Group Cognitive Behavioural Therapy for Depression: A Preliminary Analysis of the Role of Feedback and Process in Treatment Outcomes

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Abstract

Background: Group CBT approaches have been shown to be equally as effective as individual CBT for reducing depressive symptoms and preventing relapse; however, the predictors of response are poorly understood. The primary objective of the studies presented in this thesis was to further examine the formal and process factors within group CBT for depression that contribute to various treatment outcomes. The first study investigated the relationship between group CBT for depression and changes in interpersonal distress, as well as the process mechanisms that might influence this relationship. The second study assessed whether formal feedback provided to therapists and clients derived from the Outcome Questionnaire (OQ-45), a robust measure of client functioning, would enhance group processes and treatment outcomes.

Method: Study 1: Secondary data from clients having received individual CBT for depression at a community-based mental health training centre constituted one condition (18 clients). Data for the group condition (12 clients) were collected from clients attending group CBT for depression at a tertiary care facility. Relationship distress, as measured by the OQ-45 relationship distress subscale score, was assessed at intake and termination. Group participants also completed process measures at the start and end of treatment. In study 2, participants were recruited from a tertiary care facility to participate in a CBT group for depression. Participation involved completing brief questionnaires assessing psychological and process variables before and after treatment, as well as the OQ-45 at every session. Three groups (21 clients) received standard CBT and two groups (12 clients) received enhanced CBT, which included feedback about their progress from the OQ-45.

Results: Results of study 1 suggest that clients who participated in group CBT experienced a significantly greater reduction in relationship distress across time than clients who participated in

individual CBT. Results also indicate that therapeutic alliance, and not group cohesion, mediates the relationship between pretreatment relationship distress on posttreatment relationship distress in group CBT. Results of study 2 indicate that participants in the enhanced condition experienced greater improvements in quality of life, dysfunctional beliefs, and therapeutic bond at termination, relative to participants in the standard condition. Trends also suggest a greater reduction in depressive symptoms.

Conclusions: Group CBT for depression may be more effective than the individual modality for reducing interpersonal distress. Furthermore, therapeutic alliance plays a significant role in improving interpersonal distress within a structured group CBT protocol. Feedback from the OQ-45 may help improve client outcomes and enhance therapeutic bonding with facilitators in group CBT for depression.

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General Introduction

Various theoretical models for the psychosocial treatment of depression have emerged, with the cognitive theory of depression generating the most extensive body of research (Beck, Rush, Shaw & Emery, 1979). The cognitive theory of depression has led to great advances in the understanding and treatment of depression, as the underlying principles guiding this approach have evolved in the context of clinical experience and rigorous scientific investigation. One clinical application deriving from the cognitive theory of depression is cognitive behavioural therapy (CBT). To date, CBT is one of the most extensively researched psychological treatments for unipolar depressive disorders, and along with pharmacotherapy, it has been shown to be consistently effective in the treatment and prevention of recurrent depressive episodes (see Cuijpers and colleagues, 2013, for a review). There is also mounting evidence that pharmacotherapy may not be as effective as previously thought for patients with mild to moderate depression (e.g., Fournier et al., 2010). While most research on CBT has occurred within the context of individual therapy, recent findings suggests that group CBT approaches to treatment are equally as effective as individual CBT, and may be more cost-effective (Tucker & Oei, 2007). The predictors of response to group CBT, however, are poorly understood. For example, whereas it has been shown that the provision of formal therapist and client feedback (i.e. explicit measures used for the purpose of providing feedback on treatment progress) is an important predictor of success in individual therapy (Lambert et al., 2005), it is unclear how such factors relate to treatment response in group therapy. As such, the first objective of the present thesis was to examine the differences in treatment response for individuals receiving formal

feedback while receiving individual CBT for depression and individuals receiving formal feedback while receiving group CBT for depression. A second objective is to determine whether adopting an enhanced treatment approach to group CBT, which focuses on increasing client and therapist awareness of individual responses to treatment, leads to a greater reduction of depressive symptoms and concomitant increases in level of functioning relative to standard group CBT for unipolar depression.

Overview of Cognitive-Behavioural Therapy

The cognitive perspective of depression is based on a diathesis-stress model (Beck, 1976). The onset and maintenance of depression is explained in association with recent precipitating life events, ongoing perpetuating factors, and longstanding predispositions. Cognitive structures, processes, and products are central to the cognitive model of depression and are proposed to moderate and mediate all episodes of depression. The cognitive model underlies cognitive-behavioural therapy (CBT), one of the most extensively researched psychological treatments for unipolar depressive disorders (e.g., Cuijpers et al., 2013). It is an active, directive, structured and relatively short-term treatment that focuses on the here-and-now. CBT for depression involves several essential features (e.g., Beck, 2011): helping clients to engage more often in enjoyable activities (i.e., behavioural activation), identifying and correcting inaccurate thoughts associated with depressed feelings (i.e., cognitive restructuring), and enhancing problem-solving skills. Patients with depression typically withhold pleasurable activities that have the potential to be enjoyable to them. Therefore, the first component of CBT for depression, behavioural activation, seeks to overcome the patient's lack of motivation by negotiating gradual increases in potentially rewarding activities with the patient (Beck, 2011; Rupke, Blecke & Renfrow, 2006). The second component of CBT, cognitive restructuring,

involves collaboration between the patient and the therapist to identify and modify habitual errors in thinking that are associated with depression (Beck, 2011). Beck (2011) suggests that individuals suffering from depression have distorted thoughts about themselves, their environment and their future (the cognitive triad). Information from the patient's current experience, past history, and future prospects is used to counter these distorted thoughts (Beck, 2011). Finally, when patients are depressed, problems in daily living often seem insurmountable. Thus, in the final stage of therapy, the CBT therapist provides instruction and guidance in specific strategies for solving problems (e.g. breaking problems down into small steps) and the various skills for patients are learned through class exercises and homework assignments (Beck, 2011).

The basic format of a CBT session includes setting an agenda, mood check, summarizing the previous session, homework review, skills training in the context of current problems, assigning homework, summary, and gathering feedback from group members about the session (Beck, 2011).

The application of CBT is flexible because it can be delivered across a range of populations, settings and with individuals, groups or families. The underlying principles of group cognitive behavioural therapy are essentially the same as that of cognitive behavioural therapy administered on an individual basis; however, an added benefit of the group format is that individuals are exposed to others faced with similar challenges and symptoms. This can help reduce the stigma and feelings of isolation that can accompany depression (Bieling, McCabe, Antony, 2006). Typically, cognitive-behavioural group therapy is delivered once a week in a two-hour session, over the course of 12 to 16 weeks (Chen, Lu, Chang, Chu & Chou, 2006). In

some protocols, patients have individual sessions with the therapist prior to intake, and following completion of the group component of therapy.

Research on Individual Cognitive-Behavioural Therapy for Depression

There is now a considerable body of scientific evidence that CBT is an effective treatment for unipolar depression. Indeed, CBT has been shown to be as useful and effective in the treatment of unipolar mood episodes as standard pharmacological approaches (Fournier et al., 2010; Cuijpers et al., 2013; Cuijpers et al., 2014; Vos et al., 2004; Butler, Chapman, Forman & Beck, 2006; DeRubeis et al. 2005; Wampold et al. 2002; Blatt, Zuroff, Bondi, & Sanislow, 2000).

Moreover, CBT appears to be efficient in reducing subsequent rates of relapse and recurrence (Hollon et al., 2005; DeRubeis et al., 2005), which are often common with medication withdrawal, and carry associated social costs (Antonuccio, Thomas, & Danton, 1997). Additional benefit may be realized by combining prophylactic interventions with pharmacotherapy in a treatment paradigm (Fava, Rafanelli, Grandi et al. 1998). In a recent meta-analysis, the combination of cognitive therapy and pharmacotherapy was found to be significantly more effective than either modality alone (Cuijers et al., 2013; Chan, 2006). Other meta-analyses have called into question the efficacy of antidepressant medications for the treatment of depression, except for patients presenting with severe depressive symptoms (De Rubeis, 2005, Fournier et al., 2010). Fournier and colleagues (2010) found that depressed patients whose symptoms ranged from mild to moderate experienced no therapeutic benefit from the use of medications over and above the placebo effect. The strategy of combining acute pharmacotherapy with psychological interventions offers the possibility of capitalizing on the cost-efficiency of antidepressant

medication to reduce acute symptomatology as well as avoiding the need for patients to remain indefinitely on maintenance medication to reduce future relapse and recurrence.

Research on Group Cognitive-Behavioural Therapy for Depression

Although most research has focused on the effectiveness of individual cognitive-behavioural therapy, evidence from randomized controlled clinical trials also supports the use of group CBT for the treatment of major depressive disorder (Hardy et al., 2001; Scott, Palmer, Paykel, Teasdale & Hayhurst, 2003). In a comparison of sixteen individual treatments and fifteen group treatments (most treatment orientations identified as cognitive or cognitive-behavioural), Robinson, Bermin, and Neimeyer (1990) determined that treatment effect sizes were approximately equal.

Specific studies of group CBT and individual CBT for depression have found that both modalities perform at nearly identical levels (Huntley, Araya, & Salisbury, 2012; Westen & Morrison, 2001; DeRubeis & Crits-Christoph, 1998). There is also limited evidence to support the efficacy of group CBT over other group psychotherapies, such as gestalt group treatment (e.g., Beutler, Machado, Engle, & Mohr, 1993). A meta-analysis comparing treatment as usual, individual CBT, group CBT, and other group therapies for depression found that group CBT was significantly more effective than treatment as usual and comparable to individual CBT for depression (Huntley, Araya, & Salisbury, 2012). There were four studies comparing group CBT to interpersonal therapy, dialectic behaviour therapy (DBT), and self-control therapy; however, no conclusions could be drawn due to the small sample sizes.

The literature on the benefits of group CBT for depression is mixed. Some researchers have failed to establish group CBT as more effective than self-help interventions or control groups (Burlingame, Fuhriman & Johnson, 2004). Consensus has also not been reached on

whether group CBT for depression is comparable to pharmacotherapy (Burlingame, Fuhriman & Johnson, 2004). Burlingame postulated that group CBT for depression has been unsuccessful in considering the impact of group process factors on outcomes, thus limiting the ability of these factors to facilitate greater responses to treatment. Nonetheless, the majority of studies and meta-analyses point to the overall efficacy of group CBT for depression when compared to controls and other therapeutic interventions (Bieling, McCabe, Antony, 2006).

General Factors Related to the Response to Cognitive-Behavioural Therapy

In terms of the various skills that compose CBT, a component analysis was conducted by Jacobson and colleagues (1996) that evaluated 150 patients with Major Depressive Disorder randomly assigned to three separate components of CBT. The three conditions consisted of behavioural activation alone (BA), behavioural activation combined with changing negative automatic thinking (AT), and the full CBT treatment including BA, AT, and core beliefs (CT). Results indicated that treatment outcomes in the CT condition were not superior to the BA and AT conditions. In fact, the outcomes across the three conditions were comparable. This was observed at termination as well as at the 6-month follow-up. It was also determined that both the AT and BA components were equally effective at reducing dysfunctional attitudes and negative thinking. This finding not only highlights the effectiveness of CBT for depression but emphasizes the important role that behaviour activation plays in treatment response to CBT.

Despite the evidence regarding the effectiveness of CBT in reducing symptoms of depression and preventing relapse, it should be noted that there is often a great deal of variability in response to treatment across patients (Roth & Fonagy, 2004; Scott, 1996). For example, earlier age of onset of symptoms (Button et al., 2013), increased length of current episode (Sotsky et al., 1991) and a history of more frequent previous episodes (Thase, 1994) have been

shown to predict reduced response to CBT treatment. The presence of a co-occurring personality disorder has also been identified as a predictor of a negative response to CBT (Shea et al., 1990); however, it has been suggested this apparent relationship is confounded by severity of initial depressive symptoms, which are often exacerbated by a co-occurring personality disorder (Kuyken, Kurzer, DeRubeis, Beck & Brown, 2001). In addition, higher baseline levels of dysfunctional attitudes (Shankman et al., 2013), cognitive dysfunction (Sotsky et al., 1991), avoidant coping (Bockting et al., 2006), self-criticism (Enns, Cox & Pidlubny, 2002), interpersonal difficulties (Borkovec et al., 2002), poor therapeutic alliance (Lambert & Bergin, 1994; Norcross, 2011) and lower pretreatment levels of autonomous motivation (Zuroff et al., 2007) have been associated with a poorer response to CBT. Interestingly, there is evidence to suggest that therapist's objective awareness of client progress may constitute an important predictor of overall response to treatment, and consequently may serve as an important method to enhance treatment (Lambert et al., 2005).

Therapeutic Alliance

Therapeutic alliance is one of the most well-researched process factors responsible for change in psychotherapy (Horvath, 2001; Norcross, 2011). A number of studies have identified client ratings of therapeutic alliance, especially in the early stages of treatment, as the best predictor of treatment outcome (Lambert & Bergin, 1994; Norcross, 2011). Both client report of therapeutic alliance that remains stable over time and improvements in therapeutic alliance from pre-treatment to post-treatment have been predictive of greater improvement in symptoms and social adjustment at termination (Jacobson et al., 1996; De Roten et al., 2004). Meta-analytic reviews have also demonstrated the strong relationship between alliance and outcome. A review of the literature found that effect sizes for the relationship between therapeutic alliance and

outcome ranged from .21 to .28 (Norcross, 2011). Norcross found that the average effect size associated with various individual treatment approaches (i.e. CBT, IPT, psychodynamic, and substance-abuse treatments) were not significantly different from one another.

Motivation to Change

Although the therapeutic alliance between the client and therapist has frequently been heralded as a primary factor in therapeutic outcome across psychotherapies, a sizable body of research has been devoted to elucidating other factors which may influence response to treatment (Zuroff et al., 2007). In this respect, autonomous motivation, which refers to a state in which individuals are intrinsically motivated when they perceive themselves to have freely chosen their goals and the strategy to achieve these goals is of their choosing, has emerged as a putative common factor that may predict treatment outcome (Markland, Ryan, Tobin & Rollnick, 2005; Zuroff et al., 2007). In support of the notion of autonomous motivation as predictive factor for treatment success, Zuroff and colleagues (2007) found that autonomous motivation was a stronger predictor of therapeutic outcome than was therapeutic alliance. Similarly, Pelletier, Tuson and Haddad (1997) found that autonomous motivation was predictive of positive mood during sessions, satisfaction with therapy and intention to persist in therapy. It should be underscored, however, that studies have found alternative forms of motivation as effective as autonomous motivation in improving treatment outcomes (e.g. Michalak, Klappheck & Kosfelder, 2004). Michalak and colleagues found that, independent of autonomous motivation, individuals who positively valued their goals and envisaged a high probability of success demonstrated greater reductions in symptoms of anxiety and depression in individual CBT.

Measuring Outcomes in Therapy

In order to effectively monitor patient progress throughout mental health treatment, clinicians need standardized methodologies for evaluating change. These assessments must be comprehensive and have the flexibility to incorporate the unique characteristics of the patient's illness (Bilsbury & Richman, 2002). In addition, outcome assessment must provide a reliable method of defining treatment goals and examining efficacy of treatment (Lambert, 2015). There are many standard psychometric approaches to tracking outcome in individual and group therapy. Treatment outcome can be assessed by changes in patient level of functioning, subjective quality of life, or severity of symptoms (Panzarino, 1995). The benefit of using standardized measures of treatment response is the ability to place all patients on a continuum of distress, which allows for comparisons across therapists, treatment modalities, and settings (Lambert & Brown, 1996). However, conventional instruments are often insensitive to the individual nuances that reflect the richness of human experience (Bilsbury & Richman, 2002). Often there is more concern with observing an increase or reduction in a number of symptoms than level of functional impairment. Indeed, incorporating context when assessing change within the individual is an essential aspect in clinician decision making (Bilsbury & Richman, 2002). Another concern is that many of these measures are used before and after treatment, and although they do provide an index of therapy effectiveness, they do not allow the clinician to modify an ineffective treatment (Lambert, 2015).

Objective Outcome Measures

In response to the need for a global assessment of patient functioning, Lambert and colleagues (1996) developed the Outcome Questionnaire. The Outcome Questionnaire (OQ-45; Lambert et al., 1996) is a 45-item self-report instrument designed to measure change in three critical domains considered essential to improvement in psychotherapy: Symptom distress,

interpersonal relationships, and social role performance. Specifically, respondents are directed to rate how they felt over the past week based on a 5-point Likert scale, ranging from “never” (0) to “almost always” (4). To decrease the possibility of response sets producing biased results, 9 of the 45 items are reverse scored. The possible scores range from 0 to 180, with higher scores indicating poorer functioning. Scores on the Total OQ-45 scale have been reported to be reliable and valid, distinguishing well between clinical and non-clinical subjects, as well as clients with differing degrees of illness severity (Umphress et al., 1997).

Lambert and colleagues’ (1996) reasoning behind the first subscale, Subjective Distress, is based on the need to measure a broad range of psychiatric symptoms indicative of a client’s general emotional functioning. The rationale for the inclusion of the Interpersonal Relations subscale is based on research suggesting that interpersonal relationships are a central focus of therapy and well-being. The Social Role subscale was included, as an individual’s level of dissatisfaction, conflict, distress, and inadequacy in tasks related to employment, leisure and family roles can affect one’s capacity to work, play, and love (Lambert et al., 1996). Reliability of the overall questionnaire and its three domains with undergraduate samples suggest high stability, as demonstrated by test-retest coefficients ranging from 0.78 to 0.84 over three weeks (Burlingame, Lambert, Reisinger, Neff, & Mosier, 1995). Furthermore, concurrent and construct validity of the OQ-45 was assessed with three patient samples and a sample of community participants (Umphress et al., 1997). Results revealed statistically significant differences between patient and non-patient samples on the OQ-45 Total and Symptom Distress score, providing evidence for discrimination between psychopathological and non-psychopathological groups on those scales. Moreover, significant differences were found among patient samples, with the inpatient sample presenting with the most severe psychopathology and the university counselling

centre representing the least pathological group. This evidence not only provides support for the construct validity of the OQ-45, it is also indicative of the instrument's unique sensitivity to psychopathology. Another measure vital to outcome assessment in psychotherapy is sensitivity to change, that is, the ability to measure individual change over time (Lambert & Hill, 1994). Item analysis of the OQ-45 from 284 untreated and 1,176 clients undergoing psychotherapy suggest item sensitivity for the majority of items on this instrument (Vermeersch, Lambert, Burlingame, 2000). Indeed, there was significantly more improvement as assessed by the OQ-45 for individuals receiving treatment than not in each of the subscales and the Total score. Vermeersch, Lambert, and Burlingame (2000) suggest lack of change sensitivity in the remaining items may be due to therapist or client variables, or an interaction of both. As well, some items may reflect constructs that are more static and require a longer period of time before change can be detected.

The ability of the OQ-45 subscales to measure the three domains of interest independently has been called into question. Construct validity of the OQ-45 was examined through the use of confirmatory analysis on a sample of 1,085 participants randomly assigned into two equivalent groups (Mueller, Lambert, & Burlingame, 1998). Results revealed that a one-factor model fit the data as well as a two-factor (symptoms and functioning) or three-factor model. A recent evaluation of the OQ-45 also supported a two-factors model of overall maladjustment and substance use (Rice, Sue, & Ege, 2014). Indeed, the efficacy of psychotherapy and mental health facilities is often assessed using psychological distress as the main indicator of patient distress and psychopathology (Umphress et al., 1997). However, before discarding the OQ-45 subscales, their unique contributions to the overall scale must be assessed. Lambert and colleagues (1996) consider the importance of interrelated domains in outcome

measures, as they provide a more complete picture of overall patient distress and functioning, despite their statistical non-independence. The only subscale that fails to discriminate between patient samples is the Interpersonal Relations subscale (Umphress et al., 1997). Umphress and colleagues (1997) suggest that patients from a community clinic experience predominantly interpersonal relationship problems, such as spousal, parent-child, and less psychiatric symptoms that would meet the criteria for mental disorders. Therefore, these patients may score lower on other scales, while presenting with significant distress on the Interpersonal Relations subscale. Nonetheless, subscales provide the opportunity to monitor changes in each domain over time as well as track the rate of change in each domain separately (Lambert, 2010).

There are many advantages of the OQ-45 that makes it an attractive measure for outcome assessment. The instrument is brief and economical, easy to understand and score, possesses sound psychometric properties and is sensitive to change (Umphress, 1995). Moreover, the OQ-45 provides a method to improve psychotherapy outcome by monitoring patient progress throughout treatment at the same time as supplying feedback to clinicians to guide ongoing treatment (Lambert, 2001). Indeed, based on OQ-45 data provided by the patient at each session, therapists can evaluate patients' progress for positive or negative signs of predicted functioning at treatment termination.

Therapist Feedback in Individual Therapy

Preliminary evidence suggests that feedback systems are critical to improving outcomes for poorly responding patients undergoing psychotherapy (Lambert, 2015). Indeed, it is proposed that relaying of feedback to therapists regarding their patients' progress using formal measures of treatment response has the ability to identify patients who are at risk of deterioration far more accurately than clinician judgment alone. Moreover, completion of formal measures of progress

throughout therapy may also increase interest and investment of patients in the therapeutic process (Lambert et al., 2005). Lambert's research suggests that when therapists receive feedback about their patients, the percentage of negative responses to treatment decreases; in one study in the 5% - 21% range. Moreover, deterioration rates increase when therapists do not receive feedback about at-risk patients. For example, in a study conducted by Lambert and colleagues (2005), when therapist and patients at risk for deterioration receive feedback about patient progress they show the highest rates of improvement (56%), compared to therapist-only feedback conditions (35%) and no feedback conditions (21%). In this way, using a weekly feedback system, such as the system described by Lambert, provides therapists with early recognition of potential treatment failures and provides suggestions for using alternative treatment methods or varying the treatment plan, regardless of the orientation of the therapeutic service being offered. Other variations of the OQ-45 monitoring system have been developed and show promising results (e.g., Duncan et. al, 2003).

Beyond monitoring patient progress, Lambert and colleagues developed a normative profiling system that provides external benchmarks for classifying patient change into four empirically derived categories: Reliable change, indicated by statistically significant change in symptom distress from admission/intake status; Recovery, indicated by patient functioning that approximates normal individual functioning at the community level; No change; and Reliable Deterioration, indicated by statistically significant change where symptom distress has increased from admission status (Lambert, 2015). The OQ-45 utilizes empirically calibrated algorithms based on data from peer-reviewed randomized controlled trials to identify patients at risk of deterioration. The profiling system also screens for critical areas of patient functioning, including suicide, substance abuse, and violence (Lambert, 2015). In addition, the patient's total score is

provided in comparison to the total scores of normative groups such as community mental health centres, university counseling centres, and inpatient settings (Lambert, Gregersen, & Burlingame, 2004).

The report produced by the profiling system includes a graph that identifies the course of patient change. A colour-coded empirically-derived warning system is provided to signal the reader to patient functioning: White indicates client functioning in the normal range, which suggests termination of treatment should be considered; green signifies the client's rate of change is adequate, and recommends no change in the treatment plan; yellow signifies the client's rate of change is less than adequate and changes in treatment plan are suggested; red signifies progress below the expected level for the patient, and advises that steps be taken to carefully review the case an decide on a new course of action (Lambert, Gregersen, & Burlingame 2004). Finally, a feedback message is provided for patients and therapists summarizing patient progress, status on critical items, and number of sessions recommended in order to achieve reliable change and normal functioning. Lambert and colleagues (2010) suggest that these features ensure that patients and therapists are provided with the critical information necessary to both monitor patient change and enhance treatment outcomes.

Whipple and colleagues (2003) explored the use of an enhanced feedback system to address the fact that in earlier studies, even with the benefit of feedback, many clients identified, as "not on track" did not attain satisfactory outcomes at termination. Thus, the authors developed a set of clinical support tools (CSTs) to be administered according to a heuristic of stepped-care (Whipple et al, 2003). As such, they measured outcome and attendance among three groups of clientele randomly assigned to an OQ-45 feedback group without CSTs, an OQ-45 feedback group with CSTs, and a no feedback condition. A significant advantage was found for the

feedback with CSTs condition over and above the advantage of the generic OQ-45 feedback as well as the no feedback conditions. The heuristic and CSTs used in the Whipple and colleagues (2003) study were selected on the basis of those factors in the psychotherapy literature demonstrated to be relevant to positive therapeutic outcomes. Specifically, they included tools to assess the quality of the therapeutic alliance, the client's readiness to change and the match with treatment strategies, the client's social support network, the accuracy of the diagnosis, and the appropriateness for referral for a medication assessment (Whipple et al, 2003).

Limitations of Outcome Monitoring Systems

While the empirical support for outcome monitoring systems is strong, there are some limitations. The outcome questionnaire is a global outcome measure that does not take into account the unique aspects of the client's clinical presentation. Individualized approaches to measuring treatment progress allow for tailored client outcomes that better adhere to the client's treatment plan. The various presenting problems that may be unique to each client seeking treatment for Major Depressive Disorder, such as symptoms of depression, phobias, binge eating, parenting difficulties, financial problems, somatic complaints, and emotion dysregulation, may not be adequately addressed by a global outcome measure such as the Outcome Questionnaire. Therefore, while substantial progress may be achieved for the client`s identified treatment goals over the course of therapy, changes in standardized measures of outcome such as the OQ-45 may be minimal. Likewise, some items may not be relevant to the client, resulting in lower distress scores that inaccurately reflect the client's lived experience. However, given the ease of administration across multiple clients, normative data, protocols for scoring and interpretation, and the limitations of time and resources in many health care facilities, standardized outcome measures such as the OQ-45 are often preferred.

Measuring Outcomes in Group Psychotherapy

The clear benefits provided by the use of an outcome feedback system to patients in the context of individual psychotherapy raises the important empirical question of whether this approach might also improve outcome for individuals participating in group psychotherapy. A first step in designing an effective outcome monitoring and feedback program for CBT groups is to recognize the unique factors that differentiate group from individual therapy. A second reason for identifying these factors is that although it is generally well accepted that group interventions either produce similar or more favorable outcomes when compared to individual therapy (e.g., Kosters, et al, 2006, for a meta-analytic review), the means by which such outcomes are arrived at across the two modalities may vary in important ways.

For example, Brown and Lewinsohn (1984) also found that social support provided by 63 group members attending skills training groups containing components of CBT for depression (i.e. changing aspects of one's thinking, increasing pleasant events, homework assignments) was related to improved treatment outcomes compared to controls. It is argued that group therapy, in essence, is in part a unique relational treatment, with benefits observed in overall treatment outcome as well as interpersonal functioning. Given that studies such as these were not directly investigating group CBT for depression, further study is warranted before any conclusion can be drawn.

Several models already exist that describe the relationships between group-specific factors and therapeutic outcome (Bieling, McCabe, & Antony, 2006; Burlingame, MacKenzie & Strauss, 2004; Satterfield, 1994; Yalom, 1995). Bieling, McCabe, and Antony (2006) review several of these models including Yalom's group factors (Yalom, 1995), the Burlingame, MacKenzie, and Strauss group model (Burlingame, MacKenzie & Strauss, 2004), and

Satterfield's hybrid model (1994). Bieling and colleagues (2006) articulate an integrated conceptualization of group therapy that takes into consideration those factors that are most likely to influence outcome within a CGT group. They draw on existing models, in particular, the Burlingame and colleagues (2004) model, which in fact, in turn, builds on the seminal work of Yalom.

Burlingame and colleagues (2004) posit that several interacting factors converge to explain therapeutic outcomes of group treatment. In particular, they identify: (1) the formal change theory, also understood to be the treatment modality, (2) small-group process, which encompasses a variety of interpersonal and social psychological factors that operate when more than two people congregated, (3) patient characteristics, both personal and interpersonal, (4) group structural factors (e.g., number of participants, length of sessions, etc.), and (5) group leadership qualities, a factor that is hypothesized to mediate the effects of all the other variables.

Bieling and colleagues (2006), adapted from the Burlingame and colleagues (2004) model, propose that outcome in CBT groups are related to two categories of variables, formal CBT strategies and small-group process. Formal CBT strategies include strategies such as behavioural activation, thought monitoring and cognitive restructuring, and relate to previously identified factors that may predict treatment response (e.g., level of dysfunctional attitudes, cognitive dysfunction, etc.).

According to Bieling and colleagues (2006), small-group process variables comprise seven factors, including optimism, inclusion, group learning, shifting self-focus, modification of maladaptive relational patterns, group cohesiveness, and emotional processing in the group setting. Bieling and colleagues (2006) further delineate the therapeutic strategies that can be implemented to effectuate change in levels of these factors, suggesting that these variables may

also be important targets of change, and that if targeted throughout therapy they could significantly enhance treatment response of groups participants (e.g., particularly when they are not improving or are deteriorating). A review of the literature revealed that, other than group cohesiveness, there is limited empirical evidence supporting the existence of these factors (Bieling, McCabe, Antony, 2006; Norcross, 2011). Yalom and Leszcz (2005) suggested that process factors might be difficult to capture using standardized measures due to the highly subjective nature of an individual's experience.

Group Cohesion

Cohesion among group members has largely been studied as a core process factor mediating outcome in group therapy (Yalom, 1995). Common definitions of group cohesion focus on members' sense of belonging, mutual liking/trust, support, commitment, and positive interactions with other group members (Burlingame, Fuhriman & Johnson, 2002). In comparison to clients engaging in individual therapy, Holmes & Kivlighan (2000) found that clients in group therapy were more likely to report higher levels of relationship and climate as the factors responsible for change in group. Researchers have also found that levels of group cohesion are directly related to symptomatic improvement and decreases in premature dropout (see Yalom and Leszcz, 2005). While most of these studies were conducted using a variety of therapeutic orientations, including Freudian, nondirective, experiential, gestalt, relational, interpersonal, and cognitive-behavioral, the authors concluded that the orientations were similar to one another in their emphasis on establishing strong therapeutic relationships within the group (see Yalom and Leszcz, 2005). In fact, nearly identical findings on group cohesion emerged in more structured group therapies. For example, one investigation studied the relationship between fifty-one patient's perceived "attraction to the group" on treatment outcomes in behaviour therapy (Falloon, 1981). Results

indicated that this measure of group cohesion significantly correlated with higher ratings of self-esteem and fewer member drop outs.

However, findings on the relevance of cohesion in structured group therapies are mixed. One study investigated the influence of group cohesion in a short-term structured CBT group for social anxiety (Hope, Heimberg, Juster, & Turk, 2001). While the therapeutic relationship improved over the twelve treatment sessions, group cohesion remained the same. Furthermore, only therapeutic alliance was predictive of treatment outcome. Woody and Adesky (2002) theorize that the therapist-patient bond and agreement on tasks are more critical factors for change in highly structured group therapies.

Therapist Feedback within Group Psychotherapy

It is unlikely that one could simply translate the methodology used in previous studies of individual outcome monitoring to a group therapy context. One of the additional challenges to utilizing individual participant feedback from the OQ-45 in a group context is the risk of sacrificing small-group process while targeting any one particular participant who might not be "on track" within any one session. Therefore, feedback provided to therapists and participants must take into consideration Bieling et al's (2006) so-called formal CBT strategies with small-group process variables such as group cohesion. The present thesis seeks to understand whether group process factors, namely therapeutic alliance and group cohesion, should be considered as legitimate targets when evaluating therapist and patient feedback from the OQ-45 for signs of improvement or deterioration in group therapy.

General Overview

In comparison to the well-established benefits of receiving formal feedback in individual CBT, the benefits of receiving formal feedback in the context of group CBT are poorly understood. Therefore, the primary objective of the studies presented in this thesis was to

examine the differences in treatment response for individuals receiving formal feedback in CBT for depression and individuals receiving formal feedback in group CBT for depression. Specifically, it was of interest to investigate changes in relationship distress across the two treatment modalities, as it has been identified in the literature as a potential target for change in both individual and group therapy paradigms. Furthermore, group therapy comprises multiple relationships (therapist to member and member to member bonds) which may have added benefits to reductions in relationship distress.

The aim of the first study was to investigate whether process factors, such as therapeutic alliance and group cohesion, led to greater reductions in self-reported relationship distress in group CBT compared to individual CBT for depression. It was hypothesized that clients in the group therapy condition would experience a greater statistically and clinically significant reduction in self-reported relationship distress at termination, as compared to clients in the individual therapy condition. Furthermore, it was hypothesized that the relationship between initial relationship distress and relationship distress at termination in group CBT would be mediated by therapeutic alliance and group cohesion process variables. A more complete understanding of the impact of process variables in group CBT for depression will allow for improved targets for feedback over the course of treatment and potentially greater treatment outcomes.

The second objective was to determine whether adopting an enhanced treatment approach to group CBT, which focuses on increasing patient and therapist awareness of individual response to treatment, leads to a greater reduction of symptoms and concomitant increases in level of functioning relative to standard group CBT for unipolar depression. It was also of interest to investigate whether an enhanced feedback system would have a positive impact on

group processes, such as group cohesion, compared to standard feedback interventions inherent in group CBT for depression.

It was hypothesized that formal feedback derived from the OQ-45 and provided to therapists and patients will lead to clinically and statistically significant improvements in overall distress levels, depressive symptoms, quality of life, and dysfunctional beliefs at termination, as compared to those attending the standard group CBT condition. It was also hypothesized that clients in the enhanced group CBT condition would show statistically significant improvements in therapeutic alliance, group cohesion, and autonomous motivation to change, compared to clients in the standard group CBT condition. This study seeks to improve treatment outcomes for group CBT for depression by providing evidence to support the adoption of an empirically supported feedback mechanism within the more complex arena of group CBT for depression, while considering the potential influence this formalized feedback has on unique small group process variables.

These two objectives serve as the basis for the studies that were conducted and comprise the present thesis.

Dr. Cary Kogan and the author, Ms. Mandisa Peterson, contributed to the design, implementation, analyses, and writing up of this manuscript. The staff at the Centre for Psychological Services and Research and the Mood Disorders Program at the Royal Ottawa Mental Health Centre contributed to the implementation of the study design. Dr. Irit Sterner contributed significantly to the collection of data for the group conditions. Dwayne Schindler contributed to the analysis of the data and provided assistance in writing the results section.

Cognitive Behavioural Therapy for Depression: The Role of Modality and Process in Relationship Distress

Introduction

The effectiveness of cognitive-behavioural therapy (CBT) for reducing depressive symptoms and preventing relapse has been widely demonstrated (Fournier et al., 2010; Cuijpers et al., 2013; Cuijpers et al., 2014; Vos et al., 2004; Butler, Chapman, Forman & Beck, 2006; DeRubeis et al. 2005; Wampold et al. 2002; Blatt, Zuroff, Bondi, & Sanislow, 2000; Hollon et al., 2005; DeRubeis et al., 2005). Research investigations have also focused on identifying the therapeutic factors that impact treatment response, including both formal strategies and process variables. Formal strategies are defined as explicit techniques employed within an intervention. This may include strategies such as completing monitoring forms, activity scheduling, symptom and feedback measures, homework completion, and exposure and imagery exercises. Process factors are defined as implicit variables common to various psychotherapeutic interventions that may account for some of the change in treatment. While numerous studies have highlighted various factors that lead to symptom reduction in response to CBT, the literature on the role of formal and process factors in improving interpersonal functioning with CBT is sparse.

Formal Strategies in CBT for Depression

Formal feedback on treatment progress provided to the therapist and client has been shown to improve treatment response (Lambert, 2010). Lambert and colleagues (2005) investigated the use of a weekly feedback system, called the Outcome Questionnaire (OQ-45; Lambert et al., 1996), which provides therapists with early recognition of potential treatment failures and provides suggestions for using alternative treatment methods or varying the treatment plan, regardless of the orientation of the therapeutic service being offered. The OQ-45 is a 45-item self-report instrument designed to measure change in three critical domains considered essential to improvement in psychotherapy: Symptom distress, interpersonal relationships, and social role performance. Specifically, respondents are directed to rate how they felt over the past week based on a 5-point Likert scale, ranging from "never" (0) to "almost always" (4). The Interpersonal Relations subscale was derived from the Inventory of Interpersonal Problems Inventory (IPP; Alden, Wiggins, & Pincus, 1990) and measures loneliness, conflict with others, and marriage and family difficulties. The possible scores on the subscale range from 0 to 36, with higher scores indicating poorer functioning.

Hess and colleagues (2010) examined the ability of the OQ-45 to discriminate for unique interpersonal distress. Findings of the study, which involved 121 participants recruited from a university counselling centre, supported the OQ-45 as a measure of general interpersonal distress. The subscale is based on research that suggests interpersonal relationships are often a central focus of therapy and well-being (Lambert et al., 2005). Given that higher levels of initial distress and interpersonal difficulties have been found to predict poorer outcomes in therapy, receiving formal feedback on a client's level of interpersonal distress throughout treatment represents a valid target (Kuyken, Kurzer, DeRubeis, Beck & Brown, 2001; Borkovec et al., 2002).

Formal strategies are also inherent in the structural components of CBT. For example, Heimberg and Becker (2002) found that clients completing CBT for Social Anxiety Disorder (involving formal strategies such as cognitive restructuring, homework, self-monitoring, and behavioural activation) reported a reduction in self-reported interpersonal distress. Although the literature on the relationship between formal strategies in CBT for depression and interpersonal distress is limited, a case can be made for the association. That is, it is well-established that symptoms of depression can increase the likelihood of interpersonal problems (Joiner, 2000). Consequently, a reduction in depressive symptoms would likely be associated with a reduction in interpersonal distress. Nonetheless, it appears that formal strategies in CBT may play a role in reducing self-reported relational distress.

Process Factors in Individual CBT for Depression

Process factors have also been isolated as variables that influence treatment response in therapy. While many process factors have been theorized and investigated, a great body of literature has emerged to support the role of therapeutic alliance in treatment success (Yalom and Leszcz, 2005). In a meta-analytic review, Horvath (2001) found that therapeutic alliance accounted for approximately half of the positive effect accrued from psychotherapy. In particular, the effect size for therapeutic alliance and outcome was .21, compared to an effect size of .39 for overall treatment effect of psychotherapy. What is less known is the relationship between therapeutic alliance in treatment and changes in relationship distress outside of treatment. De Roten and colleagues (2004) investigated the relationship between client-rated therapeutic alliance during the early stage of therapy and various treatment outcomes. Their findings suggest that alliance was predictive of symptom improvement as well as social adjustment at termination. While the relationship is not conclusive, it appears that therapeutic

alliance may play a role in the client's experience of interpersonal distress. What has yet to be addressed is the manner in which therapeutic alliance impacts relationship distress for individuals receiving CBT for depression. While the CBT approach is more structured and less process-oriented, it is nonetheless an evidence-based therapeutic approach that involves a relational component and targets problems related to depression, including interpersonal conflict (Norcross, 2011).

Process Factors in Group CBT for Depression

Other process factors that may influence treatment outcome can be found within the group modality. Group therapy, which has been shown to be comparable to individual treatment, has the unique benefit of group process factors that can impact treatment response (Norcross, 2011). One of the major differences between individual and group therapy is the number of relationship variables that may influence treatment outcome. Group therapy goes beyond the therapist-to-member relationship construct in individual therapy and encompasses all the member-to-member bonds within the group. Bieling, McCabe, and Antony (2006) hypothesized seven process variables in group CBT that might influence treatment outcome, including optimism, inclusion, group learning, shifting self-focus, modification of maladaptive relational patterns, group cohesiveness, and emotional processing in the group setting. Perhaps the most widely studied group process factor, group cohesion, has found wide support in the literature for influencing treatment response (see Joyce, Piper, and Ogrodniczuk, 2007, for a review). However, consensus on the significance of cohesion on treatment outcomes in group therapy has not been reached (Hope, Heimberg, Juster, & Turk, 2001; Oei & Browne, 2006).

What is poorly understood is whether the benefits of the therapeutic relationships formed between members in group therapy generalize to self-reported relationship distress outside of

group treatment. Although it may seem reasonable to expect a change in relational distress when interpersonal problems are targeted directly during group treatment, it is not clear whether a more structured approach, such as CBT for depression, might provide the same benefits. Researchers in Norway examined the relationship between group climate and on treatment response using a manualized, structured time-limited cognitive-behavioural group therapy (CBGT) for out-patients with comorbid psychiatric disorders, including depression (Ryum, Hagen, Nordahl, Vogel & Stiles, 2009). Results reveal that only levels of group engagement (a subscale of the Group Climate Questionnaire (GCQ-S; MacKenzie, 1981) which measures cohesion, self-disclosure, cognitive understanding, and confrontation) were related to improvement in interpersonal problems, as measured by the Inventory of Interpersonal Problems-Circumplex (IIP-C; Alden, Wiggins, & Pincus, 1990). Other studies have investigated various models of the relationship between cohesion and outcome (see Norcross, 2011, for a review). For example, cohesion to the group accounted for about two-thirds of the effect of interpersonal distress on attendance in two forms of time-limited group psychotherapy for complicated grief (interpretive and supportive), thus providing compelling evidence for its role as a mediator (Joyce, Piper, & Ogrodniczuk, 2007). Given this, it is possible that group cohesion may act as a mediator between predictor variables, such as initial level of distress, and treatment outcomes. Although relatively unexplored in the literature, group CBT for depression may contain unique process factors that can mediate the relationship between interpersonal distress reported at intake and termination.

Unlike individual therapy, which only includes the relationship between patient and clinician, group CBT allows for unique opportunities for relational type factors to be explored due to multiple patient interactions. Given these differences, this study will examine whether

improvements in self-reported relationship distress are greater in group CBT for depression than individual CBT for depression. This study will also investigate the possible mediating role of process variables in the relationship between pre- and post- relationship distress in group CBT for depression. The clinical implications for these results are significant, as there may be added benefits to referring clients to group CBT treatment instead of individual CBT treatment when they are reporting interpersonal problems within unipolar depression.

Rationale and Novel Contributions

The purpose of the study was not to examine the effect of providing feedback on clients' progress *per se*, but to compare how individual and group CBT interventions impact self-reported interpersonal distress over treatment, and investigate how process factors might mediate this relationship in group therapy. Specifically, it was of interest to study group cohesion and therapeutic alliance, and the potential mediating relationship to initial levels of relational distress and relational distress reported at termination.

Studying the impact of process factors on treatment outcome in isolation is a necessary first step before comparing the impact of feedback on patient response to treatment. This research will advance the literature on the treatment benefits of group therapy as well as the specific mechanisms in which group therapy might influence relationship distress.

Objectives of the Study and Research Questions

The primary objective of the present study was to examine differences in treatment response for individuals receiving CBT for depression and individuals receiving group CBT for depression. Specifically, I tested the hypothesis that there are benefits to offering group instead of individual CBT for depression for individuals experiencing relationship distress.

While investigating the potential benefits of group CBT for reducing relationship distress, I also examined which processes unique to group therapy might be impacting treatment response and in which manner. Specifically, I explored how therapeutic alliance and group cohesion in group CBT mediates client's self-reported interpersonal distress across treatment. Thus, the secondary objective was to assess the relationship between group cohesion, therapeutic alliance, and changes in relationship distress scores across group CBT for depression.

Hypotheses

For the primary objective, it is hypothesized that:

1. Clients in the group therapy condition will experience a larger *statistically* significant reduction in self-reported relationship distress at termination, as compared to clients in the individual therapy condition. Improvement in distress is defined as a decrease in the relationship distress subscale score on the OQ-45 from baseline (Time 1) to termination (Time 2).
2. Clients in the group therapy condition will experience a larger *clinically* significant reduction in self-reported relationship distress, as compared to clients in the individual therapy condition.
3. Participating in group therapy will lead to an overall greater *rate* of improvement in self-reported relationship distress across therapy sessions, as compared to clients who participate in individual therapy. A greater rate of improvement is measured by a significant decrease in the relationship distress subscale score on the OQ-45 across all 18 sessions of group treatment and the first 18 sessions of individual therapy.

In terms of the secondary objective, it is hypothesized that:

4. Group cohesion and therapeutic alliance will mediate the relationship between pretreatment relationship distress and posttreatment relationship distress in group therapy.

Methodology

Overview

This investigation primarily focuses on comparing individual therapy and group therapy on changes in relationship distress across treatment. The independent variable is the treatment condition (Individual *versus* Group) and the dependent variable is the change in relationship distress from pre-treatment to post-treatment, as measured the OQ-45 relationship distress subscale score. The secondary focus of the investigation is to examine whether process factors in group therapy, namely therapeutic alliance and group cohesion, account for the relationship between pre- and post- relationship distress. Data for the two treatment conditions were collected from two treatment sites. Analysis of previously collected data at a community-based mental health training centre was used to collect data on individuals receiving CBT for depression. Data for the group therapy condition was collected from patients attending group therapy at a tertiary care facility. Details on the selection process for each condition are provided in the Procedures section.

Participants

In total, there were 30 individuals involved in this investigation (37% male, 63% female). The mean age was 33.71 years (SD=10.53), with a range of 20 to 64 years. The mean pretreatment level of relationship distress score was 18.57 (possible range of scores for this subscale is 0 to 36), indicating clinical levels of distress in interpersonal relationships at the start of therapy. The majority of the sample was single (57.7%), followed by married (23.1%), divorced (11.5%), and with a partner/significant other (7.7%). The sample was predominantly Caucasian (85.7%) and spoke English as their first language (88.9%).

In the individual therapy condition, there were a total of 18 cases (67% female, 33% male). The mean number of sessions attended for individual therapy was 16.72 (SD=7.50) with a range of 6 to 29. In the group therapy condition, there were a total of two groups comprised of 12 participants (58% female, 42% male). There were seven participants in group 1 and five participants in group 2. One participant dropped out at session nine in group 2; however, data was retained and analyzed using a Last Observation Carried Forward (LOCF) method. Data from the group therapy condition was also used in study 2 of this thesis to investigate the role of feedback and process in group CBT for depression.

The mean number of sessions attended was 14.92 (SD=2.64), with a range of 9 to 18. The mean number of comorbid diagnoses was 2.25 (SD=.97). The most common comorbid diagnosis was Social Anxiety Disorder (42%) followed by Generalized Anxiety Disorder (30%). The mean number of antidepressant medications taken during treatment in the group therapy condition was 2.5 (SD=.71), with only one participant reporting a change in medication use over the course of treatment. Thirty percent of group participants reported having received previous group CBT.

Clients in the individual therapy condition were treated by clinical psychology doctoral students or interns who were supervised by eleven clinical psychologists. The treatment groups were co-led by one clinical psychologist and five pre-doctoral residents in clinical psychology (a different resident for each group). The number of years of training (as measured by the number of years registered with the College of Psychologists of Ontario) between the supervising clinician in the individual therapy condition and the clinical psychologist in the group therapy condition was not significant ($p>0.05$). Likewise, the level of training between the clinical psychology students serving as therapists in each treatment condition was non-significant ($p>0.05$). Given that the clinical psychologist in the group therapy condition also co-facilitates

the group sessions, the clinical psychologist is also considered a treating clinician. The level of training of the clinical psychologist is significantly greater than the practicum students and interns in the individual therapy condition. However, the literature suggests that the level of training of a therapist is not a significant predictor of client treatment outcome (See Goldberg et al., 2016, for review).

Procedure

Individual Therapy Recruitment

Participants were selected from an existing database that contains data collected from clients, student clinicians, and clinical supervisors at the University of Ottawa Centre for Psychological Services and Research (CPSR) used for the purposes of quality assurance and program development. CPSR is a well-established community-based training clinic located on the campus of the University of Ottawa. Under the supervision of registered psychologists, trainees at CPSR provide services in French and English to clients presenting with a broad range of psychological problems. CPSR's trainees comprise practicum students from the doctoral program in clinical psychology at the University of Ottawa as well as 8 interns completing a full year, pre-doctoral internship program accredited by the Canadian Psychological Association. Several evidence-based treatment orientations are offered in individual, couple, family, and group modalities.

Beginning in 2008, clinicians were instructed to administer the OQ-45 at the beginning of each session in order to provide clients with feedback on their progress on a session-by-session basis. How the information obtained from the OQ-45 was to be used in session was not stipulated, but clinicians had a variety of options. Treating clinicians could choose to provide feedback in session based on the results of the OQ-45 or use the OQ-45 data as a means of

monitoring client progress and provide feedback when deemed appropriate. This is consistent with Lambert and colleagues original studies which did not stipulate what therapists should do in response to results of the OQ-45 (Lambert, 2005).

In 2010, an evaluation was conducted to assess the implementation of the OQ-45 at CPSR. The methods of data collection included focus groups, surveys, and semi-structured interviews. Three different groups were sampled: treating clinicians (N = 49), supervising clinicians (N = 17), and clients (N = 24). In addition, client outcomes were analyzed using a database created from the online profiling system, the *OQ-Analyst*, as well as a database on client statistics. Information for this investigation was ascertained secondarily from these sources. Approval to use this data as a source for secondary data analysis was approved by the Social Sciences and Humanities Research Ethics Board at the University of Ottawa.

Selection of Individual Therapy Cases

Using the evaluation database for secondary data analysis, selection criteria were applied to select participants. First, because a variety of services are provided at CPSR (e.g., child and family services, psychoeducational assessment, couple therapy, etc.), only individual adult therapy cases were selected for analysis to ensure consistency in the instrument used (OQ-45, adult version) across cases. Second, only cases where clients had attended two or more sessions of individual therapy were included because analysis of change is not possible with only one administration of the OQ-45. Third, because both clinical faculty and students use the OQ-45 database in their provision of services, only cases where the treating clinician was a student (either practicum or intern level) were included. Finally, only terminated cases were included in the analyses to ensure that change was assessed at intake and at the end of treatment. After these selection criteria were applied, there were a total of 148 cases included in the analyses.

A total of 17 supervising clinicians at CPSR participated in the evaluation. Responses were collected from a series of questions, including: how supervisors directed their students to use the OQ-45 with their clients, how often they directed their students to use the OQ-45 in session, and how often supervisors discussed the OQ-45 in supervision. The collected responses were coded categorically (e.g., every session, most sessions, some sessions, never). For the purpose of this investigation, it is assumed that treating clinicians followed the directives of the clinical supervisors. That is, if the supervising clinician instructed the treating clinician to provide feedback from the OQ-45 to their client at the start of every session, it is assumed that the treating clinician was compliant. Thus, to ensure comparability to the group therapy feedback condition, only supervisors who reported that they instructed the treating clinician to provide feedback from the OQ-45 to their client at the start of every session was included in the analyses. Furthermore, only supervisors who identified their theoretical orientation as CBT in the evaluation were included for analysis. After the supervisor criteria were applied, the total number of cases was reduced to 61 individual therapy clients. Finally, only clients with a primary Axis I diagnosis of major depressive disorder were included in the study. It was not indicated in the data file which clinical instruments were used to determine the diagnosis or primacy of the depressive disorder; however, all diagnoses and clinical reports are overseen by a supervising registered clinical psychologist. Once all selection criteria were applied, there were 18 individual cases for analysis and 11 supervisors.

Individual Therapy Procedure

The variables of interest from the client outcomes database are: client code, client's age, gender, OQ-45 scores throughout treatment, number of sessions, supervising clinician, and treating clinician. Variables of interest from the OQ-45 evaluation database are: supervising

clinician, theoretical orientation, and frequency of provision of feedback in session. Additionally, the variables of interest from the client statistics database were client code, presenting problem, termination status, and level of training of treating clinician. Data from these sources were exported from Excel files and merged to a single SPSS file for analysis. Specifically, the client outcomes database and the use of the OQ-45 database were merged according to the clinical supervisor. The client outcomes database was merged with the client statistics database by the client code. This allowed for the analysis of changes in relationship distress across treatment for adult individuals participating in CBT for depression.

All electronic data was treated as confidential and stored on a secure server on a research computer that is located in a locked office at the University of Ottawa. Only the research investigators had access to the data. No identifying names of clients appeared on any dataset.

Group Therapy Recruitment

Participants were recruited from the Mood Disorders Program at the Royal Ottawa Mental Health Centre (ROMHC). The ROMHC is a tertiary care service whose mandate is to provide specialized assessment and treatment of mood disorder patients. The Mood Disorders Program at the ROMHC includes an Assessment and Evaluation outpatient clinic providing specialized care for individuals who are at least 16 years of age and who have been diagnosed with a treatment resistant or refractory mood episode, recurrent depression, or bipolar I or II disorder. Referrals to this clinic are received directly from central triage at the ROMHC, who coordinate and dispense referrals received from community physicians and other hospital centres. As part of standard clinical care in the outpatient clinic at the ROMHC, all newly referred patients undergo a standardized assessment aimed at diagnostic clarification, assessment of psychosocial variables related to treatment response, and treatment planning. The clinical

history of each patient is assessed and documented using the Structured Clinical Interview for DSM-IV (SCID-I; First, Gibbon, Spitzer & Gibbon, 1996), Interview Guide for Evaluating DSM-IV Psychiatric Disorders (Zimmerman, 1994), as well as standardized self-report instruments. Once patients are assessed, an inter-disciplinary treatment plan is generated and patients are treated within the context of the Mood Disorders Outpatient Clinic, if diagnosed with a mood disorder. Patients are offered pharmacological management of depressive symptoms, as well as group CBT programming for unipolar depression.

Once participants have completed the standard clinical assessment and evaluation process at the ROMHC, male and female patients 18 - 65 years of age, with a diagnosis of current unipolar depression according to DSM-IV criteria, were invited by a member of the clinical assessment team to participate in a study examining the effectiveness of group CBT to treat unipolar depression. Specifically, they were asked for permission to be contacted by the investigators. Upon agreement patients were contacted, informed about the study and asked to participate.

Selection of Group Therapy Cases

The inclusion criteria includes patients with a primary diagnosis of current unipolar major depressive episode (established by the SCID-I). The primacy of the diagnosis of depression was based on standard clinical assessment and evaluation protocols that take into consideration the mental health profile and current needs of patients in the Mood Disorders Program. As well, current major depressive episode is listed as the primary presenting concern on the clinical assessment report. The exclusion criteria were patients with a (1) primary diagnosis of any anxiety disorder, or (2) a SCID diagnosis, past or present of; (a) Bipolar Disorder, (b) Schizoaffective Disorder, (c) Schizophrenia, (d) Substance Abuse Disorder (current or within the

past 6 months), (e) primary personality disorder (based on a structured clinical interview and assessment report from the Mood Disorders Program Assessment and Evaluation clinic). Patients were also excluded if they were actively suicidal (i.e. suicidal plans or gestures), had an unstable medical illness, neurological disease, head trauma, or current psychotic symptoms. Participants were proficient in speaking English and had at least a Grade 8 reading level. This is the reading level used for standard clinical care CBT groups at the Royal in order to participate in group activities and complete CBT related homework. Patients with other mental health conditions were included in the study provided their diagnoses were not the primary presenting problem.

Group Therapy Procedure

This research investigation involved asking interested participants to complete additional symptom-related interviews and questionnaires over the course of treatment. Participants were under no obligation to participate in the proposed study and it was made clear to them both verbally and in the informed consent documentation that their decision to participate in this study would have no bearing on the quality of their current or future health care. Therefore, declining participation in the study had no effect on treatment received in the Mood Disorders Program. Patients who declined participation at the ROMHC would continue to receive therapy as usual from a trained therapist and pharmacological management as part of routine clinical care.

Interested participants were placed on a waitlist until there were enough people to form one group (approximately 10 participants). The average wait period was 4 weeks (see Results section for more details). Once there were enough participants, each participant was scheduled for an individual pre-group session with a group facilitator (clinical psychologist or clinical psychology resident under their supervision) during a two-week period prior to the start of the

group. During this meeting, patients were asked to provide informed consent to participate in a study assessing the effectiveness of group CBT to treat major depressive disorder. Furthermore, diagnoses obtained during the semi-structured diagnostic clinical interviews were confirmed using the mood module of the SCID.

This meeting also involved meeting with the research investigator to provide instructions for completing the OQ-45. Severity level of current depressive symptoms was also assessed by the research investigator using interviews assessing severity of current symptoms (Hamilton Depression Rating Scale; Hamilton, 1960). A short-package of self-report questionnaires assessing demographics (age, sex, gender), psychiatric (previous treatments) and psychological variables (satisfaction with life, dysfunctional cognitions), were administered.

Participants who required pharmacological management continued to take their medication as directed for the duration of the study. For the purpose of this study, medications were considered nuisance variables. That is, the information is not of direct interest to the investigation, but was taken into account in case changes to medication use needed to be controlled for in the statistical analyses.

The group CBT sessions were led by one clinical psychologist and co-facilitated by five psychology residents who were under supervision (one psychology resident for each group). Specifically, psychology residents had previous training in two of the following areas: group CBT, individual adult CBT, and CBT for depression, in order to be considered as co-facilitators. The progress of the trainees was discussed on a weekly basis during specific allotted periods for supervision.

In addition to the 2 individual sessions, one before and after treatment, there were 18 weekly group sessions. The individual session after treatment termination involved debriefing

about participation in the study, including positive and negative aspects of using the OQ-45, as well as recommendations for the future. Each session was 2 hours in duration. Clients were instructed to go to a computer lab close to the group therapy room 15 minutes before the start of each session to complete the OQ-45 on the *OQ-Analyst*, an accompanying computer software program that tabulates and produces feedback based on client responses. A research investigator was present to assist with logging into the program, questions, and any technical issues that might arise. All participant feedback reports were then printed by the research investigator and given to the facilitators and each participant received their own feedback report. Five minutes were allotted to allow participants the opportunity to discuss their feedback. It was made clear at the beginning of each session that participants were free to not discuss their feedback if they chose to.

In line with standard group CBT for depression at the ROMHC, drop-outs were defined when participants missed more than 3 consecutive sessions. Participant drop-outs were handled with the LOCF method. This method imputes the last measured value to all subsequent, but missing, evaluations and analyses are conducted as if all the data were observed. This method introduces less bias to the data than a per-protocol analysis, which only includes those patients who complete treatment. Other imputation methods exist that may further reduce bias in the data. For example, an Intention to Treat (ITT) analysis typically involves administering measures at study time points to patients who have dropped out of the treatment and includes everyone in the analysis. However, this method was not feasible given the resources available and the study population.

Measures

Outcome Questionnaire. The Outcome Questionnaire (OQ-45; Lambert et al., 1996) is a 45-item self-report instrument designed to measure change in three critical domains considered essential to improvement in psychotherapy: Symptom distress, interpersonal relationships, and social role performance. Specifically, respondents are directed to rate how they felt over the past week based on a 5-point Likert scale, ranging from "never" (0) to "almost always" (4). To decrease the possibility of response sets producing biased results, 9 of the 45 items are reverse scored. The possible scores range from 0 to 180, with higher scores indicating poorer functioning. Scores on the Total OQ-45 scale have been reported to be reliable and valid, distinguishing well between clinical and non-clinical subjects, as well as patients with differing degrees of illness severity (Umphress et al., 1997).

The Working Alliance Inventory - Short Form. The Working Alliance Inventory - Short Form (WAI-S; Horvath & Greenberg, 1989) is a 12-item self-report measure developed to examine three characteristics of working alliance between a clinician and client: therapeutic bond, agreement on tasks, and agreement about goals. Each item is scored on a 7-point Likert scale ranging from "not at all true" (1) to "very true" (7). The WAI demonstrates convergent validity of 0.76 for the Tasks subscale, 0.80 for Goal subscale, and 0.53 for the Bonds subscale, as well as being correlated with many relationship and outcome based measures (Hatcher, Barends, Hansell, & Gutfreund, 1995; Cortez-Ison, 1997).

Group Climate Questionnaire – Client Short Form. The Group Climate Questionnaire – Client Short Form (GCQ-S; MacKenzie,1981) is a twelve-item self-report instrument that measures how group members perceive the group's therapeutic environment. Responses are rated on a seven-point Likert scale indicating extent of agreement ranging from "not at all" (0) to "extremely" (6). It has demonstrated good internal reliability and construct validity, with

coefficient alphas ranging from 0.88 to 0.91 (Kivlighan & Goldfine, 1991). The GCQ-S consists of three subscales: Engagement, Avoidance, and Conflict. The Engagement scale refers to cohesion, self-disclosure, cognitive understanding, and confrontation. The Avoidance scale measures the extent to which group members may avoid responsibility for their change process. The Conflict scale is a measure of interpersonal conflict and distrust.

Statistical Analysis

The computer software IBM SPSS Statistics for Windows, Version 22.0, Armonk, NY: IBM Corp. for Windows was used to analyze this data. As a preliminary analysis, one-way ANOVAs were conducted on pre-treatment client variables to determine whether potential confounds exist between treatment modalities. Variables of interest included the mean OQ-45 relationship distress score at pretreatment, and mean age of participants for each treatment condition. The mean number of therapy sessions was also of interest. A chi-square analysis was conducted to assess differences in gender composition (male, female).

Hypothesis 1 was analyzed using a 2x2 repeated measures design to determine whether, compared to individual CBT for depression, participating in group CBT for depression leads to a greater reduction in self-reported relationship distress at termination. The independent variable was the Treatment Condition (Individual vs. Group) and the dependent variable was the change in score on the OQ-45 relationship distress subscale from intake to termination.

A 2X4 chi-square analysis was employed for hypothesis 2 to further assess the meaningfulness of change in relationship distress by treatment modality (Individual vs. Group). Using outcome classifications based on Jacobson and Truax's (1991) criteria for reliable or clinically significant change, clients were categorized into four final outcome classifications:

Recovered, Improved, No change, and Deteriorated. The differences in the frequency with which clients were assigned to outcome classification categories were then assessed.

Hypothesis 3 was analyzed using a repeated measures ANOVA, with the treatment condition (Individual vs. Group) as the independent variable and each client's OQ-45 relationship distress score over eighteen sessions of therapy as the dependent variable. The use of mixed linear models for longitudinal data was considered but not completed for this analysis. As this is a preliminary investigation, the analyses are exploratory in nature. An evaluation of the goodness of fit for other statistical models would present a logical next step in future research that includes more rigorously obtained data.

To test hypothesis 4, two mediator models were employed to examine whether change in relationship distress in group therapy was mediated by either therapeutic alliance (Total score on the Working Alliance Inventory) or group cohesion (Three subscales on the Group Climate Questionnaire). The data for the mediator variables were collected during session three of group treatment. The predictor for these two models was the pre-intervention OQ-45 relationship distress score and the outcome was the post-treatment OQ-45 relationship distress score. A follow-up mediator model was analyzed using the subscales of the Working Alliance Inventory (i.e. Bond, Task, Goals) to determine whether specific aspects of the therapeutic alliance mediate the relationship between pretreatment relationship distress on posttreatment relationship distress in group therapy.

The Hayes (2013) method was used to test for mediation. Compared to Baron and Kenny's regressions and the Sobel test, which uses formal tests of significance, the Hayes approach uses bootstrap confidence intervals to interpret indirect effects. This practice has

become increasingly common as it allows users to simply report the degree of mediation observed in the data as opposed to being bound to significance testing only.

Results

Pre-treatment

Given the small sample size (Individual condition $n = 18$, Group condition $n = 12$) a test for normality was not conducted (Tabachnick and Fidell, 2007). However, nonparametric tests, which are designed for data analysis with small samples, would be unable to evaluate the research questions. In order to assess for interaction effects and mediation models, more complex analyses were required. Therefore, parametric testing was used to begin to investigate the relationships between the variables of interest. As this investigation is a preliminary analysis of the research questions, any significant findings represent a first attempt at examining the variables of interest.

The small sample size also suggests a low level of power, which may make it difficult to detect significant findings. This primarily presents a challenge to the interpretation of non-significant results. That is, failure to achieve significance may be reflective of the true relationship between the variables of interest or simply due to the analysis being underpowered. However, if significant results are found with the small sample size, cautious interpretation of the findings is warranted.

Missing data for the weekly OQ-45 relationship distress scores were imputed using the Last Observation Carried Forward method. Data is missing from participants who dropped out of the study or did not complete the initial or termination process measures (See hypothesis 4). Given that hypothesis 4 assesses variables measured at two time points before and after group therapy, data missing from either one of these time points represent a loss of 50 % of the participant's data. In order to reduce bias, it was believed to be reasonable to exclude participants missing data at Time 1 or Time 2 from some of these analyses.

Prior to testing the effectiveness of the treatment interventions (Individual Therapy and Group Therapy), preliminary analyses were completed in order to test for pre-intervention equivalence of variables that could be confounded with the effect of treatment intervention modality. Thus, one-way ANOVAs were conducted to assess for comparability of the mean OQ-45 relationship distress scores at pretreatment, mean age of participants, and mean number of therapy sessions for each treatment condition. A chi-square analysis was conducted to assess differences in gender composition (male, female). Due to the number of categories and small sample sizes, differences in marital status (single, married, divorced, significant other/partner) was assessed using the non-parametric Fisher's Exact test. Unlike the chi-square analysis, the Fisher's Exact test is more amenable for calculating probabilities when the expected frequency count is less than 5.

Table 1 shows the means and standard deviations of the pre-treatment and demographic variables of interest for each condition. No statistically significant between-groups differences were found between the two treatment conditions in terms of mean OQ-45 relationship distress scores at pre-treatment ($F(1,28) = 3.14$, $p>0.05$), mean age of participants ($F(1,28) = 3.51$, $p>0.05$), and mean number of therapy sessions for each treatment condition ($F(1,28) = 0.67$, $p>0.05$). Similarly, no statistically significant between-groups differences were found between the two treatment conditions in terms of gender ($\chi^2 = 0.215$, $n = 30$, $p>0.05$) and marital status ($p>0.05$). In summary, results from variables available suggest the two conditions had similar demographic characteristics and clinical presentations and a comparative level of attendance and group completion status at termination.

Table 1. Means, Standard Deviations, and F-values for Pre-treatment and Demographic Variables by Treatment Condition (Individual *n* = 18, Group *n* = 12).

	Treatment Condition		
Variables	Group Mean (SD)	Individual Mean (SD)	F-value
Pretreatment relationship distress	85.92 (18.18)	89.00 (20.91)	3.14
Age	38.50 (11.66)	31.06 (9.12)	3.51
Number of sessions	14.92 (2.64)	16.72 (7.50)	0.67

*No group difference was found on any pretreatment demographic variables

Hypothesis 1

Clients in the group therapy condition will experience a greater statistically significant reduction in self-reported relationship distress at termination, as compared to clients in the individual therapy condition. Improvement in distress is defined as a decrease in the relationship distress subscale score on the OQ-45 from baseline (Time 1) to termination (Time 2).

A 2x2 repeated measures ANOVA was performed with Treatment Condition (Individual vs. Group) as independent variable and each client's pre- and post-treatment OQ-45 relationship distress scores as dependent variable. A significant interaction effect was found, indicating that the relationship distress subscale score differed in each treatment condition across time. ($F(1, 28) = 4.87$, $p < .05$, partial $\eta^2 = 0.15$) (See Figure 1). Table 2 shows the means and standard deviations of the two treatment conditions at time 1 and time 2.

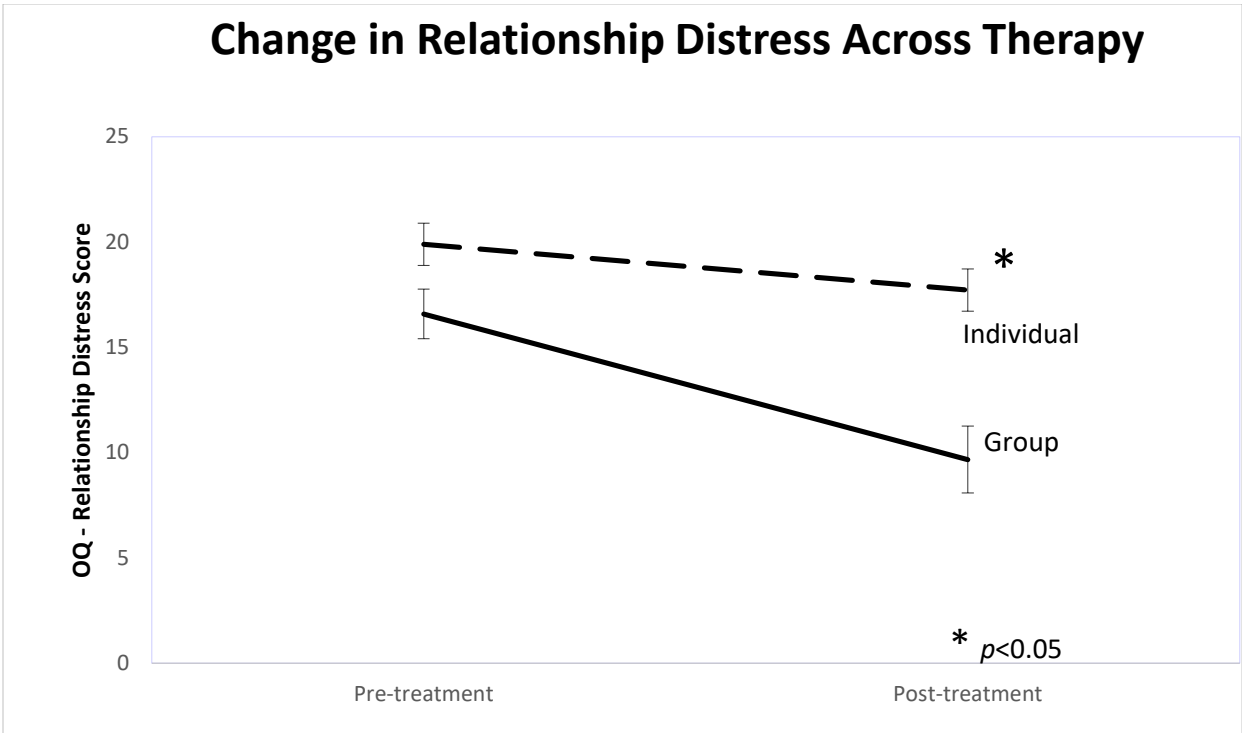


Figure 1. Interaction between time (pre and post-treatment) and condition (individual and group) for the Outcome Questionnaire-Relationship Distress subscale score (Individual *n* = 18, Group *n* = 12).

Table 2. Means and Standard Deviations for Change in Relationship Distress by Treatment Condition (Individual *n* = 18, Group *n* = 12).

Condition		Mean (SD)
Group	Time 1	16.58 (1.444)
	Time 2	9.67 (1.943)
Individual	Time 1	19.89 (1.179)
	Time 2	17.72 (1.586)

A subsequent analysis of the simple main effects of time for each group was investigated. Results indicated a significant effect of time in the group condition ($F(1, 28) = 17.22$, $p < .001$, partial $\eta^2 = 0.38$) and a non-significant effect of time in the individual condition ($F(1, 28) = 2.55$, $p > .05$, partial $\eta^2 = 0.08$). These results suggest that clients who participated in group therapy

experienced a significantly greater reduction in relationship distress across time than clients who participated in individual therapy.

Hypothesis 2

Clients in the group therapy condition will experience a greater clinically significant reduction in self-reported relationship distress at termination, as compared to clients in the individual therapy condition.

To further assess the meaningfulness of change in relationship distress by treatment intervention, clients were categorized into the final outcome classifications based on Jacobson and Truax's (1991) criteria for reliable or clinically significant change: Recovered, Improved, No change, and Deteriorated. These data are presented in Table 3. To account for the small sample size, the non-parametric Fisher Exact's test was used instead of the Chi square statistic. The Exact procedure is an expansion of the model that was originally developed by Fisher in order to obtain a probability value without violating the minimum expected frequency count per cell required for chi square analyses. The Fisher Exact's test revealed that the differences observed between treatment interventions are significant ($p<0.05$, $\varphi = 0.47$).

Table 3. Observed Count, Expected Count, and Adjusted Residual of the Relationship Distress Outcome Classification by Treatment Condition (Individual $n = 18$, Group $n = 12$).

		Condition	
Outcome Classification		Group	Individual
Recovery*	Observed Count	6	3
	Expected Count	3.6	5.4
	Adjusted Residual	2.0	-2.0
Improvement	Observed Count	3	2
	Expected Count	2.0	3.0
	Adjusted Residual	1.0	-1.0
No change*	Observed Count	3	12
	Expected Count	6.0	9.0
	Adjusted Residual	-2.2	2.2

Deteriorated	Observed Count	0	1
	Expected Count	.4	.6
	Adjusted Residual	-.8	.8

*Adjusted Standardized Residual is the equivalent of a z-score. Significance at the 0.05 alpha level is considered when the adjusted residual is ≥1.96.

Upon investigation of the individual cells, it is evident that the observed count in the 'Recovery' category for the group condition is significantly greater than the count that would be expected if it were a function of chance. Likewise, the observed frequency in the 'Recovery' category of the individual condition is significantly less than the frequency that would be expected as a function of chance. This suggests that clients in the group condition experienced a greater clinically significant improvement in relationship distress than clients in the individual condition, with more clients in the group condition being classified as recovered (change in relationship distress score from pre- to post treatment moved from the clinical range to the non-clinical range) than would be expected by chance and fewer clients in the individual condition being classified as recovered than would be expected by chance.

Also of note, individual cell analysis revealed that the observed frequency in the 'No change' category of the group condition was significantly less than what would be expected by chance. Similarly, the observed frequency in the 'No change' category of the individual condition was significantly greater than what would be expected as a function of chance. These results suggest that, compared to the group condition, clients in the individual condition experienced relatively greater non-clinically significant change across treatment as compared to those in the group condition.

In terms of the outcome classification 'Improvement' and 'Deteriorated,' the observed and expected frequencies in both the individual and group condition were not significantly

different than what would be expected as a function of chance. These findings suggest that a comparable number of clients in both the individual and group condition experienced a clinically significant improvement in relationship distress as classified by Jacobson and Truax. Likewise, both conditions saw a similar number of clients experience an increase in relationship distress across treatment interventions.

Hypothesis 3

Participating in group therapy will lead to an overall greater rate of improvement in self-reported relationship distress across therapy sessions, as compared to clients who participate in individual therapy.

A repeated measures ANOVA was performed with Treatment Condition (Individual vs. Group) as independent variable and each client's OQ-45 relationship distress score over eighteen sessions of therapy as the dependent variable. Given that the individual therapy sessions ranged from 6 to 29, only individual therapy cases with at least 18 sessions were included. Thus, 9 participants were included in the individual therapy condition. There were no missing data in the individual condition between sessions 1 and 18. In the group condition, there were 14% missing data between session 1 and session 18. The last observation carried forward (LOCF) method was employed for data imputation in the group condition. This analysis was compared with and without using the LOCF method for the group condition (participants with missing data were removed from the analysis), indicating that the results were consistent regardless of whether the LOCF method of data imputation was used.

Using the Greenhouse-Geisser correction to account for sphericity, results indicate a non-significant interaction ($F(6, 119) = 0.73$, $p > .05$, partial $\eta^2 = 0.04$). Analysis of main effects revealed a significant effect of time ($F(6, 119) = 3.41$, $p < .01$, partial $\eta^2 = 0.15$), suggesting that

clients experienced a significant reduction in relationship distress over the eighteen sessions of therapy across both treatment conditions (See Figure 2). The analysis of the main effect of treatment condition yielded non-significant findings ($F(6, 119) = 3.69$, $p > .05$, partial $\eta^2 = 0.16$), although the trend is approaching significance ($p = 0.07$). Given the large number of within-subject levels, it is likely that a larger sample would provide enough power to detect a significant interaction between the treatment interventions across eighteen sessions of therapy.

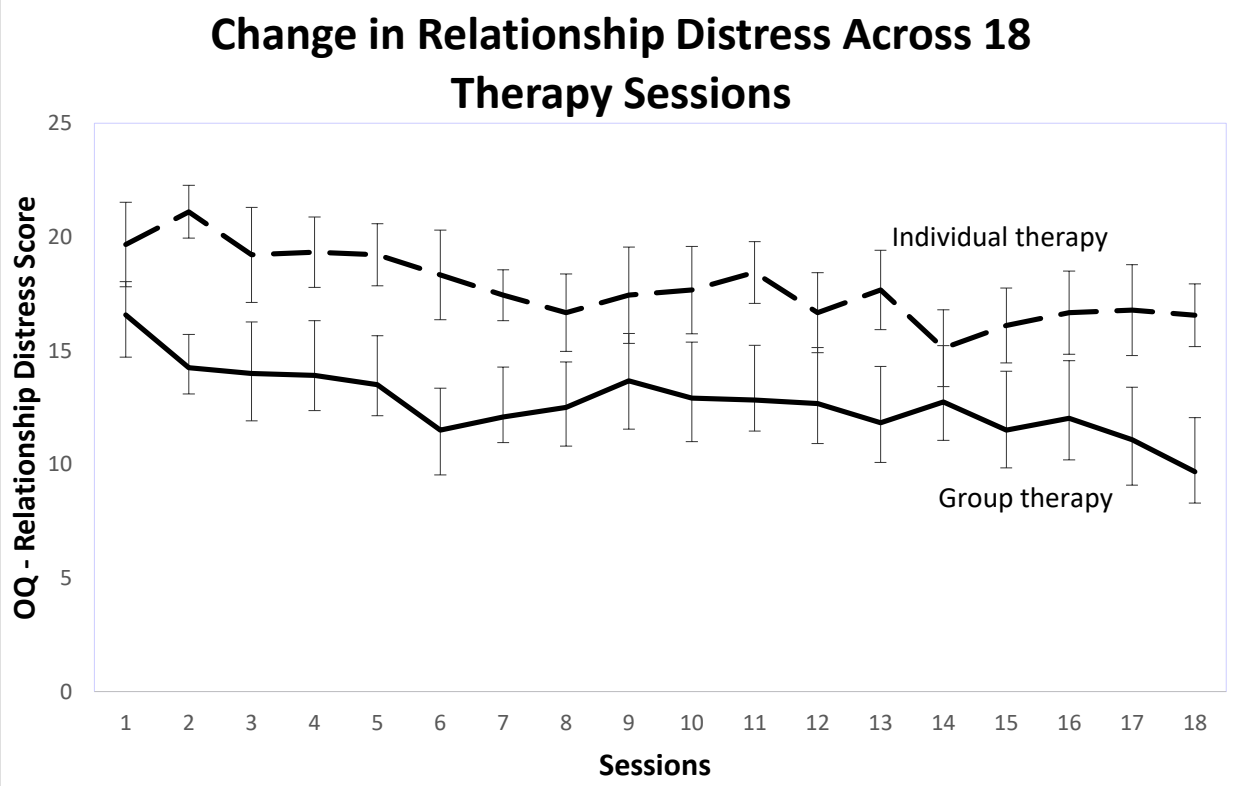


Figure 2. Interaction between sessions and condition (individual and group) for the Outcome Questionnaire-Relationship Distress subscale score (Group $n = 12$; Individual $n = 9$).

Hypothesis 4

The remaining analyses relate only to the group therapy participants: *Group cohesion and therapeutic alliance will mediate the relationship between pretreatment relationship distress and posttreatment relationship distress in group therapy.*

Two mediator models were employed to investigate whether a reduction in relationship distress in group therapy (predictor = pre-treatment relationship distress, outcome = post-treatment relationship distress) was mediated by group cohesion and therapeutic alliance. Group cohesion is determined by the participant's initial scores on the three Group Climate Questionnaire subscales (measures at session 3): Engagement, Avoidance, and Conflict. Therapeutic alliance is determined by the participant's total score on the initial Working Alliance Inventory (measured at session 3). See Figure 3 for the conceptual mediation model (Hayes, 2013). Given the small number of analyses and small sample size, it was decided not to adjust the alpha level. Therefore, results should be interpreted with caution. See Table 4 for a correlation matrix of the variables of interest. One group participant did not complete the group cohesion and therapeutic alliance measures, therefore, eleven participants were included in these analyses.

Table 4. Correlation Matrix of the Predictor, Mediators, and Outcome Variable in Hypothesis 4

Correlation Matrix									
	OQ-45 Relationship Distress Pretreatment	WAI-Total	WAI-T	WAI-B	WAI-G	GCQ-E	GCQ-C	GCQ-A	OQ-45 Relationship Distress Posttreatment
OQ-45 Relationship Distress Pretreatment		-0.59	-0.52	-0.55	-0.54	-0.37	0.18	0.09	0.61**
WAI-Total			0.93**	0.90**	0.91**	0.49	-0.16	-0.09	-0.77**
WAI-T				0.76**	0.77**	0.34	-0.17	0.12	-0.73**
WAI-B					0.74**	0.42	-0.23	-0.31	-0.72*
WAI-G						0.61*	-0.03	-0.12	-0.68*
GCQ-E							-0.38	-0.11	-0.65*
GCQ-C								0.39	0.44
GCQ-A									0.07
OQ-45 Relationship Distress Posttreatment									

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

WAI = Working Alliance Inventory, GCQ = Group Climate Questionnaire

As demonstrated in Figure 3, the indirect effect is the combined effects of paths *a* and *b*. The significance of this effect can be assessed using the Sobel test (Sobel, 1982). If the Sobel test is significant it means that the predictor significantly affects the outcome variable *via* the mediator. In other words, there is a significant mediation. However, it is recommended that bootstrap confidence intervals be employed to interpret indirect effects over formal tests of significance (Hayes, 2013). This practice has become increasingly common and is preferable to Baron and Kenny's regressions and the Sobel test as it allows users to simply report the degree of mediation observed in the data as opposed to being bound to significance testing only.

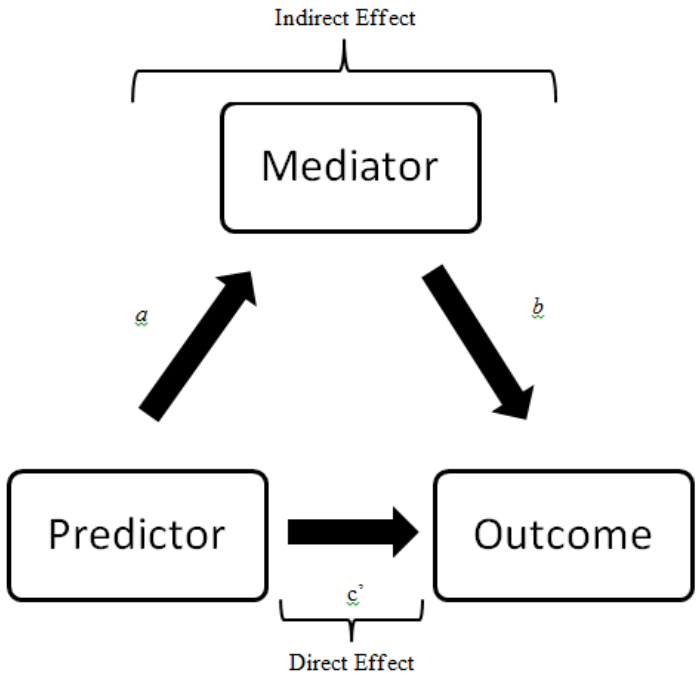


Figure 3. Conceptual mediation model with direct and indirect effects (Hayes, 2013).

Therapeutic Alliance Mediator Model

Step one of testing the therapeutic alliance mediation model was to determine whether the participants' level of pre-treatment relationship distress (predictor) was predictive of the participants' perception of their alliance with the therapist(s) (mediator). Step two involved testing the indirect effect of pre-treatment relationship distress (predictor) on post-relationship distress (outcome) through the mediators (See Figure 4). Results indicate that there was an indirect effect of pretreatment relationship distress on posttreatment relationship distress through the client's perceived alliance with their therapists, b=0.49, BCa CI [0.02, 1.82]. The confidence interval indicates that the true b-value for the indirect effect falls between 0.02 and 1.82. Since b=0 would mean that there is no effect whatsoever, a confidence interval that does not contain zero means that there is likely to be a genuine indirect effect. Therefore, therapeutic alliance is a mediator of the relationship between pretreatment relationship distress on posttreatment relationship distress in group therapy. This represents a relatively large effect, $\kappa^2 = 0.36$, 95% BCa CI [.12, .77]. The negative b value for pretreatment relationship distress (path a) tells us that as relationship distress increases, perception of therapeutic alliance decreases. Likewise, the negative b value for therapeutic alliance (path b) tells us that as perception of therapeutic alliance increases, posttreatment relationship distress decreases. These relationships are in the predicted direction.

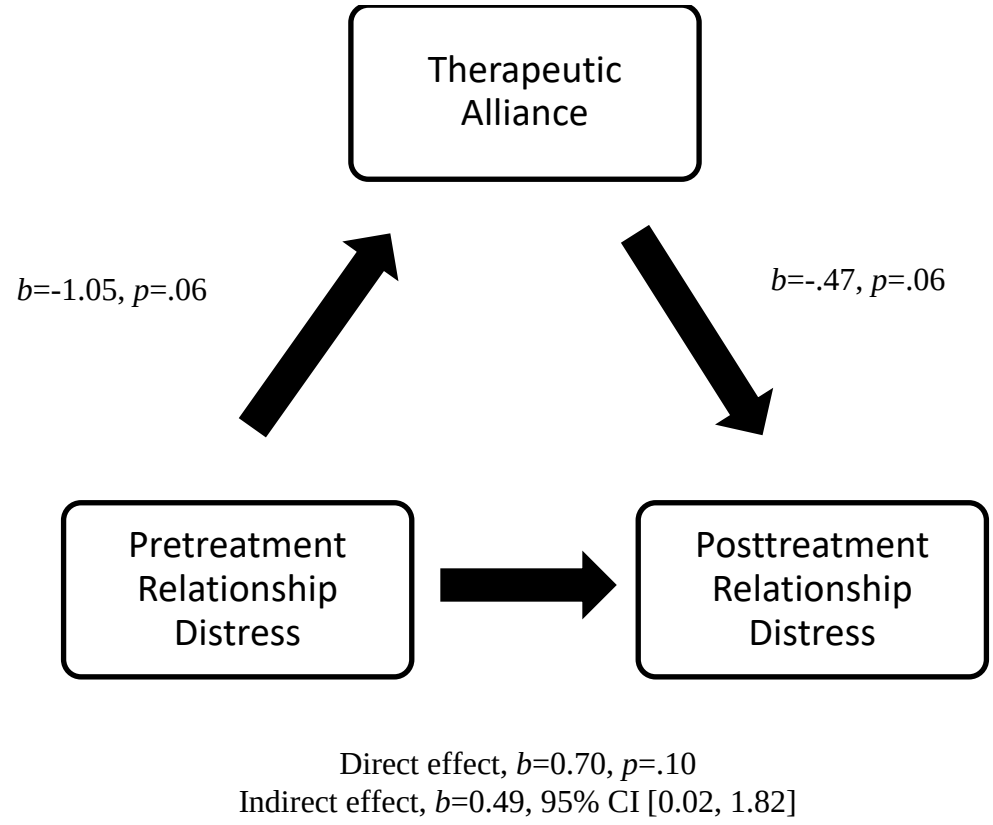
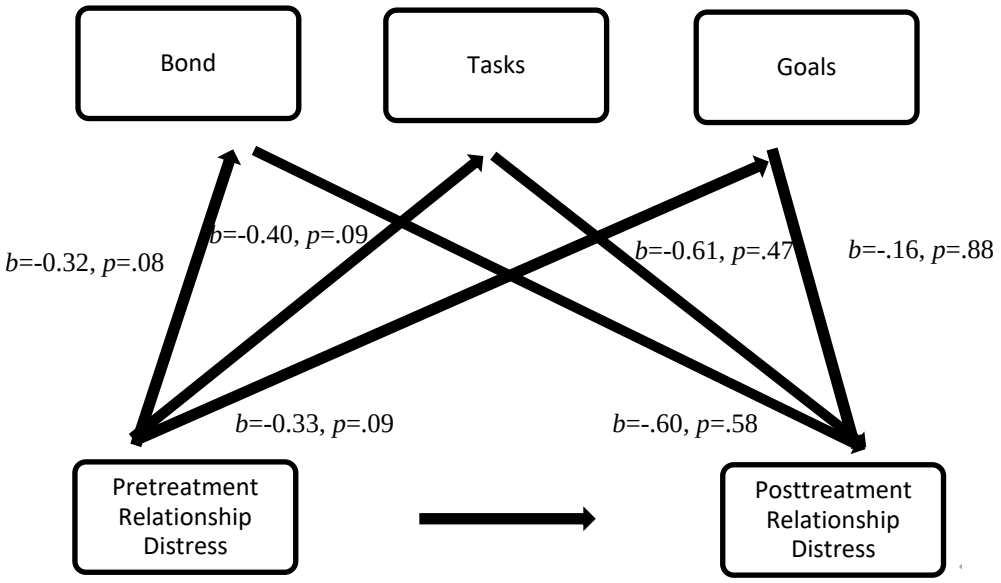


Figure 4. Therapeutic alliance mediation model (*n* = 11*).*

Follow-up Analysis of Therapeutic Alliance Mediator Model

In order to determine which characteristics of the therapeutic alliance mediates the relationship between pretreatment relationship distress on posttreatment relationship distress in group therapy, a follow-up mediator model was tested using the subscales of the therapeutic alliance inventory. Step one of testing this follow-up mediation model was to determine whether participants' levels of pre-treatment relationship distress (predictor) was predictive of the participants' initial level of therapeutic bond (Bond), agreement on tasks (Tasks), and agreement about goals (Goals) (mediators). Step two involved testing the indirect effect of pre-treatment relationship distress (predictor) on post-relationship distress (outcome) through the mediators (See Figure 5). Results indicate that there was a non-significant indirect effect of pretreatment relationship distress on posttreatment relationship distress through the client's perception of

agreement on tasks (*b*=0.25, 95% CI [-0.97, 1.44], κ^2 = 0.31, 95% BCa CI [.04, .60]) agreement on goals (*b*=0.05, 95% CI [-0.82, 2.07], κ^2 = 0.27, 95% BCa CI [.04, .70]) and perceived therapeutic bond (*b*=0.19, 95% CI [-1.06, 2.30], κ^2 = 0.30, 95% BCa CI [.06, .77]). Since the confidence intervals for the *b* values overlap with zero, this suggests that the therapeutic alliance subscales do not mediate the relationship between pretreatment relationship distress and posttreatment relationship distress. Given the number of variables in this model and the small sample size available, it is possible that a larger sample size could yield significant results.



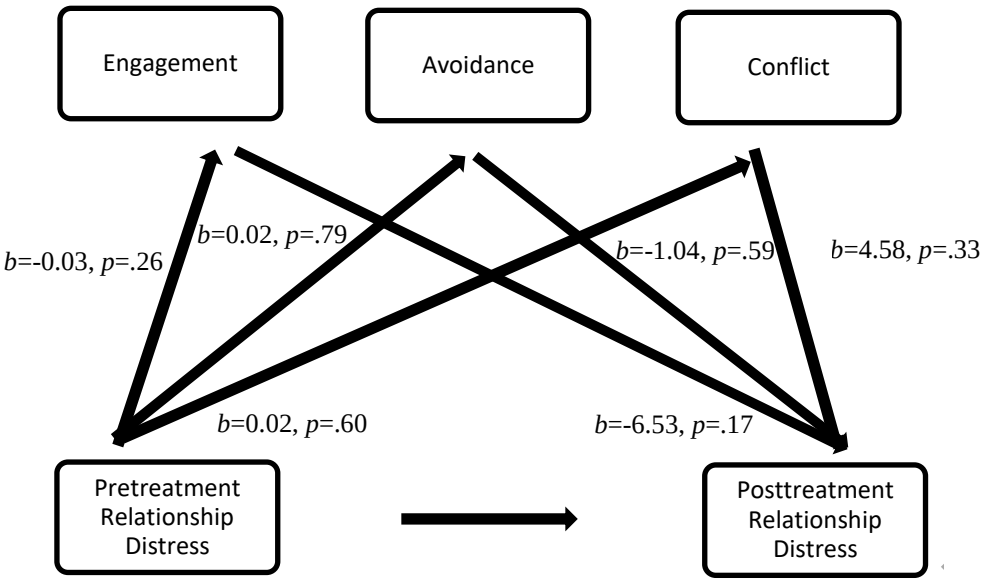
Direct effect, *b*=0.70, *p*=.16
Bond Indirect effect, *b*=0.19, 95% CI [-1.06, 2.30]
Tasks Indirect effect, *b*=0.25, 95% CI [-0.97, 1.44]
Goals Indirect effect, *b*=0.05, 95% CI [-0.82, 2.07]

Figure 5. Follow-up therapeutic alliance mediation model (*n* = 11).

Group Cohesion Mediator Model

Step one of testing the group cohesion mediation model was to determine whether participants' levels of pre-treatment relationship distress (predictor) was predictive of the participants' initial level of engagement, avoidance, and conflict within the group (mediators).

Step two involved testing the indirect effect of pre-treatment relationship distress (predictor) on post-relationship distress (outcome) through the mediators (See Figure 6). Results indicate that there was a non-significant indirect effect of pretreatment relationship distress on posttreatment relationship distress through the client's perception of group engagement (*b*=0.22, 95% BCa CI [-0.14, 1.29] , κ^2 = 0.23, 95% BCa CI [.02, .58]), group avoidance (*b*=-0.02, 95% CI [-0.79, 0.30], κ^2 = <0.01, 95% BCa CI [<.01, <.01]) and group conflict (*b*=0.07, 95% CI [-0.36, 0.53], κ^2 = 0.09, 95% BCa CI [<.01, .37]). The confidence intervals for the *b* values all overlap with zero. Therefore, group cohesion does not mediate the relationship between pretreatment relationship distress and posttreatment relationship distress.



Direct effect, *b*=0.92, *p*=.04
Engagement Indirect effect, *b*=0.22, 95% CI [-0.14, 1.29]
Avoidance Indirect effect, *b*=-0.02, 95% CI [-0.79, 0.30]
Conflict Indirect effect, *b*=0.07, 95% CI [-0.36, 0.53]

Figure 6. Group cohesion mediation model (*n* = 11*).*

Discussion

The primary objective for this study was to explore whether there were any benefits to offering group CBT instead of individual CBT for depression for individuals experiencing relationship distress. The results so far suggest that: a) similar to previous studies that identified to role of CBT for social anxiety in reducing interpersonal distress, CBT for depression also has a positive impact on reducing relationship distress, and b) although many investigations have found group CBT for depression comparable to individual CBT for depression, there may be added benefits to attending the group modality for reducing interpersonal distress.

Hypothesis 1 predicted that participants receiving group CBT would experience a greater statistically significant reduction in self-reported relationship distress at termination, as compared to participants receiving individual therapy. Results indicated that clients experienced a significant reduction in relationship distress over the course of treatment as measured by the OQ-45. Furthermore, clients who participated in group CBT experienced a significantly greater reduction in relationship distress from intake to termination than clients who participated in individual CBT. This suggests that there may be benefits to participating in CBT for depression for reducing distress related to interpersonal relationships. Although the mechanisms are not yet clear, it appears that participating in the group modality of CBT for depression may lead to significantly greater improvements in relationship distress as compared to an individual therapy modality.

Hypothesis 2 tested whether participating in group CBT led to greater clinically significant reductions in self-reported relationship distress at termination, as compared to participation in individual CBT. Based on Jacobson and Truax's (1991) criteria for reliable and clinically significant change, results indicated that clients receiving group CBT were

significantly more likely to be classified in the Recovered category at termination than a function of chance, and clients receiving individual CBT were significantly less likely to be classified as Recovered at termination than a function of chance. Findings also suggest that both treatment interventions saw similar rates of clients classified as Improved and Deteriorated at termination. Taken together, clients in group CBT experienced a greater clinically significant improvement in relationship distress than clients in the individual CBT. Thus, in addition to group CBT for depression providing statistically greater improvements in relationships distress compared to individual CBT for depression, there appears to be a greater chance for clients to experience recovery from relationship distress, at least for the present sample, when participating in group CBT for depression (i.e. transition from a clinical level of distress to a non-clinical relationship distress level). This further supports the strength of the positive impact group CBT for depression has on relationship distress compared to individual therapy.

In addition to analyzing pre- and post-treatment scores on relationship distress by treatment intervention, changes in scores across the first 18 therapy sessions were examined in hypothesis 3 to determine whether participating in group CBT *led to an overall greater rate of improvement in self-reported relationship distress, as compared to clients who participate in individual CBT.* Results indicate a significant reduction in relationship distress over the eighteen sessions of therapy across both treatment conditions. Although there was a non-significant interaction between time and treatment condition, a trend approaching significance was found The differences between the treatment conditions and level of relationship distress varied from session to session, with some sessions demonstrating significant differences between the individual and group condition. Although there were significant differences found overall from the intake to termination, the pattern of change throughout treatment was not significantly

different between the two conditions. It is possible that with a larger sample size, a significant interaction effect would be detected. Limitations for this analysis are discussed below.

While the results of these hypotheses further advance the literature on the benefits of group CBT, it is not clear which mechanisms are influencing these changes. Hypothesis 4 focused on group CBT to assess what therapeutic factors might account for the relationship between pre-relationship distress and post-relationship distress. Namely, it was predicted that group cohesion and therapeutic alliance would mediate the relationship between pretreatment relationship distress and posttreatment relationship distress in group CBT. Results of the therapeutic alliance mediator model suggest that therapeutic alliance is a mediator of the relationship between pretreatment relationship distress on posttreatment relationship distress in group CBT. Specifically, as perception of therapeutic alliance increases, posttreatment relationship distress decreases. These relationships were found to be in the predicted direction.

As a follow-up to this model, the three subscales of the Working Alliance Inventory were employed as mediator variables to determine which aspect of therapeutic alliance accounted for the relationship between pretreatment relationship distress on posttreatment relationship distress in group therapy. The results suggest that, taken separately, the client's perception of agreement on tasks, agreement on goals, and perceived therapeutic bond do not mediate the relationship between pretreatment relationship distress and posttreatment relationship distress. Again, the small sample size and number of mediators in the model likely influenced the ability to detect any true effect.

Nonetheless, a global measure of therapeutic alliance appears to be a mediator of the relationship between pre- and posttreatment interpersonal distress. This further supports the literature on the importance of therapeutic alliance in treatment outcome. Data on working

alliance for clients receiving individual CBT was not available for secondary analysis. Therefore, differences in therapeutic alliance between the individual and group CBT are unknown. Furthermore, it is not clear whether it is the level of therapeutic alliance that accounts for the differences in outcome between group and individual modalities. Nonetheless, it is evident that therapeutic alliance may play an important role in treatment outcome in group CBT for depression and this mirrors extensive support in the literature for the relationship between therapeutic alliance and treatment outcome in individual therapy (Norcross, 2011). This investigation also extends the literature by providing evidence on the nature of the relationship between therapeutic alliance and interpersonal distress in group CBT for depression. Given that alliance with the therapist accounts for a significant portion of whether clients see improvements in relationship distress, it is important for group CBT therapists to pay close attention to their alliance with each group member, especially in cases where clients report interpersonal problems or are not demonstrating progress in therapy. Addressing the therapeutic alliance as a potential target for improving outcomes in group therapy is supported by the work of Lambert and colleagues (Whipple et al., 2003; Lambert, 2010). As part of the outcome monitoring system, there are clinical support tools that provide a structured mechanism for assessing therapeutic alliance during treatment, in order to target factors that may improve treatment outcome. While their research mainly focused on various individual therapy orientations, this investigation provides support for the important role of therapeutic alliance in group CBT for depression. Given that group CBT employs a structured, manualized approach, and is less process-oriented than other therapeutic orientations, the strength of this finding is significant.

Finally, results of the group cohesion mediator model indicated the client's perception of group engagement, group avoidance, and group conflict did not mediate the relationship between

pretreatment relationship distress and posttreatment relationship distress. While this finding might be impacted by the number of mediators used in the model and low sample size, it is not inconsistent with the literature (Woody & Adesky, 2002). That is, previous investigations have identified therapeutic alliance and not group cohesion as mediators of treatment outcome in group therapy. It is possible that the relationship with other group members may not play as significant a role in reducing interpersonal distress as with the relationship to the therapist in group CBT for depression. This has implications for group therapists and the degree of attention placed on developing group cohesion over therapeutic alliance in group CBT for depression, especially when clients report relationship distress (as measured by the OQ-45 relationship distress subscale score or similar measures). It appears that process factors that influence treatment outcomes in individual therapy have similar levels of importance in the group arena. The results of the secondary objective, which focused on examining the relationship between process factors and changes in relationship distress across group CBT for depression, advances the current state of research on the mechanisms of group therapy that lead to change.

Effect Sizes

Many researchers have reported the importance of providing effect sizes in quantitative studies (Sullivan & Feinn, 2012). Whereas statistical significance measures the existence of a relationship, the effect size is a measure of the magnitude of that relationship (Kline, 2004). Given the small samples available for this thesis, examination of the effect sizes provides an alternative method of describing the relationship between the variables of interest and treatment outcomes. The measurement used to identify the effect size was partial eta-squared. The suggested norms for interpreting the effect size are: small (0.01), medium (0.06), and large (0.14) (Field, 2005).

The strength of the relationship between group CBT for depression and interpersonal distress was large. The effect size for the mediating role of therapeutic alliance on pre- and post-treatment interpersonal distress in group CBT for depression was also large. Although the subscales of the therapeutic alliance measure were not supported as mediator variables, the strength of the association on all three subscales was large. This indicates that agreement on tasks, goals, and therapeutic bond may act as mediating variables if analyzed with a larger sample size. The effect size for the mediating role of the group cohesion subscales ranged from small to large. The strength of the association between group engagement and changes in relationship distress was large, followed by a medium effect size for group conflict, and a small effect for group avoidance. Similar to the therapeutic alliance subscales, it is possible group cohesion, especially levels of group engagement, may play a role in the relationship between initial levels of interpersonal distress and interpersonal distress at termination.

Some researchers have suggested that large effect sizes are overestimated when sample sizes are small, introducing a potential bias in research findings (Levine, Asada, & Carpenter, 2009). In an effort to reduce this bias, the partial eta squared measurement of effect size and the bias corrected bootstrap confidence interval (Hypothesis 4) were employed. These measures provide some correction for small sample size biases compared to the traditional eta squared and confidence interval measurements (Hayes, 2013).

However, regardless of the strength of the effect size, it is recommended that investigators collect more data with a larger sample size after the pilot investigation in order to replicate findings. Given this is a preliminary analysis of the research questions, caution is warranted when interpreting effect sizes until more data is collected with a larger sample.

Limitations and Future Research

Given the small sample size and missing data in this investigation, it will be important to replicate this study using more participants in each condition. Future research would benefit from assessing additional group process factors that may play a role in treatment outcomes, especially those variables related to more structured therapies such as CBT. As well, given that scores for the individual therapy condition were derived from a secondary data source, it was not possible to gather information on the role of process factors, such as therapeutic alliance, on individual treatment outcome. This made it difficult to compare to results in the group therapy condition. It was also difficult to determine which other factors between the two treatment sites might account for the results that were found. For example, in the database used for secondary analysis for the individual CBT condition, it is not indicated whether clients ended therapy because they had dropped out or completed their treatment. Also, outside of the responses provided by the supervising clinician, it is not clear whether the treating clinician provided feedback from the OQ-45 at every session.

Other information, such as medication use, comorbidities, and previous treatment, was not available. It is possible that the level of therapeutic alliance in the group therapy condition is attributed to the level of training and experience of the group facilitators, rather than the group condition alone. However, every effort was made to compare variables in common between the two treatment sites, including number of years as a practicing clinician (between doctoral students or between registered clinical psychologists), and there were no significant differences found. Unfortunately, resources were not available to control for the significant discrepancies in level of training between the treating clinicians in the experimental conditions.

While the level of training of the clinical psychologist providing group CBT was greater than that of the student providing individual CBT, all individual CBT students received weekly

supervision by a registered clinical psychologist. Likewise, a student co-facilitated every CBT group in this study. As discussed in the methodology, it was assumed that students followed the directives of their supervisors. This included the provision of feedback, as well as the application of CBT principles and treatment protocols. Further research would benefit from assessing adherence to both individual and group CBT protocols through coding of audio-recorded sessions.

Finally, the construct of relationship distress has been operationally defined and studied in various ways in the literature. While the definition of relationship distress for this investigation followed Lambert's characterization as outlined in the development of the Interpersonal Relations subscale for the OQ-45, it is not always clear that this definition matches other constructs in the literature. For example, the terms interpersonal conflict, interpersonal distress, and interpersonal problems are often used interchangeably in the literature, depending on the measure that is used, but may reflect different constructs. This investigation hopes to provide a better understanding of the construct of relationship distress and the formal and process factors that influence changes over the course of CBT for depression.

The source of the relationship distress for patients in either condition was not measured and it is assumed that they are the same. However, this assumption may not be accurate. For example, is the source of distress a spouse, a parent, a child, or another person? Also, it is not clear why having a stronger relationship with your therapist in group CBT for depression leads to reduced relationship distress. For example, it may be related the therapist's modeling of problem-solving or feeling connected to, understood, and validated by another person (i.e. development of attachment). Further investigation into the nature of this relationship is warranted.

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Standard and Enhanced Group Cognitive Behavioural Therapy: The Role of Feedback in Treatment Outcomes

Group Cognitive-Behavioural Therapy

Although most research has focused on the effectiveness of individual cognitive-behavioural therapy, evidence from randomized controlled clinical trials also supports the use of group CBT for the treatment of major depressive disorder (Hardy et al., 2001; Scott, Palmer, Paykel, Teasdale & Hayhurst, 2003). In a comparison of sixteen individual treatments and fifteen group treatments (most treatment orientations identified as cognitive or cognitive-behavioural), Robinson, Bermin, and Neimeyer (1990) determined that treatment effect sizes were approximately equal.

Specific studies of group CBT and individual CBT for depression have found that both modalities perform at nearly identical levels (Huntley, Araya, & Salisbury, 2012; Westen & Morrison, 2001; DeRubeis & Crits-Christoph, 1998). There is also limited evidence to support the efficacy of group CBT over other group psychotherapies, such as gestalt group treatment (e.g., Beutler, Machado, Engle, & Mohr, 1993). A meta-analysis comparing treatment as usual, individual CBT, group CBT, and other group therapies for depression found that group CBT was significantly more effective than treatment as usual and comparable to individual CBT for

depression (Huntley, Araya, & Salisbury, 2012). There were four studies comparing group CBT to interpersonal therapy, dialectic behaviour therapy (DBT), and self-control therapy; however, no conclusions could be drawn due to the small sample sizes.

The literature on the benefits of group CBT for depression is mixed. Some researchers have failed to establish group CBT as more effective than self-help interventions or control groups (Burlingame, Fuhriman & Johnson, 2004). Consensus has also not been reached on whether group CBT for depression is comparable to pharmacotherapy (Burlingame, Fuhriman & Johnson, 2004). Burlingame postulated that group CBT for depression has been unsuccessful in considering the impact of group process factors on outcomes, thus limiting the ability of these factors to facilitate greater responses to treatment. Nonetheless, the majority of studies and meta-analyses point to the overall efficacy of group CBT for depression when compared to controls and other therapeutic interventions (Bieling, McCabe, Antony, 2006).

Factors Related to Treatment Response to CBT

Despite the evidence regarding the effectiveness of CBT in reducing symptoms of depression and preventing relapse, it should be noted that there is often a great deal of variability in response to treatment across patients (Roth & Fonagy, 2004; Scott, 1996). For example, earlier age of onset of symptoms (Button et al., 2013), increased length of current episode (Sotsky et al., 1991) and a history of more frequent previous episodes (Thase, 1994) have been shown to predict reduced response to CBT treatment. The presence of a co-occurring personality disorder has been identified as a predictor of a negative response to CBT (Shea et al., 1990). However, it has been suggested this apparent relationship is confounded by severity of initial depressive symptoms, which are often exacerbated by a co-morbid personality disorder (Kuyken, Kurzer, DeRubeis, Beck & Brown, 2001). In addition, higher baseline levels of dysfunctional

attitudes (Shankman et al., 2013), cognitive dysfunction (Sotsky et al., 1991), avoidant coping (Bockting et al., 2006), self-criticism (Enns, Cox & Pidlubny, 2002), and interpersonal difficulties (Borkovec et al., 2002) have been associated with a poorer response to CBT. A number of process variables have also been identified as factors related to poor treatment response, including poor therapeutic alliance (Lambert & Bergin, 1994) and lower pretreatment levels of autonomous motivation (Zuroff et al., 2007).

Therapeutic Alliance

Therapeutic alliance is one of the most well-researched process factors responsible for change in psychotherapy (Horvath, 2001; Norcross, 2011). A number of studies have identified client ratings of therapeutic alliance, especially in the early stages of treatment, as the best predictor of treatment outcome (Lambert & Bergin, 1994; Norcross, 2011). Both client report of therapeutic alliance that remains stable over time and improvements in therapeutic alliance from pre-treatment to post-treatment have been predictive of greater improvement in symptoms and social adjustment at termination (Jacobson et al., 1996; De Roten et al., 2004). Meta-analytic reviews have also demonstrated the strong relationship between alliance and outcome. A review of the literature found that effect sizes for the relationship between therapeutic alliance and outcome ranged from .21 to .28 (Norcross, 2011). Norcross found that the average effect size associated with various individual treatment approaches (i.e. CBT, IPT, psychodynamic, and substance-abuse treatments) were not significantly difference from one another.

Motivation to Change

Although the therapeutic alliance between the client and therapist has frequently been heralded as a primary factor in therapeutic outcome across psychotherapies, a sizable body of research has been devoted to elucidating other factors, such as motivation to change, which may

influence response to treatment (Zuroff et al., 2007). Autonomous motivation, which refers to a state in which individuals are intrinsically motivated when they perceive themselves to have freely chosen their goals and the strategy to achieve these goals is of their choosing, has emerged as a putative common factor that may predict treatment outcome (Markland, Ryan, Tobin & Rollnick, 2005; Zuroff et al., 2007). In support of the notion of autonomous motivation as a predictive factor for treatment success, Zuroff and colleagues (2007) found that autonomous motivation was a stronger predictor of therapeutic outcome than was therapeutic alliance. Similarly, Pelletier, Tuson and Haddad (1997) found that autonomous motivation was predictive of positive mood during sessions, satisfaction with therapy and intention to persist in therapy. It should be underscored, however, that studies have found alternative forms of motivation to be as effective as autonomous motivation in improving treatment outcomes (e.g. Michalak, Klappheck & Kosfelder, 2004). For example, Michalak and colleagues found that, independent of autonomous motivation, individuals who positively valued their goals and envisaged a high probability of success demonstrated greater reductions in symptoms of anxiety and depression in individual CBT.

Interestingly, there is wealth of evidence to suggest that therapist's objective awareness of patient progress constitutes an important predictor of overall response to treatment, and consequently may serve as an important method to enhance treatment (Lambert et al., 2005; Reese, Norseworthy, & Rowlands, 2009; Lambert, 2007; Harmon et al., 2007; Shimokawa, Lambert, & Smart, 2010; Lambert, Hansen, & Harmon, 2010).

Measuring Treatment Response in Individual Therapy

In order to effectively monitor patient progress throughout mental health treatment, clinicians need standardized methodologies for evaluating change. These assessments must be

comprehensive and have the flexibility to incorporate the unique characteristics of the patient's illness (Bilsbury & Richman, 2002). In addition, outcome assessment must provide a reliable method of defining treatment goals and examining efficacy of treatment (Lambert, 2015). There are many standard psychometric approaches to tracking outcome in individual and group therapy. Treatment outcome can be assessed by changes in patient level of functioning, subjective quality of life, or severity of symptoms (Panzarino, 1995). The benefit of using standardized measures of treatment response is the ability to place all patients on a continuum of distress, which allows for comparisons across therapists, treatment modalities, and settings (Lambert & Brown, 1996). However, conventional instruments are often insensitive to the individual nuances that reflect the richness of human experience (Bilsbury & Richman, 2002). Often there is more concern with observing an increase or reduction in a number of symptoms than level of functional impairment. Indeed, incorporating context when assessing change within the individual is an essential aspect in clinician decision making (Bilsbury & Richman, 2002). Another concern is that many of these measures are used before and after treatment, and although they do provide an index of therapy effectiveness, they do not allow the clinician to modify an ineffective treatment (Lambert, 2015).

In response to the need for a global assessment of patient functioning, Lambert et al. (1996) developed the Outcome Questionnaire. The Outcome Questionnaire (OQ-45; Lambert et al., 1996) is a 45-item self-report instrument designed to measure change in three critical domains considered essential to improvement in psychotherapy: Symptom distress, interpersonal relationships, and social role performance. Specifically, respondents are directed to rate how they felt over the past week based on a 5-point Likert scale, ranging from "never" (0) to "almost always" (4). To decrease the possibility of response sets producing biased results, 9 of the 45

items are reverse scored. The possible scores range from 0 to 180, with higher scores indicating poorer functioning. Scores on the Total OQ-45 scale have been reported to be reliable and valid, distinguishing well between clinical and non-clinical subjects, as well as patients with differing degrees of illness severity (Umphress et al., 1997).

There are many advantages of the OQ-45 that makes it an attractive measure for outcome assessment. The instrument is brief, economical, easy to understand and score, possesses sound psychometric properties and is sensitive to change (Umphress, 1995). Moreover, the OQ-45 provides a method to improve psychotherapy outcome by monitoring patient progress throughout treatment at the same time as supplying feedback to clinicians to guide ongoing treatment (Lambert, 2001). Indeed, based on OQ-45 data provided by the patient at each session, therapists can evaluate patients' progress for positive or negative signs of predicted functioning at treatment termination.

Formal Feedback in Individual Therapy

Preliminary evidence suggests that feedback systems are critical to improving outcomes for poorly responding patients undergoing psychotherapy (Lambert, 2015). Indeed, it is proposed that relaying of feedback to therapists regarding their patients' progress using formal measures of treatment response has the ability to identify patients who are at risk of deterioration far more accurately than clinician judgment alone. Moreover, completion of formal measures of progress throughout therapy may also increase interest and investment of patients in the therapeutic process (Lambert et al., 2005). Lambert's research suggests that when therapists receive feedback about their patients, the percentage of negative responses to treatment decreases; in one study from 5% to 21%. Moreover, deterioration rates increase when therapists do not receive feedback about at-risk patients. For example, in a study conducted by Lambert and colleagues

(2005), when therapist and patients at risk for deterioration receive feedback about patient progress they show the highest rates of improvement (56%), compared to therapist-only feedback conditions (35%) and no feedback conditions (21%). In this way, using a weekly feedback system, such as the system described by Lambert, provides therapists with early recognition of potential treatment failures and provides suggestions for using alternative treatment methods or varying the treatment plan, regardless of the orientation of the therapeutic service being offered.

Beyond monitoring patient progress, Lambert and colleagues developed a normative profiling system that provides external benchmarks for classifying patient change into four empirically derived categories: Reliable change, indicated by statistically significant change in symptom distress from admission/intake status; Recovery, indicated by patient functioning that approximates normal individual functioning at the community level; No change; and Reliable Deterioration, indicated by statistically significant change where symptom distress has increased from admission status (Lambert, 2015). The OQ-45 utilizes empirically calibrated algorithms based on data from peer-reviewed randomized controlled trials to identify patients at risk of deterioration. The profiling system also screens for critical areas of patient functioning, including suicide, substance abuse, and violence (Lambert, 2015). In addition, the patient's total score is provided in comparison to the total scores of normative groups such as community mental health centres, university counseling centres, and inpatient settings (Lambert, Gregersen, & Burlingame, 2004).

The report produced by the profiling system includes a graph that identifies the course of patient change. A colour-coded empirically-derived warning system is provided to signal the reader to patient functioning: White indicates client functioning in the normal range, which

suggests termination of treatment should be considered; green signifies the client's rate of change is adequate, and recommends no change in the treatment plan; yellow signifies the client's rate of change is less than adequate and changes in treatment plan are suggested; red signifies progress below the expected level for the patient, and advises that steps be taken to carefully review the case an decide on a new course of action (Lambert, Gregersen, & Burlingame 2004). Finally, a feedback message is provided for patients and therapists summarizing patient progress, status on critical items, and number of sessions recommended in order to achieve reliable change and normal functioning. Lambert and colleagues (2010) suggest that these features ensure that patients and therapists are provided with the critical information necessary to both monitor patient change and enhance treatment outcomes.

Whipple and colleagues (2003) explored the use of an enhanced feedback system to address the fact that in earlier studies, even with the benefit of feedback, many clients identified, as "not on track" did not attain satisfactory outcomes at termination. Thus, the authors developed a set of clinical support tools (CSTs) to be administered according to a heuristic of stepped-care (Whipple et al, 2003). As such, they measured outcome and attendance among three groups of clientele randomly assigned to an OQ-45 feedback group without CSTs, an OQ-45 feedback group with CSTs, and a no feedback condition. A significant advantage was found for the feedback with CSTs condition over and above the advantage of the generic OQ-45 feedback as well as the no feedback conditions. The heuristic and CSTs used in the Whipple and colleagues (2003) study were selected on the basis of those factors in the psychotherapy literature demonstrated to be relevant to positive therapeutic outcomes. Specifically, they included tools to assess the quality of the therapeutic alliance, the client's readiness to change and the match with

treatment strategies, the client's social support network, the accuracy of the diagnosis, and the appropriateness for referral for a medication assessment (Whipple et al, 2003).

Limitations of Outcome Monitoring Systems

While the empirical support for outcome monitoring systems is strong, there are some limitations. The outcome questionnaire is a global outcome measure that does not take into account the unique aspects of the client's clinical presentation. Individualized approaches to measuring treatment progress allow for tailored client outcomes that better adhere to the client's treatment plan. The various presenting problems that may be unique to each client seeking treatment for Major Depressive Disorder, such as symptoms of depression, phobias, binge eating, parenting difficulties, financial problems, somatic complaints, and emotion dysregulation, may not be adequately addressed by a global outcome measure such as the Outcome Questionnaire. Therefore, while substantial progress may be achieved for the client`s identified treatment goals over the course of therapy, changes in standardized measures of outcome such as the OQ-45 may be minimal. Likewise, some items may not be relevant to the client, resulting in lower distress scores that inaccurately reflect the client's lived experience. However, given the ease of administration across multiple clients, normative data, protocols for scoring and interpretation, and the limitations of time and resources in many health care facilities, standardized outcome measures such as the OQ-45 are often preferred.

Measuring Treatment Response in Group Therapy

The clear benefits provided by the use of an outcome feedback system to patients in the context of individual psychotherapy raises the important empirical question of whether this approach might also improve outcome for individuals participating in group psychotherapy. A first step in designing an effective outcome monitoring and feedback program for CBT groups is

to recognize the unique factors that differentiate group from individual therapy. A second reason for identifying these factors is that although it is generally well accepted that group interventions either produce similar or more favorable outcomes when compared to individual therapy (e.g., Kosters, et al, 2006 for a meta-analytic review), the means by which such outcomes are arrived at across the two modalities may vary in important ways.

Group-Specific Factors Related to Treatment Response to CBT

Several models already exist that describe the relationships between group-specific factors and therapeutic outcome (Bieling, McCabe, & Antony, 2006; Burlingame, MacKenzie & Strauss, 2004; Satterfield, 1994; Yalom, 1995). In addition to general process factors (i.e., therapeutic alliance, motivation to change), Bieling and colleagues (2006) propose that outcome in CBT groups are related to two categories of variables, formal CBT strategies and small-group process. As discussed earlier, formal CBT strategies include strategies such as behavioural activation, thought monitoring and cognitive restructuring, and relate to previously identified factors that may predict treatment response (e.g., level of dysfunctional attitudes, cognitive dysfunction, etc.). According to the authors, small-group process variables comprise seven factors, including optimism, inclusion, group learning, shifting self-focus, modification of maladaptive relational patterns, group cohesiveness, and emotional processing in the group setting. Bieling and colleagues (2006) further delineate the therapeutic strategies that can be implemented to effectuate change in levels of these factors, suggesting that these variables may also be important targets of change, and that if targeted throughout therapy they could significantly enhance treatment response of groups participants (e.g., particularly when they are not improving or are deteriorating). A review of the literature revealed that, other than group cohesiveness, there is limited empirical evidence supporting the existence of these factors (Bieling, McCabe, & Antony, 2006;

Norcross, 2011). Yalom and Leszcz (2005) suggested that process factors often reflect deeply subjective experiences that are difficult to capture through the use of standardized measures.

Group Cohesion

Cohesion among group members has largely been studied as a core process factor influencing outcome in group therapy (Yalom, 1995). Common definitions of group cohesion focus on members' sense of belonging, mutual liking/trust, support, commitment, and positive interactions with other group members (Burlingame, Furhiman & Johnson, 2002). In comparison to factors responsible for change in individual therapy, Holmes and Kivlighan (2000) found that clients in group therapy were more likely to report group member relationships and therapeutic climate as the factors responsible for change in treatment. Researchers have also found that levels of group cohesion are directly related to symptomatic improvement and decreases in premature dropout (see Yalom and Leszcz 2005). While most of these studies were conducted using a variety of therapeutic orientations, including Freudian, nondirective, experiential, gestalt, relational, interpersonal, and cognitive-behavioral, the authors concluded that the orientations were similar to one another in their emphasis on establishing strong therapeutic relationships within the group (see Yalom and Leszcz, 2005). In fact, nearly identical findings on group cohesion emerged in more structured group therapies. For example, one investigation studied the relationship between fifty-one patients' perceived "attraction to the group" on treatment outcomes in behaviour therapy (Falloon, 1981). Results indicated that this measure of group cohesion significantly correlated with higher ratings of self-esteem and fewer member drop outs.

However, findings on the relevance of cohesion in structured group therapies are mixed. One study investigated the influence of group cohesion in a short-term structured CBT group for social anxiety (Hope, Heimberg, Juster, & Turk, 2001). While the therapeutic relationship improved over the twelve treatment sessions, group cohesion remained the same. Furthermore,

only therapeutic alliance was predictive of treatment outcome. Woody and Adesky (2002) theorize that the therapist-patient bond and agreement on tasks are more critical factors for change in highly structured group therapies. The present thesis seeks to understand whether, in addition to general process factors, group-specific process factors, such as group cohesion, should be considered as legitimate targets to address when evaluating therapist and patient feedback from the OQ-45 for signs of improvement or deterioration.

Study Overview

The success of CBT for unipolar depression has been demonstrated across multiple populations, settings and severity levels. Furthermore, it is now clear that receiving formal feedback about patient's engagement in, and response to, individual therapy sessions (including therapies with a cognitive-behavioural orientation) reduces dropout rates and improves psychological outcomes (Lambert, 2015). Although research on the factors impacting treatment response in CBT has predominantly focused on individual therapy, there is a growing body of literature that supports group CBT approaches as equally effective (Tucker & Oei, 2007). However, it is unclear how these factors impact the effectiveness of group therapy. Furthermore, the group modality, in contrast to individual psychological treatment, provides for unique mechanisms, such as group cohesion, that could be significantly influenced by the inclusion of an enhanced feedback system.

Rationale and Novel Contributions

While some investigations have studied the impact of feedback on group intervention, the results have been mixed. Burlingame, Strauss and Johnson (2008) found that providing feedback to group members on the level of group cohesion reported at every session was associated with more conflict and worse outcomes for group members. The authors recommended further

investigation to determine alternative feedback interventions that may improve treatment outcomes in group therapy. The present study aimed to address this identified gap in the literature by adopting an empirically-supported feedback system studied in individual therapy and applying it to the more complex arena of group therapy. Moreover, this study addresses the impact of formal feedback on unique processes in group therapy such as group cohesion. Using both evidence-based approaches to feedback and factoring in implications to processes in group therapy, the present investigation sought to advance the literature on factors that lead to greater treatment outcomes in group CBT for depression.

Objectives of the Study and Research Questions

The primary objective of this study was to examine whether enhanced formal therapist and patient feedback provided during each session of group CBT for depression (enhanced group CBT condition) would lead to improved therapeutic outcomes compared to the standard feedback in group CBT for depression (standard group CBT condition). Do clients see greater improvements in treatment outcomes, such as level of distress, depressive symptoms, quality of life, and dysfunctional thinking, when they receive more detailed feedback about their progress in group CBT?

The secondary objective of the study was to investigate whether adopting an enhanced feedback system would have a positive impact on group processes in group CBT for depression compared to standard feedback interventions inherent in group CBT for depression. Are there greater improvements observed in group process factors, such as group cohesion, therapeutic alliance, and autonomous motivation, when clients and therapists receive more detailed feedback about client progress throughout group CBT for depression?

Hypotheses

For the primary objective, it is hypothesized that:

1. Formal feedback derived from the outcome questionnaire (OQ-45) and provided to therapists and patients will lead to clinically and statistically significant improvements in general distress at termination, as compared to those attending the standard group CBT condition.
2. Relative to the standard group CBT condition, the enhanced group CBT condition will lead to improved outcomes, such that patients in the enhanced group CBT condition will show statistically significant reductions in symptom severity and dysfunctional beliefs at termination, as compared to those attending the standard group CBT condition.
3. Relative to the standard group CBT condition, the enhanced group CBT condition will lead to improved outcomes, such that patients in the enhanced group CBT condition will show statistically significant increases in quality of life at termination, as compared to those attending the standard group CBT condition.

In terms of the secondary objective, it is hypothesized that:

4. The enhanced group CBT condition will show statistically significant improvements in therapeutic alliance, group cohesion, and autonomous motivation to change, relative to the standard group CBT condition.

Methodology

There were a total of 59 individuals referred to this study from the Mood Disorders Program at ROMHC. There were a total of 16 individuals who declined interest in participating in the study or did not respond when contacted by a research investigator. The most common reasons for declining interest were the timing of the groups, preference for other types of therapy, and lack of interest. There were a total of 10 screen failures primarily due to the absence of current depressive symptoms, cognitive impairments, and other primary Axis I and Axis II disorders. Thus, there were 33 individuals involved in this investigation. Only five treatment groups could be run due to limitations in resources. Therefore, one condition was assigned three groups and the other condition two groups. Thus, the sample sizes in each condition were not expected to be equal in size. See Appendix D for a consort flow diagram of the participant selection process.

In the standard group therapy condition, there were three separate groups totaling 21 individuals (62% female, 38% male). The mean age was 44.16 years (SD=11.07). The mean pretreatment level of general distress (as measured by the pre-treatment total OQ-45 score) was 92.00 (SD=18.39), indicating clinical levels of general distress at the start of therapy. The majority of the sample population was married (37%), followed by single (26%), divorced (26%), and with a partner/significant other (11%). The sample was predominantly Caucasian (84%) and spoke English as their first language (100%).

The mean number of sessions attended was 14.76 (SD=3.52) with a range of 5 to 18. There were six participants in group 1, and eight participants in group 2, and seven participants in group 3. Two participants dropped out in group 3, one after session five and the other after

session six. However, data was retained and analyzed using the Last Observation Carried Forward (LOCF) method.

The mean number of comorbid diagnoses was 1.73 (SD=.79). The most common comorbid diagnosis was Generalized Anxiety Disorder (45%) followed by Social Anxiety Disorder (18%). The mean number of antidepressant medications taken during treatment in the group therapy condition was 1.38 (SD=1.30), with three participants reporting one change in medication use over the course of treatment. Twenty-two percent of group participants reported receiving previous group CBT.

In the enhanced group therapy condition, there were two groups totaling 12 participants (58% female, 42% male). The mean age was 38.50 years (SD=11.66). The mean pretreatment level of general distress (as measured by the pre-treatment total OQ-45 score) was 92.10 (SD=19.84), indicating clinical levels of general distress at the start of therapy. The majority of the sample population was single (30%) or married (30%), followed by divorced (20%) or with a partner/significant other (20%). The sample was predominantly Caucasian (80%) and spoke English as their first language (100%).

There were seven participants in group 1 and five participants in group 2. One participant dropped out at session nine in group 2; however, data was retained and analyzed using the LOCF method. The mean number of sessions attended was 14.92 (SD=2.64), with a range of 9 to 18. The mean number of comorbid diagnoses was 2.25 (SD=.97). The most common comorbid diagnosis was Social Anxiety Disorder (42%) followed by Generalized Anxiety Disorder (30%). The mean number of antidepressant medications taken during treatment in the group therapy condition was 2.5 (SD=.71), with only one participant reporting a change in medication use over

the course of treatment. Thirty percent of group participants reported receiving a previous course of group CBT. However, it is not known which conditions were treated.

Recruitment of Participants

Participants were recruited from the Mood Disorders Program at the Royal Ottawa Mental Health Centre (ROMHC). The ROMHC is a tertiary care service whose mandate is to provide specialized assessment and treatment of mood disorder patients. The Mood Disorders Program at the ROMHC includes an Assessment and Evaluation outpatient clinic providing specialized care for individuals who are at least 16 years of age and who have been diagnosed with a treatment resistant or refractory mood episode, recurrent depression, or bipolar I or II disorder. Referrals to this clinic are received directly from central triage at the ROMHC, who coordinate and dispense referrals received from community physicians and other hospital centres. As part of standard clinical care in the outpatient clinic at the ROMHC, all newly referred patients undergo a standardized assessment aimed at diagnostic clarification, assessment of psychosocial variables related to treatment response, and treatment planning. The clinical history of each patient is assessed and documented using the Structured Clinical Interview for DSM-IV (SCID-I; First, Gibbon, Spitzer & Gibbon, 1996), Interview Guide for Evaluating DSM-IV Psychiatric Disorders (Zimmerman, 1994), as well as standardized self-report instruments. Once patients are assessed, an inter-disciplinary treatment plan is generated and patients are treated within the context of the Mood Disorders Outpatient Clinic, if diagnosed with a mood disorder. Patients are offered pharmacological management of depressive symptoms, as well as group CBT programming for unipolar depression.

Once participants have completed the standard clinical assessment and evaluation process at the ROMHC, male and female patients 18 - 65 years of age, with a diagnosis of current

unipolar depression according to DSM-IV criteria, were invited by a member of the clinical assessment team to participate in a study examining the effectiveness of group CBT to treat unipolar depression. Specifically, they were asked for permission to be contacted by the investigators. Upon agreement patients were contacted, informed about the study and asked to participate.

Selection of Cases

The inclusion criteria includes patients with a primary diagnosis of current unipolar major depressive episode (established by the SCID-I). The primacy of the diagnosis of depression was based on standard clinical assessment and evaluation protocols that take into consideration the mental health profile and current needs of patients in the Mood Disorders Program. As well, current major depressive episode is listed as the primary presenting concern on the clinical assessment report. The exclusion criteria were patients with a (1) primary diagnosis of any anxiety disorder, or (2) a SCID diagnosis, past or present of (a) Bipolar Disorder, (b) Schizoaffective Disorder, (c) Schizophrenia, (d) Substance Abuse Disorder (current or within the past 6 months), (e) primary personality disorder (based on a structured clinical interview and assessment report from the Mood Disorders Program Assessment and Evaluation clinic).

Patients were also excluded if they were actively suicidal (i.e. suicidal plans or gestures), had an unstable medical illness, neurological disease, head trauma, or current psychotic symptoms. Participants were proficient in speaking English and had at least a Grade 8 reading level. This is the reading level used for standard clinical care CBT groups at the ROMHC in order to participate in group activities and complete CBT related homework. Patients with other mental health conditions were included in the study provided their diagnoses were not the primary presenting problem.

Procedure

This research investigation involved asking interested participants to complete additional symptom-related interviews and questionnaires over the course of treatment. Participants were under no obligation to participate in the proposed study and it was made clear to them both verbally and in the written informed consent form that their decision to participate in this study would have no bearing on the quality of their current or future health care. Therefore, declining participation in the study had no effect on treatment received in the Mood Disorders Program. Patients who declined participation at the ROMHC continued to receive therapy as usual from a trained therapist and pharmacological management as part of routine clinical care.

Interested participants were placed on a waitlist until there were enough people to form one group (approximately 10 participants). The average wait period was 4 weeks (see Results section for more details). Once there were enough participants, each participant was scheduled for an individual pre-group session with a group facilitator (clinical psychologist or clinical psychology resident under their supervision) during a two-week period prior to the start of the group. During this meeting, patients were asked to provide informed consent to participate in a study assessing the effectiveness of group CBT to treat major depressive disorder. Furthermore, diagnoses obtained during the semi-structured diagnostic clinical interviews were confirmed using the mood module of the SCID-I.

This meeting also involved meeting with the research investigator to provide instructions for completing the OQ-45. Severity level of current depressive symptoms was also assessed by the research investigator using interviews assessing severity of current symptoms (Hamilton Depression Rating Scale; Hamilton, 1960). A short-package of self-report questionnaires

assessing demographics (age, sex, gender), psychiatric (previous treatments) and psychological variables (satisfaction with life, dysfunctional cognitions), were administered.

The group condition was randomly assigned (also known as allocation concealment) to either standard or enhanced treatment to avoid biases in the assignment process for participants. Randomization was generated using the RANDBETWEEN function in Microsoft Excel. This function generates a random whole number between two boundaries. Therefore, after a group was formed, a research investigator used the RANDBETWEEN function to determine whether the group would be the no-feedback condition (assigned the number 0) or the feedback condition (assigned the number 1).

This randomization procedure also avoids patients remaining on the waitlist too long whilst they waited for treatment. A matching procedure was used to form each group instead of random assignment because the sample size required to implement random assignment was not feasible. That is, in order to have the 20 participants required for random assignment, patients would have to remain on the waitlist for several months before they received treatment. Given the psychiatric profile of the participants, this method is not appropriate. Groups were matched in accordance with best practice guidelines. According to the recommendations by Heimberg and Becker (2002), groups should reflect a balance of sex, age, and symptom severity. Significant differences among these variables, for instance, one male in an all-female group, a young participant in a much older group, or a dramatic difference in the degree of impairment might increase participant discomfort, thus leading to social isolation and higher rates of drop-out. Therefore, groups were matched to ensure there are no significant differences in sex, age, and depressive severity.

Participants who required pharmacological management continued to take their medication as directed for the duration of the study. For the purpose of this study, medications were considered nuisance variables. That is, the information is not of direct interest to the investigation, but was taken into account as potential confounds in statistical analyses.

The group CBT sessions were led by one clinical psychologist and co-facilitated by five psychology residents who were under their supervision (one psychology resident per group). Specifically, psychology residents had previous training in two of the following areas: group CBT, individual adult CBT, and CBT for depression, in order to be considered as co-facilitators. The progress of the trainees was discussed on a weekly basis during specific allotted periods for supervision.

In addition to the 2 individual sessions, one before and after treatment, there were 18 weekly group sessions. The individual session after treatment termination involved debriefing about participation in the study, including positive and negative aspects of using the OQ-45, as well as recommendations for the future. Each session was 2 hours in duration. Clients were instructed to go to a computer lab close to the group therapy room 15 minutes before the start of each session to complete the OQ-45 on the *OQ-Analyst*, an accompanying computer software program that tabulates and produces feedback based on client responses. A research investigator was present to assist with logging in, questions, and any technical issues that might arise. All participant feedback reports were then printed by the research investigator and given to the facilitators and each participant received their own feedback report. Five minutes were allotted to allow participants the opportunity to discuss their feedback. It was made clear at the beginning of each session that participants were free to not discuss their feedback if they chose to.

In line with standard group CBT for depression at the ROMHC, drop-outs were defined when participants miss more than 3 consecutive sessions. Participant drop-outs were handled with the LOCF method. This method imputes the last measured value to all subsequent, but missing, evaluations and analyses are conducted as if all the data were observed. This method introduces less bias to the data than a per-protocol analysis, which only includes those patients who complete treatment. Other imputation methods exist that may further reduce bias in the data. For example, an Intention to Treat (ITT) analysis typically involves administering measures at study time points to patients who have dropped out of the treatment and includes everyone in the analysis. However, this method was not feasible given the resources available and the study population.

Group CBT is a closed, structured and manualized treatment that must be closely adhered to. Treatment fidelity was assessed using a CBT adherence checklist developed by the research investigators. This adherence checklist was based directly on the session-by-session guidelines outlined in the treatment manual (See Appendix C for summary of group CBT sessions). Permission was sought during the informed consent process to audiotape a group CBT session once a month for the duration of the group. It was made clear that the audiotape was only used by the research investigators for ensuring adherence to the group CBT manual and stored in a secure location. The researchers presented the results to the group therapist each month and feedback provided if necessary to ensure adherence to the protocol. If there had been a discrepancy in the delivery of the treatment protocol in any group, the therapist would have been notified. If the therapist continued to be biased in the administration of the treatment protocol, and the discrepancy continued to be apparent over two consecutive review periods, the group could have been excluded from data analyses. Based on the results of the CBT adherence

checklist data, no discrepancies were observed in the administration of the group CBT manual in each treatment group.

Measures

Table 1 provides a summary of the measures used at each time point of the study.

Hamilton Depression Rating Scale. The Hamilton Depression Rating Scale (HDRS; Hamilton, 1960) is the most common used clinician-rated measure of depressive severity. It is in interview-format, takes approximately 30 minutes to administer and uses indices of both frequency and intensity to assess symptom severity. The 17-item version of this scale will be used in the present study to assess the severity of behavioural and somatic symptoms of depression. The HDRS is frequently used as a criterion measure for validating other measures of depression. In addition, it has frequently been used to assess treatment effectiveness (Hooijer et al., 1991). Test-retest reliabilities for clinicians typically range from 0.71 to .81 in the published literature (Kobak et al., 2000). Furthermore, in a sample of 357 outpatients, including 140 patients diagnosed with MDD, Reynolds and Kobak (1995) obtained a coefficient alpha reliability of 0.92 and a one week test-retest reliability of 0.96. For the current study, only the research investigator administered the HDRS to group participants. Therefore, inter-rater reliability was not applicable.

Structured Clinical Interview for DSM-IV Axis I Disorders. The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I; First, Gibbon, Spitzer & Gibbon, 1996) is a structured diagnostic interview that assists clinicians in determining diagnoses for current and past Axis I disorders. The SCID will be used to confirm the present and past patient psychiatric history of bipolar disorder and the identification of comorbid conditions, including substance use and abuse and anxiety disorders. Inter-rater reliability estimates will be determined empirically

using intraclass correlations. The inter-rater reliability of the SCID-I has been reported as adequate. Zanarini et al. (2000) found inter-rater reliabilities ranging from 0.57-1.0 among 84 pairs of raters. As well, test-retest reliabilities for the greater majority of axis-I disorders ranged from 0.59-0.78. The SCID-I has also demonstrated adequate construct and content validity, generalizability, and excellent clinical utility (First & Gibbon, 2004). Given that the SCID interviews were conducted in the assessment and evaluation outpatient clinic at ROMHC prior to acceptance into this study, inter-rater reliability was not available.

Quick Inventory of Depressive Symptoms-Self Report. The Quick Inventory of Depressive Symptoms-Self Report (QIDS-SR; Rush et al., 2003) is a self-report measure of depression that includes 16 items probing for present depressive symptoms. It has been used in both clinical and non-clinical populations. In a study of 596 adult outpatients with chronic, nonpyschotic MDD, Rush et al (2003) reported high internal consistency (Cronbach's alpha = 0.86) for the QIDS-SR. Furthermore, Trivedi et al. (2004) found the QIDS-SR total score was highly correlated with the Inventory of Depressive Symptomatology-Self-Report (IDS-SR) total score for 544 adult outpatients with MDD (c=0.83). This study also reported finding equal sensitivity to symptom change when comparing these two measures, indicating high concurrent validity. Rush et al. (2005) compared the HDRS, the IDS-SR, and QIDS-SR ratings among 681 patients with chronic MDD who were assigned to 3 treatment groups (medication alone, medication and psychotherapy, psychotherapy alone). In addition to finding comparable change scores within groups, the IDS-SR and QIDS-SR confirmed response and remission rates based on the HRSD.

Satisfaction With Life Scale. The Satisfaction With Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) is a five-item measure of quality of life that assesses patients' judgment of their global life satisfaction (a sample item is "I am satisfied with my life"). Possible

responses ranged from "Do not agree at all" (1) to "Strongly agree" (7). The SWLS was found to be reliable, with item-total correlations averaging 0.69 and an alpha coefficient of 0.83 in an older community sample. Similar results were also obtained in a student sample, with item-total correlations averaging 0.69 and an alpha coefficient of 0.85. High convergent validity was also found with other measures of life satisfaction. For example, the SWLS yielded a correlation of $r(39) = 0.81$, $p<.01$ with the Life Satisfaction Index-A (Neugarten, Havighurst, & Tobin, 1961) in the older community sample (Pavot, Diener, Colvin, & Sandvik, 1991). Furthermore, a factor analysis confirmed that the one-factor structure of the SWLS accounted for 65% of the item variance in the older community sample and 74% in the student sample.

Automatic Thoughts Questionnaire-Revised. The Automatic Thoughts Questionnaire-Revised (ATQ-R; Kendal, Howard, & Hays, 1989) includes 40 items that assess the frequency of negative and positive thoughts. It informs patients about cognitive distortions and negative beliefs that may be associated with depression, and is also useful to determine the appropriateness of specific cognitive interventions. In a clinical sample of 114 mental health outpatients and patients seen by physicians in private practice, Harrell and Ryon (1983) found an average split-half reliability of 0.96 and a coefficient alpha of 0.98. In addition, when compared with other measures of dysfunctional cognitions, such as the Beck Depression Inventory, the ATQ yielded comparable correlations ($r =0.79$), suggesting high concurrent validity (Harrell and Ryon, 1983).

Outcome Questionnaire. The Outcome Questionnaire (OQ-45; Lambert et al., 1996) is a 45-item self-report instrument designed to measure change in three critical domains considered essential to improvement in psychotherapy: Symptom distress, interpersonal relationships, and social role performance. Specifically, respondents are directed to rate how they felt over the past

week based on a 5-point Likert scale, ranging from “never” (0) to “almost always” (4). To decrease the possibility of response sets producing biased results, 9 of the 45 items are reverse scored. The possible scores range from 0 to 180, with higher scores indicating poorer functioning. Scores on the Total OQ-45 scale have been reported to be reliable and valid, distinguishing well between clinical and non-clinical subjects, as well as patients with differing degrees of illness severity (Umphress et al., 1997).

Reliability of the overall questionnaire and its three domains with undergraduate samples suggest high stability, as demonstrated by test-retest coefficients ranging from 0.78 to 0.84 over three weeks (Burlingame, Lambert, Reisinger, Neff, & Mosier, 1995). Furthermore, concurrent and construct validity of the OQ-45 was assessed with three patient samples and a sample of community participants (Umphress et al., 1997). Results revealed statistically significant differences between patient and non-patient samples on the OQ-45 Total and Symptom Distress score, providing evidence for discrimination between psychopathological and nonpsychopathological groups on those scales. Umphress and colleagues also found significant differences among patient samples, with the inpatient sample presenting with the most severe psychopathology and the university counselling centre representing the least pathological group. This evidence not only provides support for the construct validity of the OQ-45, it is also indicative of the instrument’s unique sensitivity to psychopathology. Another measure vital to outcome assessment in psychotherapy is sensitivity to change, that is, the ability to measure individual change over time (Lambert & Hill, 1994). Item analysis of the OQ-45 from 284 untreated and 1,176 patients undergoing psychotherapy suggest item sensitivity for the majority of items on this instrument (Vermeersch, Lambert, Burlingame, 2000). Indeed, there was significantly more improvement as assessed by the OQ-45 for individuals receiving treatment

than not in each of the subscales and the Total score. Vermeersch, Lambert, and Burlingame (2000) suggest lack of change sensitivity in the remaining items may be due to therapist or patient variables, or an interaction of both. As well, some items may reflect constructs that are more static and require a longer period of time before change can be detected.

The Working Alliance Inventory - Short Form. The Working Alliance Inventory - Short Form (WAI-S; Horvath & Greenberg, 1989) is a 12-item self-report measure developed to examine three characteristics of working alliance between a clinician and client: therapeutic bond, agreement on tasks, and agreement about goals. Each item is scored on a 7-point Likert scale ranging from "not at all true" (1) to "very true" (7). The WAI demonstrates convergent validity of 0.76 for the Tasks subscale, 0.80 for Goal subscale, and 0.53 for the Bonds subscale, as well as being correlated with many relationship and outcome based measures (Hatcher, Barends, Hansell, & Gutfreund, 1995; Cortez-Ison, 1997).

Group Climate Questionnaire –Client Short Form. The Group Climate Questionnaire – Client Short Form (GCQ-S; MacKenzie,1981) is a twelve-item self-report instrument that measures how group members perceive the group's therapeutic environment. Responses are rated on a seven-point Likert scale indicating extent of agreement ranging from "not at all" (0) to "extremely" (6). It has demonstrated good internal reliability and construct validity, with coefficient alphas ranging from 0.88 to 0.91 (Kivlighan & Goldfine, 1991). The GCQ-S consists of three subscales: Engagement, Avoidance, and Conflict. The Engagement scale refers to cohesion, self-disclosure, cognitive understanding, and confrontation. The Avoidance scale measures the extent to which group members may avoid responsibility for their change process. The Conflict scale is a measure of interpersonal conflict and distrust.

Client Motivation to Change Scale. The Client Motivation to Change Scale (CMOTS; Pelletier, Tuson, Najwa, & Haddad, 1997) is a 24-item scale that measures six different types of motivation on a continuum based on self-determination theory: intrinsic motivation, integrated regulation, introjected regulation, identified regulation, external regulation, and amotivation. The measure has demonstrated fair to excellent internal consistency, with subscale alphas ranging from 0.70 to 0.92, and good construct validity.

Table 1. Summary of Measures and Time Points

Time	1	1		2
Measure	Pre-group (2 weeks prior to group commencement)	Session 3	Weekly (18 sessions)	Post-group (1 week after group termination)
HDRS	X			
SCID-I	X			
QIDS-SR	X			X
SWLS	X			X
ATQ-R	X			X
CMOTS		X		X
WAI-S		X		X
GCQ-S		X		X
OQ-45	X		X	X

Statistical Analysis

The computer software IBM SPSS Statistics for Windows, Version 22.0, Armonk, NY: IBM Corp. for Windows was used to analyze this data. The experimental design compared *groups* (e.g., enhanced group CBT, standard group CBT) to assess the hypotheses of interest.

Although hierarchical linear modeling (HLM) has many advantages for this investigation, including the management of the violation of the assumption of independence, as well as the incorporation of participants with missing data, HLM and other linear modeling techniques (e.g., SEM) require very large sample sizes that are not feasible within the context of the present study. This is not an insignificant consideration as attempting to run HLM analyses with smaller sample sizes can yield unreliable results and/or models which do not converge. Due to limited resources and attrition rates, the sample size available to the group therapy researchers is often restricted. In light of these pragmatic constraints, we elected to use univariate techniques, such as ANOVAs, to investigate the therapeutic advantage of enhanced group CBT relative to standard group CBT. Using G*Power (Faul, 2006), it was estimated that a total sample size of 64 (i.e., 32 participants per condition) should yield sufficient power (0.80) to identify large (0.40) effects.

Lambert and colleagues (2005) conducted four controlled trials investigating the impact of feedback from the OQ-45 in individual therapy compared to treatment as usual controls. The effect sizes for the differences in treatment outcomes were considered large, ranging from 0.34 to 0.92. Thus, we expected to detect large effects.

Given the limitations to sample size in group psychotherapy research, emphasis on effect sizes is also beneficial. There is a growing body of literature that supports effect sizes as the preferred method for analyzing research data, compared to measures of statistical significance (Sullivan & Feinn, 2012). Whereas, statistical significance describes whether an intervention has an effect on the population, effect sizes describe how much the intervention affects the population. Therefore, all effect sizes were examined in line with *a priori* predictions. Using SPSS, the partial eta-squared measure of effect size was employed to detect large effects (0.14).

Identification of small or medium (0.01 - 0.06) effects may be more difficult to detect; however, are reported for trends that align with *a priori* predictions.

Data were screened for impossible values, outliers, missing data, discrepant cell sizes, normality, linearity, homoscedasticity, homogeneity of variance, and outlying intercepts and slopes (Raudenbush & Bryk, 2002). Basic descriptive statistics were generated to compare the characteristics of participants across each of the experimental conditions. Between-group differences in continuous variables (e.g., age) were assessed using one-way Analysis of Variance (ANOVA) (see Table 2). To compare the frequency of responders across the two experimental conditions, chi-square analyses were undertaken.

One-way ANOVAs were conducted to assess for potential covariates, including initial depressive severity, comorbidities, and medications. The outcome measure for hypothesis 1 is level of general distress as determined by the total score on the OQ-45. The outcome measure for hypothesis 2 is life satisfaction (SWLS). The outcome measure for hypothesis 3 is symptom severity (QIDS-SR) and negative automatic thoughts (ATQ). The outcome measures for hypothesis 4 are therapeutic alliance, group cohesion, and motivation to change (i.e. WAI-S, GCQ, CMOTS).

Time 1 (see Table 1) represents the outcome measures that were collected two weeks prior to the first session of the group or during session 3 (process measures only). Time 2 (see Table 1) represents the outcome measures that were collected one week following the last session of the group. The dependent variables are the average mean change (e.g., Mean DV Time 1 – Mean DV Time 2) of the outcome measures. Each dependent variable was run as a separate analysis.

To further assess the meaningfulness of the feedback intervention, clients were categorized with regard to the clinical significance of their change as outlined in Lambert‘s research (i.e. Recovery, Reliable Change, Reliable Deterioration, No change). The differences in the frequency with which clients were assigned to outcome classification categories were tested with the Chi-square statistic.

Results

The objective of study two was to compare standard group CBT for unipolar depression to an enhanced group CBT condition which provides additional feedback on patient progress to the therapist and clients each session. It is hypothesized that the provision of feedback in the enhanced group CBT condition would lead to greater improvements in treatment outcomes and group process factors from intake to termination.

Pre-treatment

Given the small sample size (Feedback n = 12, No Feedback n = 21) a test for normality was not conducted (Tabachnick and Fidell, 2007). However, nonparametric tests, which are designed for data analysis with small samples, would be unable to evaluate the research questions. In order to assess for interaction effects, more complex analyses were required. Therefore, parametric testing was used to begin to investigate the relationships between the variables of interest. As this investigation is a preliminary analysis of the research questions, any significant findings represent a first attempt at examining the variables of interest.

The small sample size also suggests a low level of power, which may make it difficult to detect significant findings. This primarily presents a challenge to the interpretation of non-significant results. That is, failure to achieve significance may be reflective of the true relationship between the variables of interest or simply due to the analysis being underpowered. However, if significant results were found with the small sample size, cautious interpretation of the findings was warranted.

Data is missing from participants who dropped out of the study or did not complete the pre or post-group questionnaire packages. Other than hypothesis 1B, which assesses changes in general distress across 18 group therapy sessions, the hypotheses assess variables measured at

two time points, before and after treatment. Therefore, data missing from either of these time points represent a loss of 50 % of the participant's data. In order to reduce bias, it was believed to be reasonable to exclude participants missing data at Time 1 or Time 2 from some of the analyses. For hypothesis 1B, the Last Observation Carried Forward method of data imputation was employed for missing data between sessions 1 and 18.

Preliminary analyses were conducted with ANOVAs and chi-squares to assess for comparability between the two group conditions based on a number of demographic and treatment variables. Table 2 displays the means, standard deviations, and F-values of the continuous treatment and demographic variables for each condition. Results of one-way ANOVAs indicated no statistically significant between-groups differences between the two treatment conditions in terms of initial level of distress (as measured by the initial total score on the OQ-45) ($F(1, 28) = 0.00$, $p>0.05$), depressive symptoms (as measured by the initial total score on the HDRS) ($F(1,31) = 0.16$, $p>0.05$), age ($F(1, 28) = 1.65$, $p>0.05$), attended therapy sessions ($F(1, 32) = 0.02$, $p>0.05$), and number of DSM-IV-TR Axis I diagnoses ($F(1, 22) = 2.00$, $p>0.05$). Additional analyses were conducted to investigate potential differences in medication use between the two conditions. One-way ANOVAs indicated no significant differences between conditions with respect to initial number of antidepressant medications ($F(1, 9) = 1.31$, $p>0.05$) and mean number of antidepressant medication changes over therapy ($F(1, 9) = 0.21$, $p>0.05$), suggesting that changes in medication use over the course of group therapy were comparable across treatment conditions.

A Chi-square analysis indicated no significant difference in gender composition (male or female) ($\chi^2 = 0.04$, n= 33, $p>0.05$). Due to the number of categories and small sample sizes, differences in marital status (single, married, divorced, significant other/partner) was assessed

using the non-parametric Fisher's Exact test. Unlike the Chi-square analysis, the Fisher's Exact test is more amenable for calculating probabilities when the expected frequency count is less than 5. The analysis revealed a non-significant probability of differences in marital status across the two conditions ($p>0.05$). Similarly, the expected frequency count for the variable termination status (whether they completed the group or dropped out) did not meet the minimum requirement for Chi-square analyses; thus, the Fisher's Exact test was employed. This non-parametric test indicated a non-significant probability of differences in termination status across the two conditions ($p>0.05$). In summary, results from variables available suggest the two conditions had similar demographic characteristics and clinical presentations and a comparative level of attendance and group completion status at termination.

Table 2. Means, Standard Deviations, and F-values for Pre-treatment and Demographic Variables by Treatment Condition (n = 33).

	Treatment Condition		
Variables	No Feedback Mean (SD)	Feedback Mean (SD)	F-value
Pretreatment relationship distress	85.92 (18.18)	89.00 (20.91)	0.00
Initial depressive symptoms	15.14 (5.06)	15.83 (4.37)	0.16
Age	38.50 (11.66)	31.06 (9.12)	1.65
Number of sessions	14.92 (2.64)	16.72 (7.50)	0.02
Axis I diagnoses	1.73 (0.79)	2.25 (0.97)	2.00
Number of antidepressant medications	1.38 (1.3)	2.5 (0.71)	1.31
Number of antidepressant medication changes	1.00 (0.00)	0.38 (0.52)	0.21

*Groups were equivalent on baseline characteristics

Hypothesis 1A

Objective feedback derived from the outcome questionnaire (OQ-45) and provided to therapists and patients will lead to statistically significant improvements in general distress at termination, as compared to those attending the standard group CBT condition. Improvement in general distress is defined as a decrease in the total score on the OQ-45 from baseline (Time 1) to termination (Time 2).

A 2 x 2 repeated measures ANOVA was performed with Treatment Condition (Feedback versus No Feedback) as the independent variable and each client's pre- and post-treatment OQ-45 total distress scores as dependent variable. Given that this data were only collected at two time points, participants who did not complete the measure at Time 1 or Time 2 (representing a 50% loss of data) were dropped from the analysis. There were 14% missing data in the No Feedback condition, resulting in 17 participants, and 29% missing data in the Feedback condition, resulting in 7 participants included in the analysis.

A significant interaction effect was found, indicating that the distress total score differed in each treatment condition across time. [$F(1, 22) = 11.58$, $p < .01$, partial $\eta^2 = 0.35$] (See Figure 1). Table 3 shows the means and standard deviations of two treatment conditions at Time 1 and Time 2.

Figure 1. Interaction between time (pre and post-treatment) and condition (feedback and no feedback) for the Outcome Questionnaire Total score (Feedback *n* = 7, No Feedback *n*=17).

Table 3. Means and Standard Deviations for Change in Distress by Treatment Condition (Feedback *n* = 7, No Feedback *n*=17).

Condition		Mean (SD)
Feedback	Time 1	92.10 (19.84)
	Time 2	55.14 (25.95)
No Feedback	Time 1	92.00 (18.39)
	Time 2	77.18 (25.23)

A subsequent analysis of the simple main effects of time for each group was investigated through multivariate testing given the fact that only two means were being compared. Results indicated a significant effect of time in both the Feedback condition ($F(1, 22) = 38.48$, $p < .001$,

partial $\eta^2 = 0.64$) and the No Feedback condition ($F(1, 22) = 11.34$, $p < .01$, partial $\eta^2 = 0.34$). These results suggest that clients who received feedback from the outcome questionnaire in group CBT for depression experienced a significantly greater reduction in overall distress across time than clients who received standard feedback in group CBT for depression.

Hypothesis 1B

Participating in the enhanced group therapy condition will lead to an overall greater rate of improvement in self-reported distress across therapy sessions, as compared to clients who participate in the standard group therapy condition.

A repeated measures ANOVA was performed with Treatment Condition (Feedback versus No Feedback) as the independent variable and each client's OQ-45 total distress score over eighteen sessions of therapy as the dependent variable. There were 15% missing data in the No Feedback condition and 14% missing data in the Feedback condition. The LOCF data imputation method was used in each condition, resulting in all participant data being held for analysis.

Using the Greenhouse-Geisser correction to account for sphericity, results indicate a non-significant interaction ($F(7, 211) = 1.01$, $p > .05$, partial $\eta^2 = 0.03$). Analysis of main effects revealed a significant effect of time ($F(7, 211) = 6.86$, $p < .01$, partial $\eta^2 = 0.18$) and a non-significant effect of treatment condition ($F(7, 211) = 2.68$, $p > .05$, partial $\eta^2 = 0.08$). These results suggest that clients experienced a significant reduction in overall distress over the eighteen sessions of therapy across both treatment conditions. However, there was no significant difference between treatment conditions in the rate of their improvement (see Figure 2).

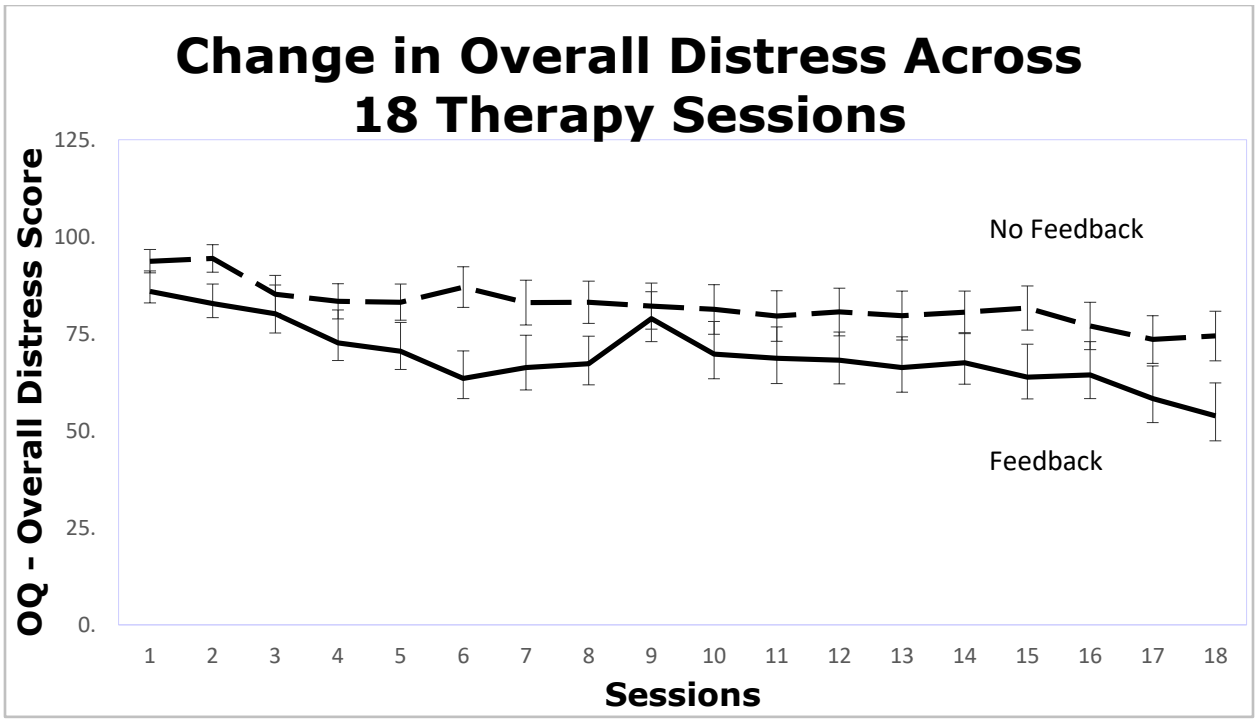

Figure 2. Interaction between sessions and condition (feedback and no feedback) for the Outcome Questionnaire-Total Distress subscale score (No Feedback *n* = 21, Feedback *n* = 12).

Hypothesis 1C

Relative to the standard group CBT condition, the enhanced group CBT condition will lead to improved outcomes, such that patients in the enhanced group CBT condition will show clinically significant improvements in general distress at termination, as compared to those attending the standard group CBT condition.

To further assess the meaningfulness of change in distress by treatment intervention, clients were categorized into the final outcome classifications based on Jacobson and Truax's (1991) criteria for reliable or clinically significant change: Recovered, Improved, No change, and Deteriorated. There were 29% missing data in the Feedback condition, resulting in 7 participants included in the analysis. These data are presented in Table 4. To account for the small sample size, the non-parametric Fisher's Exact test was used instead of the Chi-square statistic. The

Exact procedure is an expansion of the model that was originally developed by Fisher in order to obtain a probability value without violating the minimum expected frequency count per cell required for Chi-square analyses. The Fisher's Exact test revealed that the differences observed between treatment interventions are not significant ($p>0.05$, $\varphi = 0.22$).

Table 4. Observed Count, Expected Count, Percentage and Adjusted Residual of the Distress Outcome Classification by Treatment Condition (No Feedback $n = 21$, Feedback $n = 7$).

Outcome Classification		Condition	
		Feedback	No Feedback
Recovery	Observed Count	5	8
	Expected Count	3.3	9.8
	% within Condition	71.4	38.1
	Adjusted Residual	1.5	-1.5
Improvement	Observed Count	1	5
	Expected Count	1.5	4.5
	% within Condition	14.3	23.8
	Adjusted Residual	-0.5	0.5
No change	Observed Count	1	5
	Expected Count	1.5	4.5
	% within Condition	14.3	23.8
	Adjusted Residual	-0.5	0.5
Deteriorated	Observed Count	0	3
	Expected Count	.8	2.3
	% within Condition	0	14.3
	Adjusted Residual	-1.1	1.1
Total	Count	7	21

*Adjusted Standardized Residual is the equivalent of a z-score. Significance at the 0.05 alpha level is considered when the adjusted residual is ≥1.96.

Given the number of categories analyzed and small sample size, it is possible that a larger sample might detect significant results.

Hypothesis 2

Relative to the standard group CBT condition, the enhanced group CBT condition will lead to improved outcomes, such that patients in the enhanced group CBT condition will show statistically significant reductions in symptom severity and dysfunctional beliefs at termination, as compared to those attending the standard group CBT condition.

Two 2 x 2 repeated measures ANOVAs were performed with Treatment Condition (Feedback versus No Feedback) as the independent variable and each client's pre- and post-treatment self-reported depressive symptom severity scores (as measured by the Quick Inventory of Depressive Symptoms-Self Report (QIDS-SR; Rush et al., 2003) and self-reported dysfunctional beliefs (as measured by the Automatic Thoughts Questionnaire-Revised (ATQ-R; Kendal, Howard, & Hays, 1989) scores as dependent variables.

Self-reported depressive symptom severity. There were 19% missing data in the No Feedback condition, resulting in 16 participants, and 29% missing data in the Feedback condition, resulting in 8 participants included in the analysis. Results indicate a non-significant interaction effect, indicating that the self-reported depressive severity scores did not significantly differ in each treatment condition across time ($F(1, 22) = 3.74$, $p > .05$, partial $\eta^2 = 0.15$). However, results suggest a trend in the data that is approaching significance (p=0.06) (See Figure 3).

Figure 3. Interaction between time (pre and post-treatment) and condition (feedback and no feedback) for the Quick Inventory of Depressive Symptomatology total score (No Feedback n = 16, Feedback n = 8).

Dysfunctional beliefs. There were 47% missing data in the No Feedback condition, resulting in 10 participants, and 29% missing data in the Feedback condition, resulting in 8 participants included in the analysis. A significant interaction effect was found, indicating that the dysfunctional beliefs total score differed in each treatment condition across time. ($F(1, 16) = 15.41$, $p < .01$, partial $\eta^2 = 0.49$) (See Figure 4).

A subsequent analysis of the simple main effects of time for each group was investigated. Results indicated a significant effect of time in both the Feedback condition ($F(1, 16) = 50.27$, $p < .001$, partial $\eta^2 = 0.78$) and the No Feedback condition ($F(1, 16) = 4.16$, $p < .05$, partial $\eta^2 = 0.21$). These results suggest that clients who received feedback from the outcome questionnaire in group CBT for depression experienced a significantly greater reduction in dysfunctional beliefs across time than clients who received standard feedback in group CBT for depression.

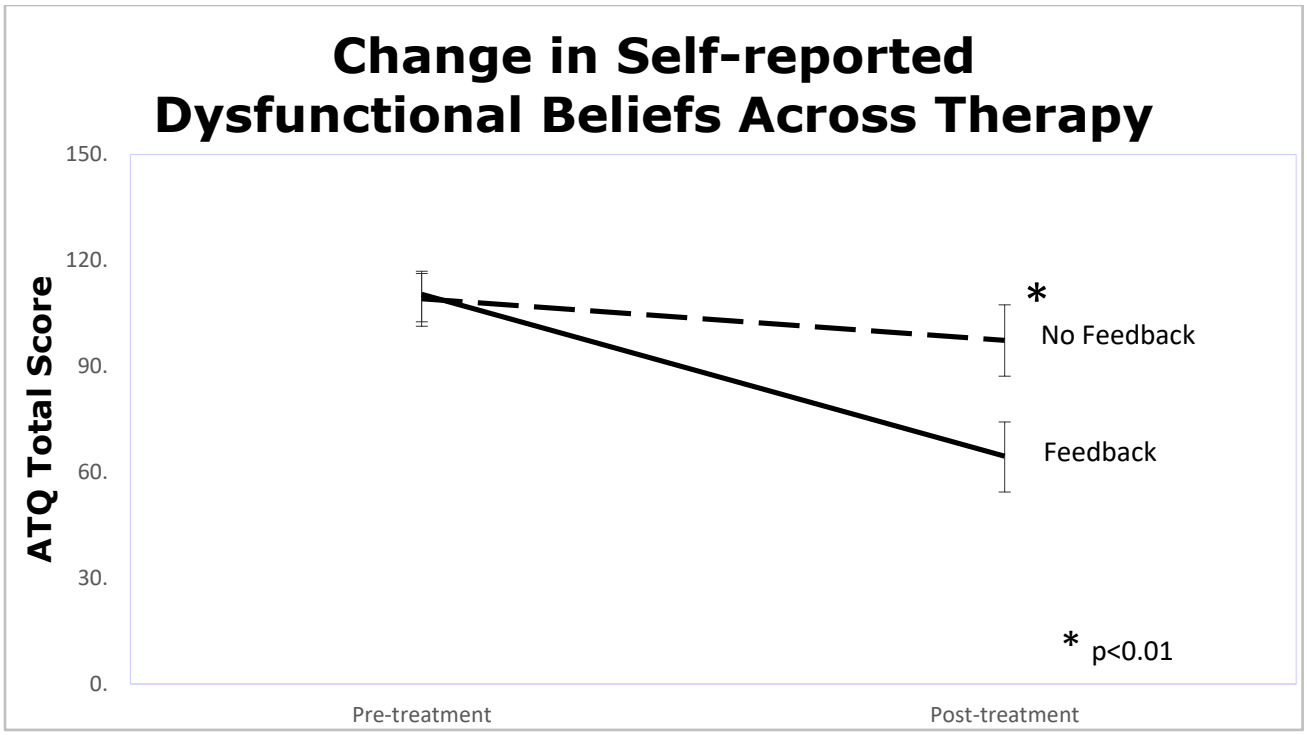

Figure 4. Interaction between time (pre and post-treatment) and condition (feedback and no feedback) for the Automatic Thoughts Questionnaire total score (No Feedback n = 10, Feedback n = 8).

Hypothesis 3

Relative to the standard group CBT condition, the enhanced group CBT condition will lead to improved outcomes, such that patients in the enhanced group CBT condition will show statistically significant improvements in quality of life at termination, as compared to those attending the standard group CBT condition.

Quality of life. There were 47% missing data in the No Feedback condition, resulting in 10 participants, and 29% missing data in the Feedback condition, resulting in 7 participants included in the analysis. A significant interaction effect was found, indicating that the life satisfaction total score differed in each treatment condition across time. ($F(1, 15) = 7.16$, $p < .01$, partial $\eta^2 = 0.32$) (See Figure 5).

A subsequent analysis of the simple main effects of time for each group was investigated. Results indicated a significant effect of time in the Feedback condition only ($F(1, 15) = 8.34$, $p < .05$, partial $\eta^2 = 0.36$). This suggests that clients who received feedback from the outcome questionnaire in group CBT for depression experienced a significant improvement in life satisfaction across time compared to clients who received standard feedback in group CBT for depression.

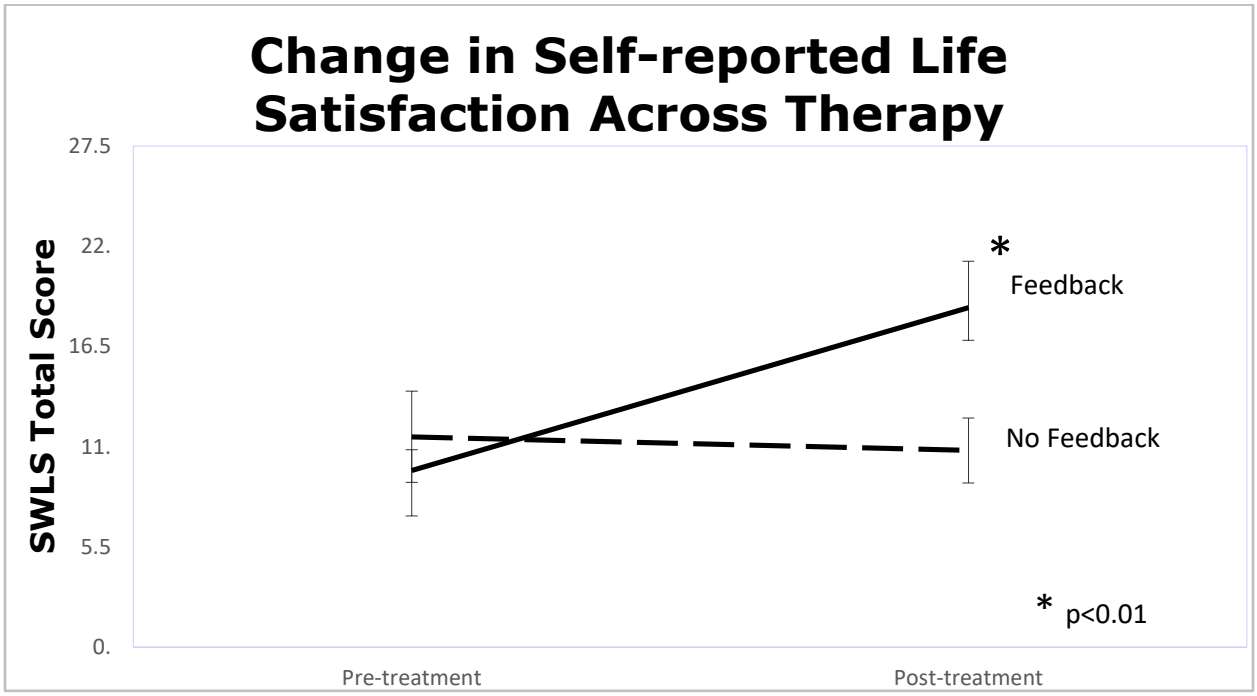

Figure 5. Interaction between time (pre and post-treatment) and condition (feedback and no feedback) for the Satisfaction with Life Scale total score (No Feedback $n = 10$, Feedback $n = 7$).

Hypothesis 4

The enhanced group CBT condition will show statistically significant improvements in therapeutic alliance, group cohesion, and autonomous motivation to change, relative to the standard group CBT condition.

Therapeutic Alliance. There were 26% missing data in the No Feedback condition, resulting in 11 participants, and 75% missing data in the Feedback condition, resulting in 3 participants included in the analysis. A significant interaction effect was found, indicating that the therapeutic alliance total score differed in each treatment condition across time ($F(1, 12) = 6.33$, $p < .05$, partial $\eta^2 = 0.35$). Analysis of the subscales within the therapeutic alliance measure revealed a significant interaction effect for the Bond subscale ($F(1, 12) = 5.59$, $p < .05$, partial $\eta^2 = 0.32$), with non-significant main effects for time ($F(1, 12) = 0.38$, $p > .05$, partial $\eta^2 = 0.03$) and condition ($F(1, 12) = 0.95$, $p > .05$, partial $\eta^2 < 0.001$). This indicates that the therapeutic bond differed in each treatment condition across time. No significant interaction effects were observed for the Tasks subscale ($F(1, 12) = 1.70$, $p > .05$, partial $\eta^2 = 0.12$) or the Goals subscale ($F(1, 12) = 2.71$, $p > .05$, partial $\eta^2 = 0.18$).

Group Cohesion. There were 26% missing data in the No Feedback condition, resulting in 11 participants, and 75% missing data in the Feedback condition, resulting in 3 participants included in the analysis. Results indicate non-significant interaction effects across all three subscales for the group cohesion measure: Engagement ($F(1, 12) = 0.01$, $p > .05$, partial $\eta^2 = 0.001$), Avoidance ($F(1, 12) = 0.25$, $p > .05$, partial $\eta^2 = 0.02$) , and Conflict ($F(1, 12) = 0.001$, $p > .05$, partial $\eta^2 < 0.001$). This indicates that group cohesion did not differ between treatment conditions across time.

Motivation to Change. There were 26% missing data in the No Feedback condition, resulting in 11 participants, and 75% missing data in the Feedback condition, resulting in 3 participants included in the analysis. Results indicate non-significant interaction effects across all six subscales for the motivation to change measure: Amotivation ($F(1, 12) = 0.000$, $p > .05$, partial $\eta^2 < 0.001$), External regulation ($F(1, 12) = 0.000$, $p > .05$, partial $\eta^2 < 0.001$), Introjected

regulation ($F(1, 12) = 0.20$, $p > .05$, partial $\eta^2 = 0.02$), Identified regulation ($F(1, 12) = 2.81$, $p > .05$, partial $\eta^2 = 0.19$), Integrated regulation ($F(1, 12) = 0.83$, $p > .05$, partial $\eta^2 = 0.07$), Intrinsic motivation ($F(1, 12) = 0.41$, $p > .05$, partial $\eta^2 = 0.03$). This indicates that the level of motivation to change did not significantly differ between the treatment conditions across time.

Table 5. Means and Standard Deviations for Change in Process Factors by Treatment Condition (Feedback $n = 3$, No Feedback $n = 11$).

Variable	Feedback Time 1 Mean (SD)	Time 2 Mean (SD)	No Feedback Time 1 Mean (SD)	Time 2 Mean (SD)
WAI-S	60.33 (7.64)	67.33 (6.39)	64.27 (6.15)	61.18 (5.25)
Bond	17.00 (1.73)	19.33 (1.53)	18.72 (2.65)	17.36 (3.44)
Task	22.00 (2.74)	24.00 (4.35)	22.64 (2.41)	22.37 (2.54)
Goals	21.33 (2.31)	24.00 (3.61)	22.91 (3.51)	21.46 (2.66)
GCQ				
Avoidance	3.44 (0.51)	3.11 (0.19)	2.61 (0.88)	2.70 (1.15)
Conflict	0.75 (0.87)	0.67 (0.72)	0.77 (0.53)	0.68 (0.53)
Engagement	3.93 (0.58)	4.33 (0.46)	3.86 (0.86)	4.12 (0.84)
CMOTS-R				
Amotivation	11.67 (0.58)	12.33 (7.23)	6.00 (3.79)	6.65 (4.03)
External	13.00 (5.57)	12.00 (3.46)	10.27 (5.18)	10.09 (7.18)
Introjected	18.00 (7.00)	18.33 (6.35)	17.36 (6.58)	19.46 (4.87)
Identified	22.00 (2.65)	24.33 (2.08)	25.00 (2.32)	24.64 (2.66)
Integrated	13.00 (6.08)	19.00 (5.57)	19.27 (5.69)	21.91 (4.76)
Intrinsic	9.33 (3.51)	11.67 (5.13)	16.64 (7.80)	16.82 (5.06)

Discussion

The purpose of the present study was to investigate the benefits of providing formal feedback on treatment progress to therapists and patients throughout group CBT for depression. Standard group CBT for depression was compared to an enhanced group CBT condition which provided additional feedback on patient progress using the OQ-45 feedback system at each session. It was predicted that additional feedback provided in the enhanced condition would lead to improvements in a number of treatment outcomes and unique group processes at termination compared to the standard condition.

Hypothesis 1 assessed whether receiving formal feedback in the enhanced group CBT condition led to greater clinically and statistically significant improvements in general distress at termination, as compared to those attending the standard group CBT condition. Results suggest that receiving feedback from the OQ-45 in group CBT for depression led to greater reductions in general distress from intake to termination, compared to standard feedback received in group CBT for depression. This finding is somewhat surprising when one considers that one of the inherent principles in the delivery of CBT is eliciting feedback from clients and working collaboratively as a therapist with patients to identify possible obstacles to progress (Bieling, McCabe, Antony, 2006). The OQ-45 provides both additional feedback on progress and is delivered in a more systematic and empirically-driven method than standard feedback in group CBT. This suggests that the amount of feedback and the mechanisms employed to provide feedback in group CBT may have a significant impact on the reduction of general distress over treatment. In the original studies by Lambert and colleagues (2005), individual CBT was not significantly different than other therapeutic orientations in terms of improved treatment outcomes when provided with feedback from the OQ-45. However, this is the first study to

investigate the therapeutic benefits of the OQ-45 feedback system in comparison to standard feedback mechanisms within CBT.

Reductions in general distress between the standard and enhanced group CBT for depression conditions were not statistically significant when comparing each client's OQ-45 scores across all 18 sessions of therapy. Likewise, clinical differences, based on Jacobson and Truax's (1991) criteria for reliable or clinically significant change, were not significant between the two conditions. In contrast with the initial significant finding involving only pre and post time points, the latter analyses have a greater number of variables (18 time points) and categories (4 outcome categories). It is possible that the combination of increased variables and categories and a small sample size contributed to difficulties detecting significant results. Future research with a larger sample size would help clarify current discrepancies in the results.

Another possible explanation may be related to how feedback was used in the feedback condition. In the 18 session longitudinal analysis, the differences between treatment groups varied from session to session. The manner in which feedback from the OQ-45 was used in each session in the feedback condition was not captured. It is possible that feedback was not being employed consistently so that significant interactions were not detected between treatment conditions at every session. Although the variability between conditions might be too small to detect throughout treatment, participants receiving feedback from the OQ-45 appear to experience significantly reduced general distress by the end of treatment compared to participants not receiving feedback.

The data presented here suggests that using the OQ-45 to relay feedback to therapists and patients about progress throughout group CBT for depression may be more effective at reducing general distress from intake to termination than standard feedback typically given as part of a

CBT protocol. Consistent with findings from Lambert and colleagues (2005) on the benefits of the OQ-45, there appears to be a relationship between feedback derived from empirically-driven algorithms and reductions in general distress level in therapy. It is suggested that completion of these formal feedback measures may increase client investment in the therapeutic process and assist the therapist in identifying and altering the treatment approach when clients are deemed at risk for negative outcomes.

This investigation adds to the literature by extending the benefits of the OQ-45 feedback system to the more complex arena of group therapy. While it was beyond the scope of this study to identify how group therapists responded to receiving the OQ-45 feedback for each group member throughout treatment, there seems to be a relationship between group members and therapists receiving this feedback and greater reductions in general distress compared to standard feedback measures (i.e. symptom measures, informal requests for feedback). The differences found have added significance given that group CBT is a structured, manualized intervention with inherent feedback and self-monitoring components. It is likely that group members, like individual therapy clients, experience greater investment in the therapeutic process when provided comprehensive feedback on treatment progress. Likewise, additional feedback on clients who are at risk for negative outcomes may help direct therapist interventions in group therapy as well as individual therapy.

Hypothesis two compared the effects of receiving additional feedback from the OQ-45 in group CBT for depression on two treatment outcomes: self-reported depressive symptom severity (as measured by the Quick Inventory of Depressive Symptoms-Self Report (QIDS-SR; Rush et al., 2003) and self-reported dysfunctional beliefs (as measured by the Automatic Thoughts Questionnaire-Revised (ATQ-R; Kendal, Howard, & Hays, 1989), at intake and

termination). Results indicate a trend approaching significance between the two treatment interventions and changes in depressive symptoms. This suggests that with further investigation with a larger sample size, greater reductions in depression may be found when clients and therapists receive additional feedback about patient progress from the OQ-45 in group CBT for depression. Results also suggest that, compared to receiving standard feedback in group CBT for depression, receiving enhanced feedback from the OQ-45 leads to significantly greater reductions in dysfunctional beliefs across time.

The results of these analyses and trend data suggest that additional feedback on patient progress throughout group CBT for depression can lead to greater reductions in dysfunctional thinking styles and possibly depressive symptoms, compared to standard feedback measures. This is consistent with investigations on the utility of the OQ-45 feedback system for improving treatment outcomes by enhancing the efficiency and effectiveness of psychotherapy (Lambert, Hansen, & Harmon, 2010). These findings also add to the literature by demonstrating that the benefits of the OQ-45 feedback system extend to group therapy as well, especially CBT for depression. Given that initial depressive severity and dysfunctional attitudes have been identified as predictors of negative responses to therapy, these findings may be helpful for informing and directing group therapists who treat clients who are at high risk for negative outcomes. Although it is unknown what actions are taken by group therapists after receiving this feedback information, it is clear that being aware of this additional information provided by the OQ-45 plays a significant role in improving treatment outcomes.

Changes in quality of life from intake to termination between the two treatment interventions were assessed in the third hypothesis. Results indicated a significant cross-over interaction (i.e. the interaction is in the shape of an “X”) between the two interventions and

changes in quality of life from intake to termination. The interaction effect suggests that change in relationship distress is a factor of time and group condition together, but not alone. Further observation of the cross-over interaction reveals that receiving feedback from the OQ-45 led to significant improvements in quality of life at termination. While the nature of this interaction was not in the expected direction, there might be a relationship between receiving feedback from the OQ-45, time, and changes in quality of life. Further research is warranted to better understand this relationship in group CBT for depression.

Swan, Watson and Nathan (2009) examined changes in depression scores and quality of life over the course of group CBT for depression. Results of the investigation indicated that 40% of the variance in change in quality of life from pre- to post-treatment was unexplained for after accounting for change in depressive symptoms, covariates, and pre-treatment variables. This suggests that change in quality of life is not solely explained by symptom reduction. The authors posit that group CBT may result in changes to social domains (i.e., employment, relationships) for the individual that occur outside of their symptomatology. Receiving additional feedback from the OQ-45, which monitors common mental health symptoms as well as relationship distress and functioning in social domains, may play a role in improving quality of life from pre-treatment to post-treatment. These findings highlight the importance of employing a comprehensive monitoring and feedback system that can further reduce negative outcomes while improving general satisfaction with life.

The final hypothesis assessed whether receiving additional feedback from the OQ-45 led to significant improvements in group process factors from intake to termination. In terms of therapeutic alliance, results indicated that there is a significant interaction between the treatment conditions over time. The data suggest that receiving feedback from the OQ-45 leads to greater

improvements in overall alliance between therapist and client in group CBT for depression. Analysis of the subscales revealed a significant difference for the Bond subscale only, indicating that therapeutic bond demonstrated greater improvement over time in the enhanced condition. Taken together, the data suggests that receiving enhanced feedback on treatment progress may lead to greater therapeutic bonding in group CBT for depression, compared to standard feedback measures. Given that poor therapeutic alliance has been associated with poorer response to CBT, this could be a helpful method for further developing the therapeutic alliance and thus improving treatment outcomes.

No significant differences were found between the standard and enhanced condition for changes in group cohesion and motivation to change over time. This suggests that the level of cohesiveness in the group is not impacted by receiving additional information on treatment progress. Given that group members were not required to discuss their feedback with the group, it is possible that receiving feedback from the OQ-45 does not allow for group members to develop a greater sense of cohesion. This is consistent with research by Woody and Adesky (2002), which identified the therapist-patient bond, and not the level of group cohesion, as one of the most critical factors driving change in highly structured group therapies. Likewise, it appears that the OQ-45 feedback program does not predict changes in autonomous motivation over group therapy. Therefore, receiving enhanced feedback on your treatment progress in therapy does not necessarily lead to increased motivation to change. One possible explanation is that intrinsic motivation to change might already be elevated for the individuals participating in this research study, and thus not likely to see any significant improvements over the course of treatment.

The results of the OQ-45 feedback system on group processes reveal that benefits to enhanced feedback identified in the literature within individual therapy can also be applied to the

more complex arena of group therapy. While some group processes appear to be unaffected by the type of feedback on treatment progress, general process factors, such as therapeutic bond, are impacted. These findings can direct group therapists to appropriate interventions if group members are at risk of deterioration. For example, if the benefit of receiving enhanced feedback is routed in the development of a stronger therapeutic alliance, than it may be more helpful to attend to the therapeutic bond than group cohesiveness if group members are at risk of negative outcomes. Finally, these data provide a better understanding of the prominent process factors present in group CBT for depression.

Effect Sizes

Many researchers have reported on the importance of providing effect sizes in quantitative studies (Sullivan & Feinn, 2012). Whereas statistical significance measures the existence of a relationship, the effect size is a measure of the magnitude of that relationship (Kline, 2004). Given the small samples available for this thesis, examination of the effect sizes provides an alternative method of describing the relationship between the variables of interest and treatment outcomes. The measurement used to identify the effect size was partial eta-squared. The suggested norms for interpreting the effect size are: small (0.01), medium (0.06), and large (0.14) (Field, 2005).

The strength of the relationships between enhanced feedback and general distress, depressive symptoms, dysfunctional beliefs, and quality of life were large, ranging from 0.15 to 0.49. With respect to the relationship between enhanced feedback and group processes, the strength of the association was large for overall therapeutic alliance and the bond and goals subscales (ranging from 0.18 to 0.35). The task subscale demonstrated a medium association with enhanced feedback.

The strength of the relationship between the group cohesion avoidance subscale and enhanced feedback was small. The remaining two group cohesion subscales demonstrated relatively no strength in its relationship with enhanced feedback. Three of the six subscales in the client motivation for therapy scale demonstrated small to large effects. Identified regulation, which is a form of extrinsic motivation whereby an individual consciously accepts the values underlying a behaviour because it is believed to be meaningful and important (Zuroff, 2007), revealed a large association with enhanced feedback. Integrated regulation represents another form of extrinsic motivation, whereby the values and actions identified by an individual become fully aligned with their own values, actions, and personal experiences (Zuroff, 2007). The relationship between enhanced feedback and this form of motivation was medium.

These extrinsic motivational variables differ from intrinsic motivation, which is the desire to perform an action simply out of interest and the internal satisfaction it provides. The strength of this relationship to enhanced feedback was small. Analysis of the magnitude of the associations between group CBT, process factors, and treatment response further support some of the statistical findings. The effect sizes also suggest that further investigation into the role that avoidance within the group and certain levels of client motivation play in treatment response is warranted.

Some researchers have suggested that large effect sizes are overestimated when sample sizes are small, introducing a potential bias in research findings (Levine, Asada, & Carpenter, 2009). In an effort to reduce this bias, the partial eta squared measurement of effect size was employed. This measure provides some correction for small sample size biases compared to the traditional eta squared measurement (Hayes, 2013).

However, regardless of the strength of the effect size, it is recommended that investigators collect more data with a larger sample size after the pilot in order to replicate findings. Given this is a preliminary analysis of the research questions, caution is warranted when interpreting effect sizes until more data is collected with a larger sample.

Feedback from clients and clinicians

During the individual debriefing session following the final group therapy session, group participants were invited to provide feedback of their experience with the OQ-45. When asked what they liked about the measure, responses focused on two categories, ease of use and increased awareness of functioning. Clients stated that the measure was "easy to fill out," "not too long," and either the same or easier to complete than the Quick Inventory of Depressive Symptomatology, which was the standard symptom measure completed at the start of each session. Participants also expressed that completing the measure was helpful for improving awareness and monitoring of symptoms. Responses included that "it helped me to think about the questions being asked," "ask myself what was going on me for," "sometimes I can't put how I'm feeling into words and this helps jog my memory," and "it helps me see a more accurate picture of what's going on." All participants in the feedback condition described the feedback they received as "helpful," and reported that it was a welcomed part of the group therapy experience (e.g., "I looked forward to seeing the outcome"). Some participants in the no-feedback group, who completed the feedback measure at the start of each session but did not receive feedback, reported an interest in receiving the additional feedback information (e.g., "I really wanted to keep the measure so I could see my score"). Two participants in the no-feedback condition requested to view all their OQ-45 scores once the group was complete.

When asked if there was anything they disliked about the OQ-45, a common response was that some of the items did not apply to them (i.e. they were single and/or unemployed) so they were unsure how to respond. One participant reported "I wasn't sure if I was answering correctly." Another participant expressed how "answering some of the questions triggered sadness."

When queried on recommendations for future use of the OQ-45 in group therapy, the majority of participants reported that they "wouldn't change a thing." One respondent recommended that a group facilitator review the questionnaire in detail with the entire group during the first group session in order to ask questions and work through obstacles to completion and interpretation.

Feedback on the use of the OQ-45 was also sought from a group therapist involved in facilitating the treatment groups. From a group facilitator's perspective, the feedback message provided on the feedback reports from the *OQ-Analyst* could be problematic in group therapy. These standardized messages are tailored to individual therapies where there is greater flexibility in number of sessions and altering the treatment plan if clients are identified to be at risk for negative outcomes. There is also more flexibility within individual interventions to discuss the context surrounding the feedback message and clinical implications for the client. Within highly structured group therapies there are fewer opportunities to alter the treatment protocol. This is further complicated when one member is at risk and the other members are progressing as expected, both for the therapist leading the group session and for the sole member who differs from other group members.

While participants may see a significant improvement in their symptoms over treatment, their final score may still fall within a range that is deemed at risk for negative outcomes, which may

reinforce feelings of failure. Given the structure within group CBT, there may not be opportunities to extend the number of sessions as the feedback message would recommend. Likewise, participants who experienced significant gains and were classified as recovered before the end of group therapy would receive feedback messages suggesting that they should consider terminating treatment. The group therapist indicated that there was often confusion and questions centered on the feedback message and concern over the implications for their treatment in group.

The responses from participants suggest that the OQ-45 is an easy to use feedback measure and there is genuine interest in receiving additional feedback on their treatment progress. It appears that more efforts are needed to prepare clients on how to complete the measure and interpret the feedback reports. This is supported by the concerns expressed by the group facilitator. Perhaps fewer problematic situations would occur with additional training on how to proceed when faced with various scenarios within group when using the OQ-45 feedback system (e.g., what to do if a client completes treatment and is identified at risk of negative outcomes). Regardless of the feedback message displayed on the report, this tool can be beneficial for identifying clients at risk of treatment failure, creating opportunities for therapists to shift focus or make changes within the group protocol, encouraging a dialogue about treatment progress, and directing treatment planning after the group is complete.

Limitations and Future Research

There are many limitations to the present investigation that should be noted. Firstly, the small sample size for each condition requires that all results be interpreted with caution. As well, this study should be replicated to ensure consistent findings that can be generalized to other populations. Another limitation was the number of group therapists. There was only one registered clinical psychologist leading all the treatment groups with a different psychology

resident co-facilitating each group. Due to staffing shortages that occurred over the course of the data collection period, only one clinical psychologist was available to lead the therapy groups. The benefit of having one psychologist co-facilitate both the control and treatment conditions is that it eliminates the need to assess for variability among numerous therapists and their application of the treatment protocol. This may introduce more difficulty in determining whether differences between treatment conditions are due to the provision of feedback or differences between therapists. However, having had only one therapist limits the ability to generalize the results of the present study. For example, it is not known whether another clinical psychologist co-facilitating both treatment conditions would experience improved outcomes in the feedback condition compared to the no feedback condition. Furthermore, the clinical psychologist enlisted in the present study was also a co-investigator on the project. Therefore, it was not possible to conceal the hypotheses of the study. It is not known whether knowing the research hypotheses may have impacted the group process in favour of supporting desired outcomes. Although pre-cautions were taken (i.e. given the allocation concealment, the lead therapist did not decide which participants were assigned to the feedback and no-feedback conditions), this nonetheless suggests that the data should be interpreted with caution. Future studies should ensure that study therapists for the feedback and no-feedback groups are different and are unaware of the research hypotheses.

Similar to Lambert and colleagues (2005), no directives were provided as to how the feedback should be used to direct or alter the treatment intervention. It is unknown if the information used from the feedback program led to any changes in how the groups were facilitated. The audio recorded sessions were used solely for the purpose of assessing adherence to the treatment protocol. Future research would benefit from assessing whether the provision of

feedback influenced the group facilitator's behaviour over the course of treatment. This could be accomplished through observation and coding of the audio-recorded sessions, weekly self-report questionnaires, or interviews with the group therapists. Finally, there are many models in the literature that theorize how process factors impact treatment outcomes. Utilizing more complex models, such as mediator-moderator models, could provide a better understanding of the impact of feedback systems on treatment outcomes in group therapy. Future research would benefit from exploring alternative models, such as the impact of feedback on the relationship between therapeutic alliance and depressive symptoms.

It would also be advantageous to assess alternative process factors identified in the literature, especially process factors unique to group CBT, as this area of study remains relatively new. In addition to measuring other process variables, it may be helpful to explore other dimensions of the same process, such as the therapist's perception of the alliance with the client as well as the client's perspective of the alliance. This would provide a deeper understanding of how feedback impacts processes in group therapy. As mentioned above, there were no specific directives for group therapists on how to use feedback from the OQ-45 effectively in group treatment. In line with the OQ-45 literature on the benefits of using clinical support tools for clients at risk of deteriorating in individual therapy, it would be helpful to investigate whether these benefits apply to the group therapy sphere. That is, are there greater improvements in treatment outcomes for groups that employ an enhanced feedback system plus clinical support tools for at-risk clients, compared to groups employing the feedback system without any clinical support tools? Furthermore, do clinical support tools differ in individual and group therapy? And if so, what would need to be altered?

General Discussion

The primary objective of the studies presented in this thesis was to further examine the formal and process factors within group CBT for depression that contribute to various treatment outcomes. The first study investigated the relationship between group CBT for depression and changes in interpersonal distress, as well as the process mechanisms that might influence this relationship. The second study examined the role of providing formal feedback to patients and therapists on patient progress throughout group CBT for depression on treatment outcomes.

Study One: Changes in relationship distress in individual and group CBT for Depression

The aim of the first study was to investigate whether small group process variables, such as therapeutic alliance and group cohesion, contributed to greater reductions in self-reported relationship distress in group CBT compared to individual CBT for depression. It was hypothesized that clients in the group therapy condition would experience greater statistically and clinically significant reductions in self-reported relationship distress at termination, as measured by the relationship distress subscale of the OQ-45. While relationship distress significantly decreased over the course of each treatment intervention, results indicated that clients who participated in group therapy experienced a significantly greater reduction in relationship distress across time than clients who participated in individual therapy. Trend data also suggest that clients may experience a greater rate of improvement across 18 sessions in the group therapy condition; however, the limited sample size may have contributed to non-significant findings. Furthermore, group therapy clients experienced a greater clinically significant improvement in relationship distress than clients in the individual therapy condition. That is, compared to clients receiving individual CBT for depression, clients receiving group

CBT for depression were more likely to transition from a clinical level of relationship distress at intake to a non-clinical level of relationship distress at termination.

Study one also hypothesized that the relationship between pre-relationship distress on post-relationship distress across group CBT would be mediated by therapeutic alliance and group cohesion process variables. Results of the therapeutic alliance mediator model identified therapeutic alliance, as measured by the total score of the Working Alliance Inventory, as a mediator variable in the predicted direction. Specifically, as perception of therapeutic alliance increases, posttreatment relationship distress decreases. Examination of the three subscales of the therapeutic alliance measure revealed that, taken separately, the client's perception of agreement on tasks, agreement on goals, and perceived therapeutic bond do not mediate the relationship between pretreatment relationship distress and posttreatment relationship distress. Again, the small sample size and number of mediators in the model likely influenced the ability to detect any true effect. Nonetheless, these findings support the literature on the important role therapeutic alliance plays in psychotherapy treatment outcome. This also adds to group therapy research by providing evidence on the nature of the relationship between therapeutic alliance and interpersonal distress in group CBT for depression.

Finally, group cohesion was not identified as a mediator in the relationship between pretreatment relationship distress and posttreatment relationship distress. While there may be some methodological issues that influenced the ability to detect significant findings, it is possible that the relationship with other group members may not play as significant a role in reducing interpersonal distress as with the relationship to the therapist in group CBT for depression. This has implications for group therapists and the degree of attention placed on developing group cohesion over therapeutic alliance in group CBT for depression, especially when clients report

relationship distress (as measured by the OQ-45 relationship distress subscale score or similar measures).

Study Two: The role of formal feedback in treatment outcomes in Group CBT for Depression

The aim of the second study was to determine whether adopting an enhanced treatment approach to group CBT for depression, which focuses on increasing patient and therapist awareness of individual response to treatment, leads to a greater reduction of symptoms and concomitant increases in quality of life relative to standard group CBT for depression. It was hypothesized that formal feedback derived from the outcome questionnaire (OQ-45) and provided to therapists and patients would lead to clinically and statistically significant improvements in overall distress levels, depressive symptoms, dysfunctional beliefs, and quality of life at termination, as compared to those attending the standard group CBT condition.

Results suggest that receiving feedback from the OQ-45 in group CBT for depression leads to greater reductions in general distress from intake to termination, compared to standard feedback received in group CBT for depression. This finding was not statistically significant when comparing each client's OQ-45 scores across all 18 sessions of therapy and level of improvement across 4 clinical outcome categories. It is likely that the greater number of variables and categories employed for the latter two analyses combined with a small sample size contributed to difficulties detecting significant results.

Taken together, the data suggest that using the OQ-45 to relay feedback to therapists and patients about progress throughout individual and group CBT for depression may be more effective at reducing general distress than standard feedback measures. It is likely that group clients, like individual therapy clients, experience greater investment in the therapeutic process when provided comprehensive feedback on treatment progress.

Analysis of trend data suggests that greater reductions in depression may be found when clients and therapists receive additional feedback about patient progress from the OQ-45 in group CBT for depression. Further investigation with a larger sample size is required to determine if this relationship is significant. Findings also suggest that, compared to receiving standard feedback in group CBT for depression, receiving enhanced feedback from the OQ-45 leads to significantly greater reductions in dysfunctional beliefs across time. This contributes to the literature by demonstrating that the benefits of the OQ-45 feedback system in enhancing the efficiency and effectiveness of individual psychotherapy also extend to group therapy, especially CBT for depression.

Overall, clients did not experience a significant difference in quality of life over time, nor was quality of life significantly different in each condition. However, there was a significant interaction between the two interventions over time, such that receiving feedback from the OQ-45 led to significantly greater improvements in quality of life at termination. It is possible that receiving additional feedback from the OQ-45, which monitors common mental health symptoms as well as relationship distress and functioning in social domains, may play a greater role in improving quality of life from pre-treatment to post-treatment than standard symptom measures in group CBT for depression. These findings highlight the importance of employing a comprehensive monitoring and feedback system that can further reduce negative outcomes while improving general satisfaction with life.

The second objective was to investigate whether an enhanced feedback system would have a positive impact on group processes in group CBT for depression. It was hypothesized that clients in the enhanced group CBT condition would show statistically significant improvements

in therapeutic alliance, group cohesion, and autonomous motivation to change, compared to feedback interventions inherent in the standard group CBT condition.

Although there were no significant differences in therapeutic alliance from intake to termination or between treatment conditions, a significant interaction was detected. The results suggest that receiving feedback from the OQ-45 leads to greater improvements in overall alliance between therapist and client in group CBT for depression. Analysis of the subscales revealed a significant difference for the Bond subscale only, indicating that receiving enhanced feedback on treatment progress may lead to greater therapeutic bonding in group CBT for depression, compared to standard feedback measures.

No significant differences were found between the standard and enhanced condition for changes in group cohesion and motivation to change over time. This suggests that the level of cohesiveness in the group is not impacted by each member receiving additional information on their treatment progress. Likewise, it appears that receiving enhanced feedback does not predict changes in autonomous motivation over group therapy. One possible explanation is that intrinsic motivation to change might already be elevated for the individuals participating in this research study, and thus not likely to see any significant improvements over the course of treatment. These results provide a better understanding of the prominent process factors present in group CBT for depression as well as highlight the benefits of the OQ-45 feedback system in improving therapeutic bonding in group therapy. In addition to improved treatment outcomes, it appears that the provision of enhanced feedback to therapists and patients within group CBT for depression may be a useful tool for improving therapeutic alliance over the course of treatment.

Overall Conclusions

While the predictors of treatment response for depression have been studied extensively in the context of individual CBT, the factors that influence outcomes in group CBT are poorly understood. The first study in this thesis suggests that group CBT for depression may be more effective than the individual modality for the reduction of interpersonal distress. When examining the possible process mechanisms that might account for this reduction in group CBT for depression, therapeutic alliance, and not group cohesion, was shown to mediate the relationship between initial levels of relationship distress and relationship distress at termination for clients receiving group CBT for depression. It appears that process factors that influence treatment outcomes in individual therapy have similar levels of importance in the group arena. Specifically, within a highly structured group CBT for depression protocol, therapeutic alliance plays a significant role in improving treatment outcomes. This supports group CBT as a unique relational treatment, with benefits observed in overall treatment outcome as well as interpersonal functioning.

The second study revealed that adopting a comprehensive feedback system with demonstrated benefits in individual therapy also leads to improved treatment outcomes and enhanced processes in group CBT for depression. That is, providing enhanced feedback to therapists and patients on progress throughout group CBT for depression leads to significantly greater improvements in general distress, dysfunctional beliefs, and quality of life at termination, compared to standard feedback mechanisms inherent in group CBT for depression. Trend data also suggest that formal feedback may lead to greater improvements in depressive symptoms. Finally, there appears to be a relationship between receiving enhanced feedback on treatment progress and greater therapeutic bonding in group CBT for depression, compared to standard feedback mechanisms. Receiving enhanced feedback on treatment progress does not appear to

influence the level of group cohesiveness or client's motivation to change from intake to termination. These findings suggest that the OQ-45 feedback system can be a useful tool for improving treatment outcomes in both individual and group CBT for depression, as well as enhancing the therapeutic relationship between the therapist and group members.

Current State and New Contributions to the Literature

Summary of current state of the literature. Scientific investigation of the clinical applications of the cognitive theory of depression has led to many advances in the treatment of depression. CBT is one of the most extensively studied evidence-based treatments for reducing depressive symptoms and preventing relapse (Cuijpers et al., 2013). In fact, recent investigations have found that CBT can be a more effective treatment intervention than pharmacotherapy for mild to moderate depressive symptoms (Fournier et al., 2010). The scientific community has also amassed a wealth of data on the factors that influence treatment outcomes within CBT for depression. These factors include higher levels of initial depressive symptoms and dysfunctional attitudes, interpersonal difficulties, poor therapeutic alliance, and lower pre-treatment autonomous motivation (Kuyken, Kurzer, DeRubeis, Beck & Brown, 2001; Shankman et al., 2013; Sotsky et al., 1991; Borkovec et al., 2002; Lambert & Bergin, 1994; Zuroff et al., 2007). Research has also identified the provision of feedback as a significant factor influencing treatment progress. While research on CBT for depression has included various populations, clinical presentations, and settings, the focus has predominantly centered on individual therapy. Other treatment modalities, such as group CBT for depression, have shown considerable evidence to support its efficacy while being more cost-effective. However, the factors that influence treatment response within group CBT for depression are far less understood than individual CBT for depression. More research is needed to better understand whether the factors

that lead to change in individual therapy also apply to group therapy. Furthermore, it is not clear how process mechanisms unique to group CBT for depression influence treatment outcomes. Bieling, McCabe, and Antony (2006) identified a number of potential processes involved in group CBT for depression, with group cohesion representing the most supported process factor in the current literature.

Contribution to the literature. This thesis adds to the literature by investigating the: a) effectiveness of group CBT for depression in improving treatment outcomes, b) utility of the OQ-45 feedback system in group CBT for depression, and c) process mechanisms that influence treatment outcomes within group CBT for depression. First, improvements in treatment outcomes were noted in both individual and group CBT for depression conditions, supporting CBT as an effective treatment for depression. Likewise, patients in both the standard and enhanced group CBT for depression conditions experienced significant improvements in treatment outcomes at termination, which supports the overall efficacy of group CBT for depression. This thesis adds to the literature by highlighting that, similar to other group CBT interventions, group CBT for depression plays a significant role in reducing relationship distress. In fact, the group modality of this intervention appears to have added benefits to reducing relationship distress compared to the individual modality.

Second, this thesis contributes to new knowledge by extending the benefits of the OQ-45 feedback monitoring system from individual therapy to the more complex arena of group therapy, especially group CBT for depression. A more comprehensive feedback system in group CBT for depression appears to be more effective than standard feedback mechanisms for improving treatment outcomes. This finding is important given that CBT is a structured, manualized intervention with inherent components for eliciting feedback, identifying obstacles,

and self-monitoring. Increased awareness using feedback from the OQ-45 can lead to greater improvements in general distress, negative thinking styles, and quality of life in group CBT for depression. Given that most of these factors have been identified as predictors of negative treatment response, this feedback tool could be helpful for informing and directing group therapists who treat clients who are at high risk for negative outcomes.

In addition to improving treatment outcomes in group CBT for depression, this thesis contributes to the literature by demonstrating the utility of the OQ-45 feedback system for improving certain processes within the group. Compared to standard feedback measures, the enhanced feedback helps to improve therapist-group member bonding within treatment. Given that poor therapeutic alliance has been associated with poorer response to CBT, this could be a helpful method for further developing the therapeutic alliance and thus improving treatment outcomes. In the event of a ruptured alliance within group CBT for depression, therapists might consider incorporating the OQ-45 feedback system as a helpful intervention to improve their bonds with group members. The data also suggest that additional feedback on treatment progress may not lead to changes in group member relationships and client motivation to change. Given that group members were not required to discuss their feedback with the group, it is possible that receiving feedback from the OQ-45 does not allow for group members to develop a greater sense of cohesion. Taken together, it appears that the processes impacted by enhanced feedback may be similar in individual and group therapy. Further investigation is needed to examine the relationship between other processes unique to group therapy and enhanced feedback systems.

Third, this thesis adds to the literature by highlighting the process variables within group CBT for depression that influence treatment response. Specifically, data suggests that therapeutic alliance, and not group cohesion, plays a mediating role in the relationship between initial level

of relationship distress and relationship distress at termination. Given that alliance with the therapist accounts for a significant portion of whether clients see improvements in relationship distress, it is important for group therapists to pay close attention to their alliance with each group member, especially in cases where clients report interpersonal problems or are not demonstrating progress in therapy.

While research on therapeutic alliance has focused mostly on less-structured group interventions, both of the studies comprising this thesis provide support for the important role of therapeutic alliance in structured and manualized interventions such as group CBT for depression. It also appears that process factors that influence treatment outcomes in individual therapy have similar levels of importance in the group arena.

Limitations and Future Research

One of the greatest limitations for this thesis is the small sample size. Combined with missing data, this limits the ability to generalize the results of the study within this treatment setting as well as other treatment settings. It appears that the more variables employed within one analysis, the less likely the results will be significant. Given that the effect sizes revealed strong associations between therapeutic factors and treatment response, it will be important to replicate this study using more participants in each condition. This investigation also failed to capitalize on follow-up data to assess whether the gains exhibited at termination were maintained in the weeks and months following treatment. While it was beyond the scope of this thesis to collect follow-up data, it would significantly add to the literature on the benefits of group CBT for depression in reducing relational distress, as well as the role of formal feedback in improving outcomes in group CBT for depression. It may be of interest to investigate whether these findings also contribute to reduced relapse rates.

Although pre-treatment analyses did not yield any significant differences between the individual and group therapy conditions, data for each condition was collected at different locations. Data for the individual therapy condition were derived from a community training clinic; whereas, data for the group therapy condition were derived from a specialized, tertiary care facility. Every effort was made to identify possible confounds with the available data in order to control for them in the analyses. However, it is possible there were factors at play that were not controlled for, such as medication use, comorbidities, previous treatment, and working alliance in the individual therapy condition. Future research that employs a randomized control trial approach will help to reduce these potential confounds. Another bias present in the data was the number of group therapists. While each group was co-facilitated by a different psychology resident, the same clinical psychologist co-facilitated all the enhanced and standard group therapy interventions. Precautions were taken to mitigate the impact of this bias through random assignment of treatment condition after the group was already formed. Therefore, therapists were not involved in selecting which participants were assigned to the feedback or no-feedback conditions. This limits any bias in pre-selecting patients to treatment conditions based on their clinical presentation (e.g., severity of symptoms). Nonetheless, future research could benefit from including a number of group therapists to increase generalizability.

Another overall limitation to this thesis is the limited number of constructs employed to assess the variables of interest. Using secondary data for the individual therapy condition can be efficient, but in this case, it did not allow for the comparison of group and individual therapy processes.

Future research would benefit from collecting data on processes in individual therapy, such as of therapeutic alliance, motivation to change, and other potential mediators of treatment

outcome. Likewise, understanding of group processes was limited by only examining one unique group process factor in therapy. Given that there are a number of other group processes which have been identified in the literature, it would be helpful to include additional measures to assess the presence and strength of their relationship to treatment outcomes.

In addition to measuring other process variables, it may be helpful to explore other dimensions of the same process, such as the therapist's perception of the alliance with the client as well as the client's perspective of the alliance. This would provide a deeper understanding of how feedback impacts processes in group therapy. Similarly, the operational definition of interpersonal distress was centered on Lambert and colleagues' characterization of the construct while developing the Interpersonal Relations subscale of the OQ-45. While this is beneficial for the purpose of this investigation, the construct of interpersonal distress has been defined and measured in various ways in the literature (e.g., frequency of interpersonal conflicts)

Thus, in order to increase generalizability, future studies might consider examining interpersonal distress through various methods, including pre- and post- self-report measures of interpersonal styles or frequency ratings of interpersonal problems throughout treatment. For example, the Inventory of Interpersonal Problems (IIP; L. M. Horowitz, S. E. Rosenberg, B. A. Baer, G. Ureno, & V. S.Villasenor, 1988) is a 127-item measure designed to assist clients and therapists with identifying maladaptive patterns contributing to interpersonal distress. Given that the OQ-45 interpersonal relationship subscale does not provide details on the nature, source, or maintaining factors related to the distress, the IIP may provide a unique perspective on the relationship between group CBT for depression and relationship distress.

In addition to examining one construct of interpersonal distress, this thesis only examined mediation models for understanding the relationship between process factors and change in

relationship distress. There exist many models in the literature that theorize how process factors impact treatment outcomes. Utilizing more complex models, such as moderators or mediator-moderator models, could provide a better understanding of the processes inherent to group CBT for depression and the impact on feedback and various treatment outcomes. Future research would benefit from exploring alternative models, such as the impact of feedback on the relationship between therapeutic alliance and depression.

What remains unclear about the mediating relationship between process and relationship distress in group CBT for depression are the causal factors underlying the relationship between stronger therapeutic alliance and reduced relationship distress. For example, it may be related to the therapist's ability to model effective problem-solving or perhaps the development of a safe attachment with another person that contributes to stronger therapeutic bonding and reduced relationship distress outside the group therapy. Further investigation into the nature of this relationship is warranted.

Finally, similar to Lambert and colleagues four landmark studies on the OQ-45 (Lambert 2005), specific directives were not provided on how to modify treatment interventions based on feedback received from the OQ-45. It remains unknown whether the information provided to therapists led to any changes in the treatment protocol or led to any changes for the client. In line with the OQ-45 literature on the benefits of using clinical support tools for clients at risk of negative outcomes in individual therapy (Whipple et al., 2003), it would be helpful to investigate whether clinical support tools are as effective when applied to the group therapy sphere. It is possible that clients may experience greater improvements in treatment outcomes when participating in groups that employ an enhanced feedback system plus clinical support tools for at-risk clients, compared to groups employing the feedback system without using any clinical

support tools. Future investigations might examine the development of specific group clinical support tools that incorporate processes unique to group therapy. A modified heuristic based on Whipple and colleagues (2003) CSTs would benefit from incorporating a supraordinate decision branch to guide therapists as to whether to focus on group or individual-level factors. Likewise with CSTs used in individual therapy, the chosen factors for group CSTs should be based on those found in the literature to be associated with positive outcome in group and individual psychotherapy.

Given the problems encountered with the OQ-45 client feedback message within a group context, future research may also focus on developing an OQ-45 feedback report for group therapy that takes into consideration the structured nature of the group (i.e. recommendations that incorporate completion of structured group interventions) while providing the same benefits of enhanced progress monitoring and improved treatment outcomes.

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Appendix A

Measures

HAMILTON RATING SCALE FOR DEPRESSION

(17 Items)

Instructions: For each item, select the number that corresponds to the statement that best characterizes the patient.

1. DEPRESSED MOOD (Sadness, hopeless, helpless, worthless) ☐
- 0 Absent
- 1 These feeling states indicated only on questioning
- 2 These feeling states spontaneously reported verbally
- 3 Communicates feeling states non-verbally - i.e., through facial expression, posture, voice, and tendency to weep
- 4 Patient reports VIRTUALLY ONLY these feeling states in his spontaneous verbal and nonverbal communication

2. FEELINGS OF GUILT ☐
- 0 Absent
- 1 Self reproach, feels he has let people down
- 2 Ideas of guilt or rumination over past errors or sinful deeds
- 3 Present illness is a punishment. Delusions of guilt
- 4 Hears accusatory or denunciatory voices and/or experiences threatening visual hallucinations

3. SUICIDE ☐
- 0 Absent
- 1 Feels life is not worth living
- 2 Wishes he were dead or any thoughts of possible death to self
- 3 Suicidal ideas or gestures
- 4 Attempts at suicide (any serious attempt rates 4)

4. INSOMNIA EARLY ☐
- 0 No difficulty falling asleep
- 1 Complains of occasional difficulty falling asleep – i.e. more than ½ hour
- 2 Complains of nightly difficulty falling asleep

5. INSOMNIA MIDDLE ☐
- 0 No difficulty
- 1 Patient complains of being restless and disturbed during the night
- 2 Waking during the night – any getting out of bed rates 2 (except for the purposes of voiding)

☐

6. INSOMNIA LATE
- 0 No difficulty
- 1 Waking in the early hours of the morning but goes back to sleep
- 2 Unable to fall asleep again if he gets out of bed

7. WORK AND ACTIVITIES
- 0 No difficulty
- 1 Thoughts and feelings of incapacity, fatigue or weakness related to activities, work or hobbies
- 2 Loss of interest in activity, hobbies, or work – either directly reported by patient, or indirect in listlessness, indecision and vacillation (feels he has to push self to work or activities)
- 3 Decrease in actual time spent in activities or decrease in productivity
- 4 Stopped working because of present illness

8. RETARDATION: PSYCHOMOTOR (Slowness of thought and speech; impaired ability to concentrate; decreased motor activity)
- 0 Normal speech and thought
- 1 Slight retardation at interview
- 2 Obvious retardation at interview
- 3 Interview difficult
- 4 Complete stupor

9. AGITATION
- 0 None
- 1 Fidgetiness
- 2 Playing with hands, hair, etc.
- 3 Moving about, can't sit still
- 4 Hand wringing, nail biting, hair-pulling, biting of lips

10. ANXIETY (PSYCHOLOGICAL)
- 0 No difficulty
- 1 Subjective tension and irritability
- 2 Worrying about minor matters
- 3 Apprehensive attitude apparent in face or speech
- 4 Fears expressed without questioning

11. **ANXIETY SOMATIC:** Physiological concomitants of anxiety (i.e. effects of autonomic overactivity, "butterflies," indigestion, stomach cramps, belching, diarrhea, palpitations, hyperventilation, paresthesia, sweating, flushing, tremor, headache, urinary frequency). Avoid asking about possible medication side effects (i.e. dry mouth, constipation).
- 0 Absent
- 1 Mild
- 2 Moderate
- 3 Severe
- 4 Incapacitating

12. SOMATIC SYMPTOMS (GASTROINTESTINAL)

0 None
1 Loss of appetite but eating without encouragement from others. Food intake about normal
2 Difficulty eating without urging from others. Marked reduction of appetite and food intake

13. SOMATIC SYMPTOMS GENERAL ☐

0 None
1 Heaviness in limbs, back or head. Backaches, headache, muscle aches. Loss of energy or fatigability
2 Any clear-cut symptom rates 2

14. **GENITAL SYMPTOMS** (Symptoms such as: loss of libido; impaired sexual performance; menstrual disturbances) ☐

0 Absent
1 Mild
2 Severe

15. HYPOCHONDRIASIS ☐

0 Not present
1 Self-absorption (bodily)
2 Preoccupation with health
3 Frequent complaints, requests for help, etc.
4 Hypochondriacal delusions

16. LOSS OF WEIGHT ☐

A. When rating by history:

0 No weight loss
1 Probably weight loss associated with present illness
2 Definite (according to patient) weight loss
3 Not assessed

B. On weekly ratings by ward psychiatrist, when actual weight changes are measured

0 Less than 1 lb weight loss in a week
1 Greater than 1 lb weight loss in a week
2 Greater than 2 lb weight loss in a week

17. INSIGHT ☐

0 Acknowledges being depressed and ill
1 Acknowledges illness but attributes cause to bad food, climate, overwork, virus, need for rest, etc.
2 Denies being ill at all

Total Score: ☐

CMOTS

WHY ARE YOU PRESENTLY INVOLVED IN THERAPY?

Using the scale below, please indicate to what extent each of the following items corresponds to the reasons why you are presently involved in therapy by circling the appropriate number to the right of each item. We realize that the reasons why you are in therapy at this moment may differ from the reasons that you initially began therapy. However, we are interested to know why you are in therapy at the present moment.

		Does not Correspond at all			Corresponds Moderately		Corresponds Exactly
1.	Because other people think that it's a good idea for me to be in therapy.	1	2	3	4	5	6 7
2.	Honestly, I really don't understand what I can get from therapy.	1	2	3	4	5	6 7
3.	For the pleasure I experience when I feel completely absorbed in a therapy session.	1	2	3	4	5	6 7
4.	For the satisfaction I have when I try to achieve my personal goals in the course of therapy.	1	2	3	4	5	6 7
5.	Because I would feel guilty if I was not doing anything about my problem.	1	2	3	4	5	6 7
6.	Because I would like to make changes to my current situation.	1	2	3	4	5	6 7
7.	Because I believe that eventually it will allow me to feel better.	1	2	3	4	5	6 7
8.	I once had good reasons for going to therapy, however, now I wonder whether I should quit.	1	2	3	4	5	6 7
9.	Because I would feel bad about myself if I didn't continue my therapy.	1	2	3	4	5	6 7
10.	Because I should have a better understanding of myself.	1	2	3	4	5	6 7
11.	Because my friends think I should be						

	in therapy.	1	2	3	4	5	6 7
12.	Because I experience pleasure and satisfaction when I learn new things about myself that I didn't know before.	1	2	3	4	5	6 7
13.	I wonder what I'm doing in therapy; actually, I find it boring.	1	2	3	4	5	6 7
14.	I don't know; I never really thought about it before.	1	2	3	4	5	6 7
15.	Because I believe that therapy will allow me to deal with things better.	1	2	3	4	5	6 7
16.	For the interest I have in understanding more about myself.	1	2	3	4	5	6 7
17.	Because through therapy I've come to see a way that I can continue to approach different aspects of my life.	1	2	3	4	5	6 7
18.	Because through therapy I feel that I can now take responsibility for making changes in my life.	1	2	3	4	5	6 7
19.	Because it is important for clients to remain in therapy until it's finished.	1	2	3	4	5	6 7
20.	Because I believe it's a good thing to do to find solutions to my problem.	1	2	3	4	5	6 7
21.	To satisfy people close to me who want me to get help for my current situation.	1	2	3	4	5	6 7
22.	Because I don't want to upset people close to me who want me to be in therapy.	1	2	3	4	5	6 7
23.	Because I feel that changes that are taking place through therapy are becoming part of me.	1	2	3	4	5	6 7
24.	Because I value the way therapy allows me to make changes in my life.	1	2	3	4	5	6 7

___

(Pelletier, Tuson, & Haddad, Journal of Personality Assessment, 1997, 68(2), 414-435)
Intrinsic motivation: 3, 4, 12, 16; Integrated regulation: 17, 18, 23, 24; Identified regulation: 6, 7, 15, 20; Introjected regulation: 5, 9, 10, 19; External regulation: 1, 11, 21, 22; Amotivation: 2, 8, 13, 14.

Quick Inventory of Depressive Symptomatology (Self-Report) (QIDS-SR$_{16}$)

NAME: _____ TODAY'S DATE: _____

Please circle the one response to each item that best describes you for the past seven days.

1. **Falling Asleep:**
   0 I never take longer than 30 minutes to fall asleep.
   1 I take at least 30 minutes to fall asleep, less than half the time.
   2 I take at least 30 minutes to fall asleep, more than half the time.
   3 I take more than 60 minutes to fall alseep, more than half the time.

2. **Sleep During the Night:**
   0 I do not wake up at night.
   1 I have a restless, light sleep with a few brief awakenings each night.
   2 I wake up at least once a night, but I go back to sleep easily.
   3 I awaken more than once a night and stay awake for 20 minutes or more, more than half the time.

3. **Waking Up Too Early:**
   0 Most of the time, I awaken no more than 30 minutes before I need to get up.
   1 More than half the time, I awaken more than 30 minutes before I need to get up.
   2 I almost always awaken at least one hour or so before I need to, but I go back to sleep eventually.
   3 I awaken at least one hour before I need to, and can't go back to sleep.

4. **Sleeping Too Much:**
   0 I sleep no longer than 7–8 hours/night, without napping during the day.
   1 I sleep no longer than 10 hours in a 24-hour period including naps.
   2 I sleep no longer than 12 hours in a 24-hour period including naps.
   3 I sleep longer than 12 hours in a 24-hour period including naps.

Enter the highest score on any 1 of the 4 sleep items (1–4 above) ____

5. **Feeling Sad:**
   0 I do not feel sad
   1 I feel sad less than half the time.
   2 I feel sad more than half the time.
   3 I feel sad nearly all of the time.

6. **Decreased Appetite:**
   0 There is no change in my usual appetite.
   1 I eat somewhat less often or lesser amounts of food than usual.
   2 I eat much less than usual and only with personal effort.
   3 I rarely eat within a 24-hour period, and only with extreme personal effort or when others

persuade me to eat.

7. Increased Appetite:
0 There is no change from my usual appetite.
1 I feel a need to eat more frequently than usual.
2 I regularly eat more often and/or greater amounts of food than usual.
3 I feel driven to overeat both at mealtime and between meals.

8. Decreased Weight (Within the Last Two Weeks):
0 I have not had a change in my weight.
1 I feel as if I've had a slight weight loss.
2 I have lost 2 pounds or more.
3 I have lost 5 pounds or more.

9. Increased Weight (Within the Last Two Weeks):
0 I have not had a change in my weight.
1 I feel as if I've had a slight weight gain.
2 I have gained 2 pounds or more.
3 I have gained 5 pounds or more.

Enter and add scores on items 5, and the highest score on item 6, 7, 8 or 9 ____

10. Concentration/Decision Making:
0 There is no change in my usual capacity to concentrate or make decisions.
1 I occasionally feel indecisive or find that my attention wanders.
2 Most of the time, I struggle to focus my attention or to make decisions.
3 I cannot concentrate well enough to read or cannot make even minor decisions.

11. View of Myself:
0 I see myself as equally worthwhile and deserving as other people.
1 I am more self-blaming than usual.
2 I largely believe that I cause problems for others.
3 I think almost constantly about major and minor defects in myself.

12. Thoughts of Death or Suicide:
0 I do not think of suicide or death.
1 I feel that life is empty or wonder if it's worth living.
2 I think of suicide or death several times a week for several minutes.
3 I think of suicide or death several times a day in some detail, or I have made specific plans for suicide or have actually tried to take my life.

13. General Interest:
0 There is no change from usual in how interested I am in other people or activities.
1 I notice that I am less interested in people or activities.
2 I find I have interest in only one or two of my formerly pursued activities.

3 I have virtually no interest in formerly pursued activities.

14. Energy Level:

0 There is no change in my usual level of energy.
1 I get tired more easily than usual.
2 I have to make a big effort to start or finish my usual daily activities (for example, shopping, homework, cooking or going to work).
3 I really cannot carry out most of my usual daily activities because I just don't have the energy.

15. Feeling Slowed Down:

0 I think, speak, and move at my usual rate of speed.
1 I find that my thinking is slowed down or my voice sounds dull or flat
2 It takes me several seconds to respond to most questions and I'm sure my thinking is slowed.
3 I am often unable to respond to questions without extreme effort.

16. Feeling Restless:

0 I do not feel restless.
1 I'm often fidgety, wringing my hands, or need to shift how I am sitting.
2 I have impulses to move about and am quite restless.
3 At times, I am unable to stay seated and need to pace around.

Enter and add scores from items 10, 11, 12, 13, 14 and the highest score on either 15 or 16 ____

Total Score:____ (Range 0–27)

LIFE SATISFACTION SCALE

Below are five statements with which you may agree or disagree. Using the scale below, indicate your agreement with each item by circling the appropriate number. Please be open and honest in your responding.

Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Or Disagree	Slightly Agreee	Agree	Strongly Agree
1	**2**	**3**	**4**	**5**	**6**	**7**

LIFE SATISFACTION IN GENERAL

1. In most ways my life is close to my ideal.	1	2	3	4	5	6	7
2. The conditions of my life are excellent.	1	2	3	4	5	6	7
3. I am satisfied with my life.	1	2	3	4	5	6	7
4. So far I have gotten the important things I want in life.	1	2	3	4	5	6	7
5. If I could live my life over, I would change almost nothing.	1	2	3	4	5	6	7

Automatic Thoughts Questionnaire-Revised

Instructions

Listed below are a variety of thoughts that pop into people's heads. Please read each thought and indicate how frequently, if at all, the thought occurred to you over the last week. Please read each item carefully and circle the appropriate answers on the answer sheet in the following fashion**:**

1 = not at all
2 = sometimes
3 = moderately often
4 = often
5 = all the time

Response						**Thoughts**
1	2	3	4	5	1.	I feel like I'm up against the world.
1	2	3	4	5	2.	I'm no good.
1	2	3	4	5	3.	I'm proud of myself.
1	2	3	4	5	4.	Why can't I ever succeed?
1	2	3	4	5	5.	No one understands me.
1	2	3	4	5	6.	I've let people down.
1	2	3	4	5	7.	I feel fine.
1	2	3	4	5	8.	I don't think I can go on.
1	2	3	4	5	9.	I wish I were a better person.
1	2	3	4	5	10.	No matter what happens, I know I'll make it.
1	2	3	4	5	11.	I'm so weak.
1	2	3	4	5	12.	My life's not going the way I want it to.
1	2	3	4	5	13.	I can accomplish anything.
1	2	3	4	5	14.	I'm so disappointed in myself.
1	2	3	4	5	15.	Nothing feels good anymore.
1	2	3	4	5	16.	I feel good.

1	2	3	4	5	17. I can't stand this anymore.
1	2	3	4	5	18. I can't get started.
1	2	3	4	5	19. What's wrong with me?
1	2	3	4	5	20. I'm warm and comfortable.
1	2	3	4	5	21. I wish I were somewhere else.
1	2	3	4	5	22. I can't get things together.
1	2	3	4	5	23. I hate myself.
1	2	3	4	5	24. I feel confident; I can do anything I set my mind to.
1	2	3	4	5	25. I'm worthless.
1	2	3	4	5	26. I wish I could just disappear.
1	2	3	4	5	27. What's the matter with me.
1	2	3	4	5	28. I feel very happy.
1	2	3	4	5	29. I'm a loser.
1	2	3	4	5	30. My life is a mess.
1	2	3	4	5	31. I'm a failure.
1	2	3	4	5	32. This is super!
1	2	3	4	5	33. I'll never make it.
1	2	3	4	5	34. I feel so helpless.
1	2	3	4	5	35. Something has to change.
1	2	3	4	5	36. There must be something wrong with me.
1	2	3	4	5	37. I'm luckier than most people.
1	2	3	4	5	38. My future is bleak.
1	2	3	4	5	39. It's just not worth it.
1	2	3	4	5	40. I can't finish anything.

DEMOGRAPHICS

Date of Birth: _____/_____/_____ **Age**: _____ **Sex**: Male: ☐ Female: ☐
DD / MM / YY

Marital Status: ☐ Single ☐ Married ☐ Widowed
☐ Divorced ☐ Separated ☐ Partner/Significant Other

Do you have any children? ☐ **No** ☐ **Yes**; **# of Children** ____

Ages of Children: ____ ____ ____ ____ ____ ____ ____

TREATMENT HISTORY:
Have you ever received treatment with individual Cognitive-Behavioural Therapy? Yes No

If yes, how many separate times have you received a series of individual Cognitive-Behavioural Therapy sessions? _____

When was the last time you received individual Cognitive-Behavioural Therapy?

Start date:_____ End Date: _____

How many sessions did you attend in total?_____

Have you ever received treatment with group Cognitive-Behavioural Therapy? Yes No

If yes, how many separate times have you received a series of group Cognitive-Behavioural Therapy sessions? _____

When was the last time you received group Cognitive-Behavioural Therapy?

Start date:_____ End Date: _____

How many sessions did you attend in total?_____

Appendix B

Research Material

University of Ottawa
Institute of Mental Health Research

Institut de recherche en santé mentale de l'Université d'Ottawa

uOttawa
L'Université canadienne
Canada's university

GROUP COGNITIVE-BEHAVIOURAL THERAPY FOR DEPRESSION RESEARCH STUDY
Informed Consent

Purpose of Project:

This research project studies the factors that lead to a better response to therapy. To be specific, this study will look at what leads to a better response in group Cognitive-Behavioural Therapy (CBT) for depression. In individual therapy, feedback given to the therapist and patient seems to improve the patient's response to treatment. However, it is not clear how feedback given in a group setting may affect the patient's success in therapy. Therefore, the goal of this study will be to observe how feedback given in group CBT will affect treatment response for patients. In particular, we want to know if including feedback from the *Outcome Questionnaire*, a measure of a person's progress in therapy, will have added benefits to the patients in group therapy. This will be compared to standard feedback from group CBT. As a result of this study, therapists will have a better understanding of the type of feedback that is important in group therapy.

To be included in the study, patients must have a primary diagnosis of current Major Depressive Disorder. Patients must have at least mild depressive symptoms. This will be assessed by a score of 9 or greater on the Hamilton Rating Scale for Depression (HAM-D). Patients must also score more than 13 on the Beck Depression Inventory (BDI-II). Patients will not be included if they have a (1) Primary diagnosis of an Anxiety Disorder, or (2) a diagnosis, past or present of; (a) Bipolar Disorder, (b) Schizoaffective Disorder, (c) Schizophrenia, (d) Substance Abuse Disorder (current or within the past 6 months).

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If I agree to participate, I understand that,

- If I am in the group that gets feedback from the *Outcome Questionnaire,* I do not have to share my feedback with the other members of my group or my therapist. However, I am free to talk about my feedback with my group and/or my therapist if I choose to. The information shared during group therapy is confidential and cannot be talked about with any persons outside of the group. Therefore, I will keep confidential what is shared in the group about feedback from *The Outcome Questionnaire.*

- The information collected from routine clinical care (e.g., diagnosis) will also be used in the present study. This information will be used to help better understand how psychological, social and population factors influence my depression. It will also help to better understand how these factors affect my response to therapy. This means that the research investigators will need to have access to my health record information data collected during routine clinical care at the Royal Ottawa Mental Health Centre.

- There are no physical risks in this study. However, minimal psychological distress or discomfort may or may not occur in answering items on questionnaires or during the course of therapy. This risk is consistent with questionnaires that are given during the course of standard CBT groups. If I experience any psychological distress or discomfort, I should contact my therapist directly.

- During the course of the CBT group, I should continue to take my medications as directed by my treating psychiatrist. If I experience any side-effects from my medication, I should contact my psychiatrist directly.

- The information collected in this study will be kept confidential, and only the research investigators will have access to information from these questionnaires. Special measures are taken to make sure that no-one else will be able to identify me and my responses. This is done by putting a code on my questionnaires. My informed consent form will be separated from my questionnaires and kept in a separate and secured file by one of the research investigators who will keep this information confidential. My data will be stored in a secured location in the Mood Disorders Research Unit at the Royal/University of Ottawa Centre for Psychological Services. As well, all electronic information will be stored on a secure database and accessed only be the research investigators. Research files may also be assessed by the Research Ethics Board and/or Research Quality Associate. If I withdraw from the study, I will be asked for permission to store my data on the secure database that can only be accessed by the research investigators. This information may be helpful in improving the delivery of CBT groups in the future.

- There are limits to confidentiality. If I disclose or give indication of an imminent suicide attempt during the study, a physician will be told immediately. Also, my group therapist is required by law to report any disclosure or indication of intent to murder anyone. By law, my group therapist also has to report any disclosure or indication of abuse of a child.

- The results of the study may be published and/or presented for a professional audience. However, my identity will be kept completely confidential.

- Once a month during group therapy, a session will be audiotaped to make sure the therapist is following the CBT manual properly. The audiotape will only be viewed by the research investigators and stored in a locked and secure location. After the last group session, the audiotape will be destroyed using the appropriate methods.

- My travelling expenses for attending the CBT sessions will be covered in the form of bus tickets or parking passes.

- My participation is voluntary. At any point during this study I have the right to not do certain questions or to drop out of this study with no penalty. My participation in this study will not affect my treatment at the Royal/CPSR nor my relationship with the mental health care providers. If I do not want to participate or drop out of the study, I will receive group therapy as usual from a trained therapist and treatment from my treating psychiatrist as part of routine clinical care at the Royal/CPSR.

☐ I GIVE permission for the research investigators to access my health information for the purposes of this research study.

☐ I DO NOT GIVE permission for the research investigators to access my health information for the purposes of this research study.

I _____ (full name) have read the above description of the research project being run at the Royal and the University of Ottawa CPSR. I understand that the information gathered will be used to look at how feedback given in group therapy may influence individual treatment response. My signature below indicates that I agree to participate in the study, and that this in no way amounts to a waiver of my rights.

Date: _____ Signature: _____

Date: _____ Investigator: _____

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GROUP COGNITIVE-BEHAVIOURAL THERAPY FOR DEPRESSION RESEARCH STUDY
Debriefing

While most research on CBT has focused on individual therapy, recent research suggests that group CBT treatments are just as effective as individual CBT. The factors that predict response to group CBT, however, are poorly understood. For example, studies show that providing objective therapist and patient feedback about the patient's progress is an important predictor of success in individual therapy. However, it is not clear how such factors affect treatment response in group CBT. By giving a series of interviews and questionnaires, we tested to see how objective feedback from the Outcome Questionnaire, given to the therapist and the individual participant, influenced treatment outcomes. These outcomes were symptoms of depression, daily functioning, thoughts, and quality of life. This was studied by comparing two types of CBT groups for depression: One type of CBT group had feedback from the Outcome Questionnaire, and the other type of CBT group had standard feedback. Other than this, both types of groups used the standard procedures for conducting CBT. Participants were randomly selected to take part in one group or the other.

Debriefing of Research Study

A series of interviews were done to know how severe your current symptoms of depression are. We also asked you to fill out questionnaires about demographics (age, sex, gender), psychiatric (age of onset of illness, prior episodes) and psychological factors (quality of life, daily functioning). Finally, we asked you to complete the Outcome Questionnaire and hand it in at the beginning of every session. If you were in the feedback CBT group, you were given the opportunity to discuss your feedback in the group. You should in no way feel embarrassed or upset about your responses to the questionnaires or the interview. This study was not a test of your character; it was specifically designed to study factors that affect response to treatment in group CBT for depression. Your decision to participate in this study will not affect your current or future clinical care. We will examine the information, such that all persons will remain anonymous. In order for us to make any conclusions, we will have to combine the information that we got from you with information from other participants so that we will have enough information to draw conclusions about the average person's response to treatment.

Thank you for your help. Do you have any questions? Comments?Suggestions?

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GROUP COGNITIVE-BEHAVIOURAL THERAPY FOR DEPRESSION RESEARCH STUDY
Recruitment Sheet

☐ **Primary Diagnosis of current unipolar major depressive episode (established by the SCID-I)**

☐ **No current or past diagnosis of bipolar disorder, schizoaffective disorder, schizophrenia, primary personality disorder, substance abuse disorder (current or within the last 6 months)**

☐ **No neurological disease, head trauma, current psychotic symptoms**

☐ **English speaking – grade 8 level**

☐ **18- 65 years of age**

If you have checked ALL the boxes, the client meets criteria for the research study.

- Please provide the client with the attached *Permission to be Contacted for Research* form and the *Information Sheet.*
- Please send this form and the signed *Permission to be Contacted for Research* form by intra-departmental mail. The client keeps the *Information Sheet*.

Referral to the University of Ottawa Centre for Psychological Services

The client will be referred to the University of Ottawa Centre for Psychological Services if they are:

☐ **Not accepted into the Royal Mood Disorders program**
☐ **No active suicidality**
☐ **Meets criteria for the research study**

If BOTH boxes are checked, and the client indicates YES on the *Permission to be Contacted for Research* form, they will be contacted by the research investigator and their information will be forwarded to the University of Ottawa Centre for Psychological Services.

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GROUP COGNITIVE-BEHAVIOURAL THERAPY FOR DEPRESSION RESEARCH STUDY
Information Sheet

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Permission to be Contacted for Research

I give permission to have my contact information released to the research investigators and associates of the study titled *"Group Cognitive-Behavioural Therapy for depression Research Study."* By giving permission, I am allowing them to contact me about participation in their research study. When contacted, I can choose whether or not I am willing to participate, and my decision will have no effect on the treatments I am receiving here at the Royal Ottawa Mental Health Centre.

___ **YES**, I give permission to have my contact information released to the research personnel associated with this study for purposes entirely related to research participation.

___ **NO**, I do not wish to have my contact information released to anyone.

Full Legal Name (Print): _____

Date (MM/DD/YYYY): _____

Signature: _____

Telephone: (Home) _____ (Mobile) _____

Appendix C

Group Cognitive-Behavioural Therapy for Depression – Session Summary

By
Connie Dalton, PhD, C. Psych
Lance Hawley, PhD, C. Psych

SESSION	SESSION ACTIVITIES	HOMEWORK
Pre-group Interview	Therapist • Assessment for group • Discuss Goals – general and specific • Mood check • Review commitment strategies • Provide information about the group • Discuss current problems Investigator • Informed Consent • Introduction to completing the Outcome Questionnaire • Confirm diagnosis and severity (SCID, Ham-D) • Provide pre-group measures	Complete pre-group package of questionnaire before session 1
1	• Review goals • Ask about experience of depression • How it fits into 5-part model • Prelude to behavioural monitoring (to be discussed next session)	Chapter 1 – Understanding Your Problems
2	• Review goals • Introduce behavioural monitoring • How it fits into 5-part model • Impact of behaviour on mood and thoughts	Chapter 10 – Understanding Depression Behavioural Monitoring – at least 1 week day and 1 weekend day
3	• Centrality of thoughts – how thoughts influence reactions • Review goals, Ch. 10, behavioural monitoring (half of session) • Identify obstacles to monitoring and setting behavioural goals	Chapter 2 – It's the thought that counts Behavioural activation

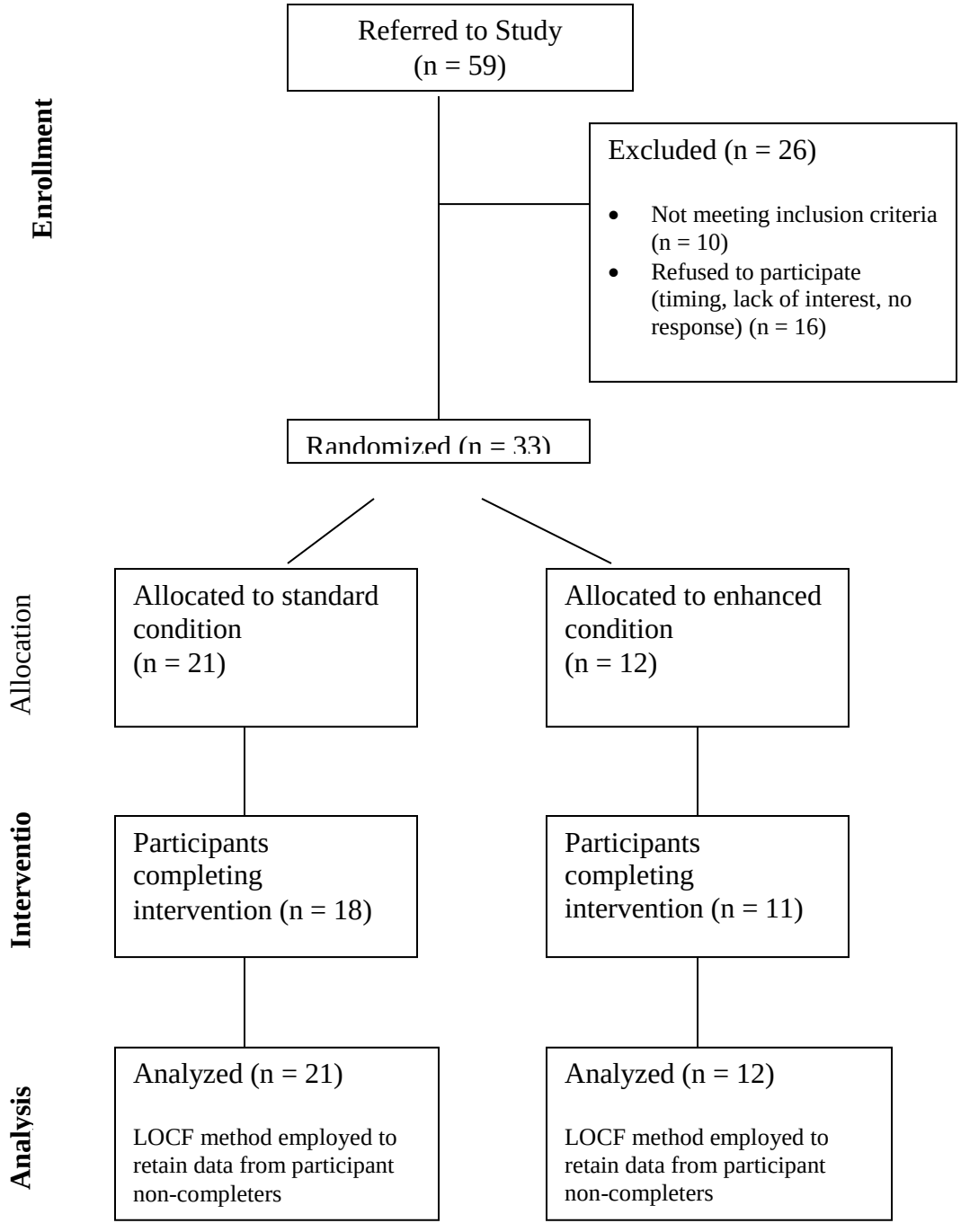
4	Emotions • What do you think about emotions? • What is its function? (psychoed.) • Emotion suppression, masking • Introduce practice of identifying and rating moods, discuss value of rating moods. • Review goals, behavioural monitoring	Chapter 3 – Identifying and Rating Moods Behavioural activation
5	• Review of behavioural goals and mood changes • Introduce thought records – putting everything together • Practice identifying automatic thoughts and beliefs related to goal attainment (motivation=action)	Chapter 4 – Situations, Moods, and Thoughts Behavioural activation Thought records
6	• Introduction to cognitive restructuring • Review of goals, mood monitoring, and thought records • Flag core beliefs	Chapter 5 – Automatic Thoughts Behavioural activation Thought records
7	• Review goals, thought records, mood monitoring • Practice identifying and evaluating evidence for thoughts	Chapter 6 – Where's the Evidence Behavioural activation Thought records
8	• Review goals, mood monitoring, thought records, Ch.6 • Practice generating alternative and/or balanced thoughts • Discuss problems and obstacles with completion of thought records and homework	Chapter 7 – Alternate or Balanced Thinking Behavioural activation Thought records
9	• Review goals, mood monitoring, thought records from sessions 5-8, Ch. 7 • Identify themes across situations • Introduce core beliefs and results from schema questionnaire	Chapter 9 – Assumptions and Core Beliefs (pg 129-142) Behavioural activation Thought records

10	• Review goals, mood monitoring, thought records • Work on identifying core beliefs from Ch. 9	Behavioural activation Thought records Identify core beliefs to target as they relate to goals
11	• Review homework exercises, goals, mood monitoring, thought records • Challenging Core beliefs, testing their validity • Reframing • Begin Core Beliefs Conceptualization form • Overview of cognitive strategies	Chapter 9 – Assumptions and Core Beliefs (pg. 143-152) Behavioural activation Thought records Work on Core Beliefs conceptualization form
12	• Review readings, conceptualizations • Introduce idea of gathering evidence to support an alternative belief • Generate a new alternative belief and begin gathering evidence that supports this new belief • Complete a positive memory worksheet to also support this new belief and discuss letter writing between sessions.	Behavioural activation Generate evidence for your alternative belief, memories that support your new belief
13	• Review homework exercises, and evidence used to support the new alternative belief • Introduce the concept of behavioural experiments being used to test out the alternative belief over the week	Chapter 8 – Experiments and Actions Plans (pg.113-119) Behavioural activation Collect evidence to support the alternative core belief
14	• Review homework exercises, and evidence being gathered to support your new alternative belief • Continue to generate alternative beliefs and behavioural experiments aimed at testing out the alternative belief • Introduce schema flashcard aimed at gathering information on situations that elicit strong emotional reactions (reduced thought record). • (need 2 session for 6-8 people to thoroughly go through)	Chapter 8 – Experiments and Actions Plans (pg. 120-127) Behavioural activation Collect evidence to support the alternative core belief Identify situations that trigger a core belief and complete a behavioural experiment

15	• Review homework exercises and evidence being gathered to support your new alternative belief • Review situations that remain problematic using the schema flashcard • Continue to generate alternative beliefs and behavioural experiments aimed at testing out the alternative belief	Chapter 8 – Experiments and Actions Plans (pg. 127-143) Behavioural activation Collect evidence to support the alternative core belief Complete a behavioural experiment
16	• Review success with behavioural experiments and homework. • Review situations that remain problematic through use of the schema flashcard, generate alternative beliefs in situations and continue to generate behavioural experiments to test out alternative beliefs.	Continue weekly activities and schema flashcards.
17	• Review homework and success with behavioural experiments and completed flashcards. • Add monitoring of behavioural responses. • Discuss obstacles that may prevent one from changing thinking and behaviour and complete a pattern breaking sheet. • Use principles of behavioural experiments to respond to situations differently.	Continue weekly activities, schema flashcards, pattern breaking, and situation-specific behavioural experiments.
18	• Review homework and success with behavioural experiments. • Review obstacles to carrying out behavioural experiments. • Review of cognitive and behavioural strategies to change area of self-doubt • Focus on goal of relapse prevention and set up related plan • Preparation for the maintenance CBT group • Hand-out post-group package of questionnaires	Continue working on identified skills using relapse prevention plan Attend maintenance sessions once a month Complete post-group package of questionnaires before post-group session
Post-group session	• Discuss Goals – general and specific • Mood check • Debriefing of research study	

Appendix D

Study 2 CONSORT Diagram



Appendix E

Study Two: Summary of Effect Sizes and Confidence Intervals of Hypotheses

			Effect Size	Lower Limit	Upper Limit
Hypothesis 1	General Distress	Pre and Post Statistical Change	0.34	0.09	0.53
		Across 18 sessions	0.03	0.00	0.03
		Pre and Post Clinical Change	0.22	N/A	N/A
Hypothesis 2	Depressive Symptoms		0.15	0.00	0.35
	Dysfunctional Beliefs		0.49	0.16	0.66
Hypothesis 3	Quality of Life		0.32	0.04	0.54
Hypothesis 4	Therapeutic Alliance Total		0.35	0.02	0.57
		Bond	0.32	0.01	0.55
		Task	0.12	0.00	0.39
		Goals	0.18	0.00	0.44
	Group Cohesion	Engagement	0.00	0.00	0.03
		Avoidance	0.02	0.00	0.23
		Conflict	0.00	0.00	0.00
	Motivation to Change	Amotivation	0.00	0.00	0.00
		External regulation	0.00	0.00	0.00
		Introjected regulation	0.00	0.00	0.06

		Identified regulation	0.19	0.00	0.45
		Integrated regulation	0.06	0.00	0.31
		Intrinsic motivation	0.03	0.00	0.26