be conducted to investigate what sorts of factors (e.g., personality factors, interpersonal interactions among patients, etc.) might be contributing to gender-skewed groups being less successful relative to gender-balanced groups. Results for

gender are limited in that this sample utilized the typical bipolar definition of men/women (as it was measured via ADIS-IV). Future work will need to investigate the impact of gender on group-level outcome using a more flexible gender spectrum (e.g., Monro, 2005).

Less encouraging were the findings for racial/ethnic heterogeneity. The more diverse groups were, the *poorer* the outcome. This is a troubling result, one that future work will need to carefully unpack. It also carries a great deal of weight, given that the United States is becoming more diverse, with racial/ethnic minorities expected to be the majority by the year 2050 (U.S Census, 2011).

Interestingly, though, the results do not suggest that racial/ethnic minority participants did not receive the same treatment benefit as non-racial/ethnic minority individuals. A hypothesis was that racial/ethnic minorities may have had less positive outcomes relative to non-racial/ethnic minorities, and that diverse groups would be less successful due to a larger percentage of individuals with poorer outcomes. However, the results of repeated-measures ANOVA tests on the entire sample, and a subsample of the more diverse groups, showed no interaction of treatment effect with racial/ethnic minority status. There was a significant reduction in STAI-S scores at post-treatment, but this effect was not altered by racial/ethnic minority status, providing no statistical evidence for differential outcomes between the two groups. Further, the Chi Square tests revealed no significant relationship between racial/ethnic minority status and CSC. Whether someone was a racial/ethnic minority or not did not affect likelihood of recovery. Moreover, two repeated-measures ANOVAs conducted separately on racial/ethnic

minority and non-racial/ethnic minority individuals with group racial/ethnic heterogeneity (coded with a median split) as a categorical between subjects factor, showed no effect of differential outcome based on group diversity for either subset of patients, providing no evidence to suggest that either subset of the sample did better or worse, overall, in more racially/ethnically diverse groups.

It appears, then, that something more complex was occurring in more diverse groups relating to outcome that the current study was unable to fully detect. Notably, it appears that several explanations can be ruled out. First, the data suggest racial/ethnic minorities do not experience impoverished treatment outcomes, relative to non-racial/ethnic minorities. There were no statistical differences on the STAI-S and no significant relationship between minority status and achieving CSC. Second, more diverse groups are not less cohesive. Racial/ethnic heterogeneity was non-significantly, though positively correlated with group cohesion [Table 1;  $r(41)=0.12, p=0.447$ ]. Further, the racial/ethnic heterogeneity effect emerged over and above any effect of cohesion, as cohesion was included in the same regression model. Third, overall no evidence was obtained to indicate differential performance for racial/ethnic minority individuals or non-racial/ethnic minorities in high vs. low diverse groups.

Fitting a curvilinear model of CSC and racial/ethnic heterogeneity provided evidence for a quadratic relationship between the two variables, albeit one that only trended in significance ( $p=0.063$ ). Visual inspection of the data revealed a unique pattern in the seven most racially/ethnically diverse groups. First, there appeared to be low performance in these seven groups. Interestingly, in each of those groups,

there were no two individuals from the same racial/ethnic background. Moreover, those were the *only* groups in our sample to have no two individuals from the same racial/ethnic background, providing support for the notion that something unique was occurring in those groups. Indeed, when excluding these seven groups from analyses and re-running the regression, there was no significant effect of group racial/ethnic heterogeneity on outcome.

The question then became: what happened in these seven groups? One possible explanation for these findings could be that individuals in highly racially/ethnically diverse groups where each member is a lone representative of his/her racial/ethnic group suffered from a "tokenism" effect (e.g., Kanter, 1977), possibly resulting in negative effects such as feelings of isolation. In line with tokenism theory, individuals who are the only member of a given identity can experience a perceived loss of identity, becoming subsumed within context of the overall group (e.g., Crocker & Luhtanen, 1990). Relatedly, arguments have been made for therapists to expressly discuss multiculturalism in therapy, particularly in group therapy (e.g., Green & Stiers, 2002). Doing can allow for people of different backgrounds to learn about and share experiences, potentially increasing awareness, bonding, and allowing more of a voice to those who may be experiencing a loss of self-identity. While this may be the case for all psychotherapy groups, when groups become more diverse, with more identities (e.g., racial/ethnic categories) present, there can be more "cultural unknowns" (Green & Stiers, 2002) and perhaps more of a need to expressly discuss multicultural issues within the group to prevent

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any counterproductive processes, such as those arising in tokenism, from affecting the group members.

Within CBT specifically, Hofmann (2006) noted, there can also be cultural differences related to interpretation and reasoning that may alter the therapeutic experience. Additionally, Graham, Sorenson and Hayes-Skelton (2013) outline how the major components of CBT (psychoeducation, cognitive restructuring, and exposure) can be modified to accommodate the unique perspective of people from traditionally disadvantaged groups. It makes sense, then, that T-GCBT, like all CBT, would need to be adapted to include more culturally sensitive/relevant language. As with discussion of multiculturalism, it is possible that in highly diverse groups there may be more of a need for cultural adaptation of the therapy material. Particularly when individuals may be experiencing a loss of identity (e.g., tokenism), perhaps modifying material to involve the unique identity/identities of each individual can help empower and give more of a sense of importance to his/her experiences and background. Furthermore, doing so can also serve as a jumping off point to begin discussing and integrating discussions of multiculturalism. Future work will need to be done to see if such adaptations positively influence outcomes, particularly in more diverse groups.

It must be noted that these follow-up tests are limited in that, due to low power to test effects across racial/ethnic groups, racial/ethnic minority individuals were collapsed into a single category for analysis. Additionally, as with gender, racial/ethnic heterogeneity was measured using the fixed categories of ADIS-IV. Given the complexity of racial/ethnic identity, future work should follow-up with a

more precise measure of race/ethnicity. In particular, the current study combines multi-racial individuals into a catchall "other" category, perhaps unnecessarily muting the impact of multi-racial individuals, of which there is an increasing population. Future research will need to better account for individuals who do not neatly fit into fixed racial/ethnic categories and find ways to study the experience of individuals with complex racial/ethnic identities.

Moreover, while this study was conducted in Houston, Texas, one of the most racially diverse cities in the country and demonstrated a range of racial/ethnic heterogeneity across groups, there was not a single group run in the span of a decade that was minority-only. There were five homogeneous groups and they were all White. Future research should investigate group outcome in specific racial/ethnic groups and minority-only groups in an attempt to see what exactly the driving factor was in the current racial/ethnic heterogeneity finding. More work in this area can also be done to elaborate upon specific groups of people that may not be benefiting from treatment as much as others, as well as to detecting factors that might be contributing to the relatively impoverished outcome. Identifying what is not operating optimally for a given group of people will help make T-GCBT better moving forward.

Third, as expected, GCS was positively related to CSC. As has been demonstrated at the individual level (e.g., Norton et al., 2008), higher cohesion ratings relate to better outcomes. It is reassuring to replicate this finding at the group-level given that cohesion relates to the group as a whole. This illustrates that the average cohesion for the group can predict the outcome for that group. Though



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the results are similar, the interpretation differs from results at the individual level because the current study takes into account the entire group's cohesion and outcome. Cohesion and outcome are aggregated for *each* therapy group. Thus, the group composition plays a factor and statistical analysis differs based on what group an individual was in. This differs from aggregating at the level of the entire sample, which would collapse across group. Accordingly, the current analyses show that the cohesion of particular groups can predict outcomes for those groups. When analyzing at the individual level, it is possible for individuals in a group to have high cohesion ratings (and positive outcomes) while the rest of the group may have disparate ratings and outcome. By investigating the group as a whole, it is possible to explore a more collective outcome, based on the particular individuals that comprise the group.

Additionally, group severity, size, and age variance, as measured in the present sample, had no significant effect on RCI or CSC. Severity was measured using the ADIS-IV and associated 0-8 CSR ratings. The current results suggest that average group severity on patient primary diagnosis does not significantly affect group-level outcome. Likewise, group size was not a significant predictor. It is important to note that the current study used groups sizing from 4-8, a common size range for GCBT. As such, it is beyond the scope of these results to suggest that size would not be a factor when considering larger or smaller groups. Non-significant findings for severity, size, and age variance are reassuring, given that no specific restrictions were/are placed on these dimensions in T-GCBT; these null findings help support the adaptable nature of T-GCBT by allowing variable number of clients,

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of varying degrees of severity and age without worry that differences on these variables might adversely affect the group.

Consistent with prior research at the individual level, (Chamberlain & Norton, 2013) diagnostic heterogeneity was not related to outcome as measured by RCI or CSC. This too is a reassuring finding supporting the nonrestrictive enrollment of any anxiety disorder diagnosis without regard for particular group composition. Also, therapist experience, as measured by the number of prior T-GCBT groups run, was not related to outcome in the current study. This is in line with prior research at the individual level showing no effect of years of therapy experience or number of prior T-GCBT groups run on patient outcome (Norton et al., 2014). Interestingly, Huppert and colleagues (2001) did find some effects of years of experience as a therapist on outcome in a study of PDA. The current study did not analyze both measures of therapy experience due to significant correlation between them, so more work will need to be done with regards to therapist experience. Still, it is an important result given that many outcome studies, including the current data, are collected in training clinics with novice therapists. Nevertheless, this study represented a fairly wide range of therapist experience and there is no present evidence that less experience with T-GCBT relates negatively to outcome. In the same vein, there is no evidence that *more* experience with T-GCBT relates to better outcome, at least when considering the experience of novice therapist trainees; the therapy appears equally effective with novice and relatively more experienced therapists. Future research should be done to replicate these findings in samples

that also include more seasoned therapists to investigate whether or not these effects are replicated with a wider range of experience.

### **Limitations**

First, this study is limited in that it was conducted post-hoc using archival data. As a result, measures were limited to those that were selected at the time of initial data collection and may not reflect the most optimal measures for the research question. In this case, given the lengthy data collection time of group therapy, the study was restricted to measures that were selected approximately 10 years ago (starting in 2004).

Relatedly, other measures, such as cohesion had to be averaged for the group. Therefore, the group cohesion was not as much a measure of how cohesive a group was, but an *average rating* of individuals' cohesion ratings, which may have been variable within a group. Future work should investigate differences based on group members' average ratings of cohesion as opposed to impartial observers' (e.g., blind coder) or therapists' ratings of cohesion. Other factors such as patient personality characteristics, co-therapist dynamics, and patient participation/communication will be interesting variables for future work to consider.

Second, the study is limited by both a high dropout rate and poor response rate in post-treatment evaluations. There were simply not enough data points available using the clinician administered ADIS-IV CSR for it to be used as an outcome measure. Likewise, other potential self-report outcome measures (e.g., Quality of Life Inventory, Beck Depression Inventory) were given in the post-

treatment assessment packet, but suffered from poor response rate. Given that analysis of group-level outcome requires as many data points available as possible, these measures did not have sufficient numbers for the current analysis. In many cases, half of the groups did not have the required measures and calculation of proportion changed would be questionable at best. Of the data available, the STAI-S was the only suitable outcome variable with enough data points to investigate group-level outcome. Therefore, this study relied on a single self-report outcome measure.

Further, while the STAI-S allowed the use of the last available data point to estimate change throughout treatment, it is only an estimate of what the score *may have been* at the end of treatment. As is the case with all treatment outcome research, it is unknown if the patient would have gotten better, worse, or stayed the same at the end of treatment. This will be a continued challenge in the area of group-level outcome as individuals who drop treatment leave missing data and an immeasurable contribution to the outcome of the group as a whole.

Given that this study used group as the level of analysis, the time needed to collect data is much longer than data studies using individuals. Whereas a group may provide eight or more data points for a typical study at the individual-level, it provides only one data point for the current type of analyses. Therefore, follow-up studies may take years or even decades to reach sufficient numbers for analysis. As such, despite its limitations, this study delivers a novel insight into the factors affecting group therapy outcome *at the group level*. It is the first study of its kind in the realm of GCBT and serves as an initial foray into the discovery of the factors

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relevant to group success. It will hopefully lead to future work in this area as well as in research on how to measure and define group level success.

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There's No "I" in GCBT

Yalom, I. D. (1995). *The theory and practice of group psychotherapy*. New York, NY: Basic Books.

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Table 1: Correlations among Predictors

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Group RCI Proportion	-												
2. Group CSC Proportion	.549**	-											
3. True Group Size	-0.100	-0.007	-										
4. Diagnostic Heterogeneity	0.061	0.103	0.237	-									
5. Gender Heterogeneity	0.135	0.241	0.134	0.127	-								
6. Racial/Ethnic Heterogeneity	-0.081	-.359*	0.149	-0.268	0.041	-							
7. Age Variance	0.052	-0.185	-0.076	0.113	-0.020	0.068	-						
8. Dropout Rate	-0.102	-0.015	0.031	-0.073	0.044	0.034	-0.018	-					
9. Attendance Rate	.303*	0.106	-0.060	0.002	0.003	0.004	0.020	-.831**	-				
10. Average Severity	0.127	0.043	-0.160	-0.154	0.085	0.119	0.137	.312*	-0.242	-			
11. Therapist Experience (Years)	0.025	-0.176	-0.176	-0.062	-0.181	0.202	0.188	0.267	-0.065	0.155	-		
12. Therapist Experience (Prior T-GCBT Groups)	0.113	-0.125	-0.086	-0.060	0.042	0.207	-0.071	-0.041	0.204	0.106	.524**	-	
13. WAI (Session 5)	0.074	0.275	0.130	0.234	0.052	-0.271	0.065	-.456**	.369*	-0.138	-.317*	-0.138	-
14. GCS (Session 6)	0.120	0.269	-0.025	-0.011	-0.087	0.119	-0.167	-.455**	.516**	-0.038	-0.255	0.077	.475**

\* $p < .05$ . \*\* $p < .01$ .

note: RCI=Reliable Change Index, CSC=Clinically Significant Change, WAI=Working Alliance Inventory, GCS=Gross Cohesiveness Scale

Table 2: Summary of Regression Analysis for Variables Predicting CSC (N = 43)

Predictor	Model 1			Model 2			Model 3		
	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	$\beta$
Gender Heterogeneity	0.40	0.21	0.28	0.40	0.21	0.28	0.41	0.20	0.28*
Racial/Ethnic Heterogeneity	-0.34	0.13	-0.41*	-0.34	0.12	-0.40**	-0.33	0.12	-0.39**
GCS	0.01	0.00	0.34*	0.01	0.00	0.33*	0.01	0.00	0.33*
Age Variance	0.00	0.00	-0.11	0.00	0.00	-0.12	0.00	0.00	-0.12
Average Severity	0.04	0.06	0.11	0.04	0.06	0.11	0.04	0.06	0.11
Therapist Experience (Prior T-GCBT Groups)	-0.01	0.01	-0.10	-0.01	0.01	-0.10	-0.01	0.01	-0.10
"True Group" Size	0.01	0.02	0.03	0.00	0.02	0.02			
Diagnostic Heterogeneity	-0.02	0.16	-0.02						
$R^2$		0.34			0.34			0.34	
$\Delta R^2$		0.34			0.00			0.00	
$F$		2.17			2.54*			3.04*	
$\Delta F$		2.17			0.37			0.50	

\* $p < .05$ . \*\* $p < .01$ .

Table 2 continued: *Summary of Regression Analysis for Variables Predicting CSC (N = 43)*

Predictor	Model 4			Model 5			Model 6		
	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	$\beta$
Gender Heterogeneity	0.40	0.20	0.28*	0.41	0.20	0.28*	0.42	0.20	0.29*
Racial/Ethnic Heterogeneity	-0.35	0.12	-0.41**	-0.34	0.11	-0.40**	-0.35	0.11	-0.41**
GCS	0.01	0.00	0.33*	0.01	0.00	0.33*	0.01	0.00	0.34*
Age Variance	0.00	0.00	-0.11	0.00	0.00	-0.10			
Average Severity	0.04	0.06	0.10						
Therapist Experience (Prior T-GCBT Groups)									
“True Group” Size									
Diagnostic Heterogeneity									
$R^2$	0.33			0.32			0.31		
$\Delta R^2$	-0.01			-0.01			-0.01		
$F$	3.60**			4.44**			5.82**		
$\Delta F$	0.56			0.84			1.38		

\* $p < .05$ . \*\* $p < .01$

Table 3: Summary of Follow-up Regression Analysis for Group Gender-Majority Predicting CSC (N = 37)

Predictor	<i>B</i>	<i>SE B</i>	$\beta$
Gender Majority	0.07	0.06	0.17
Racial/Ethnic Heterogeneity	-0.31	0.14	-0.35*
GCS	0.01	0.01	0.35*
$R^2$		0.24	
$F$		3.45*	

\*p < .05. \*\*p < .01.

note: gender majority was dummy coded with women as the reference group