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Examining the Clinical Prediction of Cohesion in Group Psychotherapy and Potential Moderators

Abstract

Group cohesion, or the way in which group members relate and work toward the primary task of a therapy group, is a predictor for positive outcome in group psychotherapy and the building block for most group development models. Research has shown that interventions are most effective when tailored for the developmental stage of the group (Burlingame, Fuhriman, & Johnson, 2001). Logic follows that if best practice dictates that interventions be implemented based on developmental stage which, in turn, is largely informed by group cohesion, then group leaders should be competent in accurately assessing the cohesion of the group. To date, no study has examined the relationship between group leaders' perceptions of cohesion compared to group members' perceptions of cohesion. Further, there is little research on member or leader variables that may lead to more (or less) congruence between group leader and group member reports of cohesion. This study utilized hierarchical linear modeling (HLM) to examine the relationship between leader and member scores on a measure of group cohesion. Several potential moderators were also included in the analysis to test for interaction effects between group leader and group member scores of cohesion. Moderators of interest included group member vulnerability, group leader experience, the amount of "here-and-now" processing done in group sessions (as reported by the leader), and the number of completed sessions at the time of data collection. The study analyzed 103 total group members nested within 21 preexisting psychotherapy groups from community mental health centers, college counseling centers, university training clinics, and private practices in the Rocky Mountain region. Results of the study showed that group leaders across groups consistently reported a lower level of cohesion compared to group member reports. Due to this incongruence between leaders and members, group discussion of cohesion or use of group cohesion measures could aid group members and the group leader in understanding their group's dynamics similarly. While none of the moderators examined reached statistical significance in the moderation effect of group leader and group member cohesion scores, the amount of "here-and-now" processing done in group as reported by the group leader showed most promise as a possible moderator. Future research examining additional variables that may predict greater congruence between leader and member reports of cohesion can further inform both research and practice in group psychotherapy.

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In Partial Fulfillment

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Chapter One: Introduction

Research on group psychotherapy has demonstrated that it is effective for many different problems and populations, and it has begun to assess specific variables that contribute to its effectiveness (Burlingame, Strauss, & Joyce, 2013; Corey, 2012; Greene, 2000). Research more recently has investigated how well group leaders are able to predict important variables, such as whether group members are deteriorating or whether they agree with group members' evaluations on specific variables (Chapman et al., 2012; Compare, Tasca, Lo Coco, & Kivlighan, 2016; Hannan et al., 2005; Marmarosh & Kivlighan, 2012). One variable that has gained considerable attention is cohesion, which is often seen as an indispensable ingredient in facilitating positive change in group psychotherapy (Yalom & Leszcz, 2005). Research has shown groups with higher levels of cohesion to be associated with reductions in a multitude of psychological symptoms and gains in interpersonal functioning (Burlingame, McClendon, & Alonso, 2011; Taube-Schiff, Suvak, Antony, Bieling, & McCabe, 2007). Group members treated in more cohesive groups have been shown to make greater gains on measures of self-esteem and motivation (Tschuschke & Dies, 1994). Additionally, treatment attendance and member perceptions of their group therapy treatment as beneficial were variables found to be higher in groups that reported a greater sense of overall group cohesiveness (Joyce, Piper, & Ogrodniczuk, 2007).

Leader predictions of group members' perceptions of group cohesion represent an important next step in group psychotherapy research. However, as essential as cohesion is touted to be in the literature, it also has proven to be a complex concept to understand and define and, thus, also difficult in its application to clinical prediction studies. Though clinical prediction research in group psychotherapy has been conducted examining variables such as predicted outcome (Chapman et al., 2012), perceived therapist effectiveness (Jenkins et al., 1971), and therapeutic alliance (Compare et al., 2016), empirical attention has not yet been directed toward cohesion. With studies showing that group leaders are generally poor predictors of both outcome and group member perceptions on numerous variables, it stands to reason that group leader predictions on cohesion may be equally inaccurate. Further, no studies have yet examined variables that may moderate the relationship between leader and group member scores on a measure of cohesion. In other words, it is unclear which, if any, leader, member, and group contextual variables may lead to more or less accurate clinical predictions of cohesion in group therapy.

Purpose and Justification for the Current Study

This study's primary focus lies in clinical prediction and, specifically, on whether group leaders can predict the cohesion of the group as perceived by the group members. This is important because accurately predicting cohesion can aid in identifying a group's stage of development, making decisions regarding the direction the group may need to go, and informing the leader on appropriate interventions that could be implemented. Group development theories are largely defined by the interpersonal exchanges and

behaviors between members, as well as the valence of the affective attachment between all group members, including the group leader (MacKenzie, 1994). In other words, across several group development models, group cohesion often is the defining feature for discerning a group's stage of development (Bonebright, 2010; Forsyth & Diederich, 2014). Therefore, group cohesion and accurate prediction of the construct by the group leader is of special interest in this study.

Research is scarce on whether group psychotherapy leaders are able to accurately discern a group's perceived cohesion level or stage of development. The process of measuring concordance of a certain variable between providers of mental health treatment and recipients is termed "clinical prediction" (Breslin, Sobell, Sobell, Buchan, & Cunningham, 1997; Chapman et al., 2012). Though discerning group cohesion (along with the corresponding stage of group development) has rarely been examined, studies have shown group facilitators to be inaccurate in their predictions of member functioning and outcome (Chapman et al., 2012; Compare et al., 2016; Hannan et al., 2005; Jenkins et al., 1971; Marmarosh & Kivlighan, 2012). Specifically, studies of individual therapy have shown that therapists often underestimate negative outcomes in therapy. For example, Hannan et al. (2005) surveyed 48 therapists practicing individual psychotherapy regarding outcomes of 550 of their clients. Combined, the 48 therapists predicted that 3 of 550 clients would deteriorate by the end of treatment. In actuality, 40 of the 550 deteriorated by the end of therapy. Similar "positive bias" was seen in the group psychotherapy literature. Regarding a sample of 64 individuals receiving group treatment, Chapman et al. (2012) surveyed 14 group leaders to predict outcomes. Though only 3

members were predicted by the group leaders to show “significantly worse” symptoms following group termination, 10 members actually presented as “significantly worse” at the conclusion of the group treatment.

While clinical prediction studies have been conducted in relation to outcome (e.g., predicted reduction of symptoms by the leader versus perceived reduction of symptoms for the client), some studies of individual psychotherapy have considered aspects of the therapeutic relationship by comparing therapist self-reports of the relationship with those of the clients (Atzil-Slonim et al., 2015; Marmarosh & Kivlighan, 2012). Past research considering clinical prediction in group psychotherapy specifically has focused on more specific aspects of the treatment, such as perceived therapist effectiveness, directiveness and control of the therapist in leading the group, and appropriateness of techniques used. These findings show that therapists were more capable of predicting member responses on variables associated with appropriateness of techniques used and therapist directiveness and control and were less accurate on members’ perception of therapist effectiveness (Jenkins et al., 1971).

The primary purpose of the current study is to examine group psychotherapists’ ability to predict their group members’ perceived level of group cohesion. Since group cohesion is believed to be the most salient marker for several different group developmental models, it would be extremely beneficial to treatment if group psychotherapists are able to delineate the level of cohesiveness of their respective groups. While a few research studies have looked at group leaders’ ability to accurately evaluate group members on certain variables, no study thus far has considered clinical prediction

in group psychotherapy with specific measures of group therapy cohesion. The implication for a mismatch of perceptions related to cohesion may lead to negative group outcomes, a stalled group, or premature terminations by group members.

Further, the current study aims to examine moderators that may influence the ability of group leaders to more accurately assess the level of cohesion that is consistent with those held by the group members. Moderating variables are those that affect the direction or strength of the relationship between a predictor variable and outcome variable (Baron & Kenny, 1986). In the case of the current study, it is possible that moderating variables may impact the strength and direction of group facilitators' congruence of group cohesion reports with those of their group members on a measure of group cohesion. No literature examining clinical prediction has considered contextual variables (such as time spent processing dynamics of group) as an impact on the relationship between predictor and outcome variables. Moderating variables can help identify traits of the facilitator (such as leader experience facilitating group treatment) that can help explain the congruence (or lack of it) between group leader and member ratings, as well as traits of the membership (such as willingness for interpersonal and emotional vulnerability). Group psychotherapists would likely benefit from understanding the variables that benefit or interfere with their ability to accurately assess cohesion levels. For example, one moderator that is of interest in the study is the session number at the time of measure administration. The session number, as a moderator of the relationship between group leader and group member cohesion scores, may be of benefit to group leaders as it may highlight the difficulty of accurately gauging cohesion at

certain points of the group (such as the middle of the group experience, like session four in an eight week group) compared to other points (such as at the first session of a group).

Overall, no empirical evidence has been conducted on whether group psychotherapists are effective at predicting their group's cohesion or if there are variables that predict group leaders' ability to do so with greater accuracy. This represents a gap in the literature, as identification of these variables may help inform group facilitators to better assess their groups' level of cohesion in order to implement interventions more effectively.

Research Hypotheses

This study assessed the relationship between group facilitator reports of group cohesion and group member reports of group cohesion in group psychotherapy treatment. The research hypotheses in this study were informed from a literature review of group cohesion and group development. Group psychotherapists have been shown to be inaccurate in their prediction of both outcome and process variables (Chapman et al., 2012; Compare et al., 2016; Marmarosh & Kivlighan, 2012). As such, it is reasonable to assume that group leaders' ability to accurately identify the level of cohesion within their group is likely poor as well. Based on this information, as well as other literature reviewed, Table 1 describes each hypothesis, the measures used to assess each hypothesis, and the statistical procedures used to analyze each hypothesis.

Table 1
Hypotheses, Variables, and Statistical Procedures

Hypothesis	Variables	Statistics
Hypothesis 1: No significant correlational relationship will exist between Group Leader Rating of group cohesion and Group Member Rating of group cohesion on the same measure of group cohesion. In other words, group facilitators are expected to be inaccurate in their ability to predict their group members' perceptions of the level of group therapy cohesion.	GCQ: Engagement Subscale; completed by group leaders, and the same measure completed by the group members	Pearson's r correlation
Hypothesis 2: Group Member Vulnerability will be a moderator of the relationship between facilitator scores of cohesion and group member scores of cohesion.	GCQ: Engagement Subscale; completed by group leaders, and the same measure completed by the group members Member score on GTS-R: Vulnerability Scale	Hierarchical Linear Modeling, One-way Random ANCOVA
Hypothesis 3: Group Facilitator Professional Experience will be a moderator of the relationship between facilitator scores of cohesion and group member scores of cohesion.	GCQ: Engagement Subscale; completed by group leaders, and the same measure completed by the group members Group Leader Demographic Questionnaire (number of years facilitating group treatment)	Hierarchical Linear Modeling, One-way Random ANCOVA
Hypothesis 4: Amount of Group Processing will be a moderator of the relationship between facilitator scores of group cohesion and group member scores of group cohesion.	GCQ: Engagement Subscale; completed by leaders, and the same measure completed by the members Leader Demographic Questionnaire (report of % of group session time spent on group processing)	Hierarchical Linear Modeling, One-way Random ANCOVA

<p>Hypothesis 5: Group Session Number will be a moderator of the relationship between facilitator scores of cohesion and group member scores of cohesion.</p>	<p>GCQ: Engagement Subscale; completed by group leaders, and the same measure completed by the group members</p> <p>Group Leader Demographic & Contextual Questionnaire (session number in which members and group leader complete measures)</p>	<p>Hierarchical Linear Modeling, One-way Random ANCOVA</p>
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Methodology

The following is a brief review of the methodology that was used to address the research hypotheses previously described (see Chapter Three for a more thorough description). Participants in this study included both group members and group leaders from various clinical settings and of various demographics. In order to assess the variables that may predict group facilitators' ability to predict group cohesion, the study used convenience sampling by recruiting participants in already established groups. Variables examined as potential moderators can be differentiated between group facilitator variables (specifically, experience as defined by the number of psychotherapy groups facilitated over the course of a career), contextual variables (including group session number and level of group process), and a group member variable (level of vulnerability).

Group cohesion was measured using the Engagement Subscale of the Group Climate Questionnaire (GCQ, MacKenzie, 1983). The GCQ is commonly used in various

types of therapeutic inquiry, and is one of the most widely used measures in assessing varying aspects of group process (Johnson et al., 2006). The Engagement Subscale was used to assess group cohesion. This subscale has 5 items and includes specific items relating to group member relationships with each other (e.g., “the group members liked and cared about each other”). Each item is rated from 0 (not at all) to 6 (extremely). In order to obtain a total score, the five items are summed (with higher scores reflecting greater degrees of cohesion). In connecting the subscale with Burlingame et al.’s (2001) definition, the items in the Engagement Subscale align most closely with the authors’ description of “horizontal cohesion.” The definition describes that a significant portion of the cohesiveness of a group stems from the relationships between members (Burlingame et al., 2001). Past studies have shown high internal consistency for the Engagement Subscale ($\alpha = .80$), a reflection of its reliability (Deane, Mercer, Talyarkhan, Lambert, & Pickard, 2012). Construct validity of the subscale also has been inspected extensively. Links to outcome and process in research studies have given weight to the Engagement subscale as an appropriate measure for cohesion (Johnson et al., 2006; Kivlighan & Goldfine, 1991). The measure also has shown correlations with the items on the Therapeutic Factors Inventory (TFI), a measure of therapeutic factors in group psychotherapy which includes cohesion (Joyce, MacNair-Semands, Tasca, & Ogrodniczuk, 2011).

Group Member Vulnerability was measured using a subscale of the Group Therapy Survey-Revised (Carter, Mitchell, & Krautheim, 2001). The Group Therapy Survey-Revised has been used to assess members’ perceptions of group treatment,

including their ability to be emotionally vulnerable in group (Marmarosh et al., 2009). The scale consists of 25 total items, and includes 3 subscales: Efficacy, Myths, and Vulnerability. The Vulnerability Subscale was used in the present study to measure group member willingness for emotional and interpersonal vulnerability in group treatment. This subscale is composed of 7 items that measure a group member's comfort and willingness to engage in the group process (e.g., "I am uncomfortable in group counseling when the focus of attention is on me.") Each item is rated on a 5-point Likert scale from 1 (strongly agree) to 5 (strongly disagree). High scores on the Vulnerability subscale suggest positive expectations regarding a member's ability to be vulnerable in group counseling (Carter et al., 2001). Literature has shown high reliability of the Vulnerability Subscale, with Marmarosh et al. (2009) reporting a test-retest of .80 and Carter et al. (2001) reporting internal consistency of .75. Marmarosh et al. (2009) also reported discriminant validity between the Vulnerability Subscale and the Avoidance scale of the Experiences in Close Relationship Scale ($p < .01$), indicating that items on the Vulnerability Subscale negatively correlate with items of a scale measuring interpersonal avoidance.

A short demographic questionnaire was tailored to both the group members and group leaders. Items were included to obtain needed information for moderation analysis. Identified gender, race/ethnicity, and age of both leaders and members were included. Members were also asked the number of sessions they had attended for their current group as well as any medications they were taking that may impact their ability to engage in the group process. For leaders, specific items were included that addressed the number

of years they had facilitated group psychotherapy and the number of groups they had facilitated in their career. It also included an item related to deliberate practice, or the amount of hours per week spent on planning and thinking about their upcoming group session. Contextual variables were also asked, including the group session number at the time of measure administration, the total number of expected sessions in the group, and time spent on group process (also known as the focus on what is occurring in the group in the here and now) in the group. Regarding amount of time spent on group processing, group leaders were asked to give the percentage of time their group spent discussing “here-and-now” group process and interpersonal dynamics.

Group member and group leader participants were recruited from various clinical settings in Colorado following IRB approval from the University of Denver (see Appendix I for IRB approval letter). An e-mail requesting participation was sent out to agencies and private practitioners who regularly conduct group therapy. For those who agreed to participate, consent was obtained for both group leaders and group members. The measures were administered to all group members and the group leaders via paper and pencil. Data collection for both group members and group leaders occurred over two separate days. For group leaders, discussion of the details of the study occurred prior to data collection and separate from group members. This meeting occurred either over electronic means or in-person. In the following group session, review and signing of informed consent forms and administration of measures and questionnaires occurred with group leaders (see Appendices for informed consent forms used and all measures and

questionnaires administered). Total duration of both meetings was approximately 10 to 15 minutes.

For group members, they were given recruitment material (see Appendix H) by the group leader prior to a group therapy session. Recruitment material included a YouTube link which members could view to learn more about the study and their role as participants, should they choose to participate. Prior to the start of the subsequent session (roughly one week apart), the principal investigator met members to review informed consent forms (See Appendix E) and to administered the demographic questionnaire and measures. Total completion time for the questionnaire and all measures was appropriately 10 to 15 minutes for group members.

No additional data collection with the respective group members or leaders transpired following measure completion, although participants were asked whether they wanted to add their name and contact information to a list to receive a summary of results following final data analysis. In order to ensure a robust sample, 20 groups were the targeted sample size and 21 groups were included in the final sample (with 103 members nested within those 21 groups). This expected sample size exceeded the minimum sample size of 91 participants (with medium effect size at .5, significance alpha level set at .05, proportion of explained variation by level 1 covariate set at .3, and desired statistical power of .80), as calculated through a single level trail “power versus n ” on Optimal Design software.

Definitions

Clinical Prediction. Clinical prediction refers to a clinician's ability to accurately predict either the anticipated outcomes of treatment or a measurable variable during treatment. Measuring concordance of a certain variable between providers of mental health treatment and clients of that treatment is a method to assess accuracy of clinical prediction (Breslin et al., 1997; Chapman et al., 2012). This study focused on clinical prediction of cohesiveness levels in group psychotherapy.

Group Psychotherapy. Group treatment refers to a form of psychotherapy in which one or more group leaders use therapeutic interventions within a small group of clients, rather than one-on-one with clients as is done in individual psychotherapy (Yalom & Leszcz, 2005). All psychotherapy groups have recognized group leaders and group members. Groups also establish specified norms and agreed upon goals. Group psychotherapy may vary in group type (see below for expanded definition), structure, and purpose.

Group Process. Process in group psychotherapy is understood as its "operations" or the behaviors, interactions, and dynamics that occur within the group to contribute to positive outcome (Burlingame, Whitcomb, & Woodland, 2014). Group process is addressed in group therapy through discussion of the "here-and-now." In other words, group leaders may discuss specific interactions, interpersonal exchanges, or dynamics that occurred within the group at the time of their occurrence (Kivlighan, Coleman, & Anderson, 2000).

Group Leader. Group leaders are clinicians tasked with facilitating group psychotherapy. Psychotherapy groups are often led by a single group leader or two leaders who make up a co-leadership team. Group leaders focus on facilitating group therapy process, implementing specific interventions, and maintaining the structure of the group (Yalom & Leszcz, 2005).

Group Member. Group members are participants in the group and recruited by the group leaders to take part in group psychotherapy. Group members may be defined by a specific psychological condition (e.g., a group for individuals with anxiety) or circumstance (e.g., a group for those who have experienced the loss of a loved one).

Group Cohesion. Literature on an operational definition of cohesion has long been varied and unclear. However, the current study utilized Burlingame et al.'s (2011) description, which defines group therapy cohesion in two dimensions- by relationship *structure* and relationship *quality*. Relationship structure refers to the direction of the relationship with “vertical cohesion” referencing the relationship between a particular member and the group leader and “horizontal cohesion” reflecting member-to-member relationships. Relationship quality refers to how group members view the value of the group relationships (both vertical and horizontal). The GCQ: Engagement Scale, the study's main measure of group cohesion, aligns with horizontal cohesion in groups with specific attention to member-to-member relationships and group as a whole environment.

Group Development. Group development refers to how and why small groups change over time. Models of group development often take into account the quality of work toward an agreed upon goal, the level of group conflict, and its cohesiveness.

Changes in affective connections between members and quality of interpersonal interactions are often emphasized in group development research (Forsyth & Diederich, 2014).

Therapeutic Factors. Therapeutic factors refer to the mechanisms that lead to positive outcomes in group psychotherapy (MacNair-Semands, Ogrodniczuk, & Joyce, 2010; Yalom & Leszcz, 2005)

Summary

This chapter provided an overview of the current study while highlighting the importance of group leaders' ability to monitor the cohesiveness of their respective groups. Cohesion has been shown in the research literature to have a positive correlation with treatment gains and symptom reduction (Burlingame et al., 2011; Taube-Schiff et al., 2007). Group therapy cohesion has been described as a combination of relationship quality within the group and the direction of the relationship, be it member-to-member or member-to-leader (Burlingame et al., 2011). Cohesion is developed through intentional group facilitation (Burlingame et al., 2001). This includes providing group members with interventions that are appropriate to their respective group development stage (Burlingame et al., 2001). With cohesion as a defining feature of most group development models, group leaders have a particular responsibility for ensuring their ability to recognize their respective group's level of cohesion.

This chapter also highlighted the lack of research on clinical prediction of group psychotherapy cohesion. The current study examined whether group leaders are, in fact, effective at predicting their group members' perceived views of the group's cohesion

and what contextual, group member, and group leader moderators might impact the relationship between leaders' and members' reports of overall group cohesion. Single administration questionnaires were utilized to gather demographic data and validated measures for group cohesion were used to examine the differences between leaders' and members' reports of their groups' cohesion. Based on the review of the literature, it was hypothesized that no clear relationship would exist between facilitator reports (scores) on measures of cohesion and group members' scores on cohesion. Further, it was hypothesized that several variables may moderate the relationship between group leader scores of perceived cohesion and group member scores. Specifically, member willingness for emotional and interpersonal vulnerability, group leader experience, group session number at the time of administration, and percentage of time spent on group processing in the group were hypothesized to moderate the relationship between group leader scores of cohesion and those of group members.

The following chapter provides a review of the relevant literature. A brief overview of research on group efficacy is included along with therapeutic factors and mechanisms of change in group psychotherapy. Cohesion as it impacts group development and its importance in guiding appropriate interventions also is described. Additionally, research on group therapy cohesion is reviewed, including several definitions of the construct, its importance, and how it impacts outcome. Moderators of the cohesion-outcome relationship are discussed, along with, research on clinical prediction in group psychotherapy.

Chapter Two: Review of the Literature

Despite being used for decades in various capacities, though never to the degree individual psychotherapy was utilized, group psychotherapy has seen a marked surge in popularity since the turn of the millennium (Corey, 2012; Hopper, Kaklauskas, & Greene, 2008). With its application ranging across populations, settings, and formats (from highly structured skill based groups to more semi-structured insight-oriented process groups), group psychotherapy offers practitioners a more efficient, and cost-effective, medium for delivery of mental health services with often similar effectiveness as individual treatment (Burlingame et al., 2013; Corey, 2012; Greene, 2000). Its expansion into creative arts therapies (including group oriented play therapy) and experiential settings (such as outdoor wilderness programs) has moved the mental health field beyond the traditional psychotherapy office setting (Hopper, Kaklauskas, & Greene, 2008; Yalom & Leszcz, 2005). The growth of its clinical applications also has been shadowed by an increased emphasis in group research and theory. Still, training and supervision in group modalities is relatively limited given the development of group therapy in the aforementioned areas (Riva, 2014). This suggests that despite increased empirical attention and clinical practice, practitioners have varying amounts of knowledge and expertise in understanding and recognizing the vital ingredients which have been shown to make group psychotherapy effective.

A few studies have begun to look at specific variables and how ratings of these variables correspond between group leaders and group members. Overall, the studies suggest that leaders have low congruence with group members on variables in which both are surveyed. These variables include member-to-leader alliance, treatment outcome, and perceived therapist effectiveness (Chapman et al., 2012; Compare et al., 2016; Jenkins et al., 1971; Marmarosh & Kivlighan, 2012). Incongruence between group leaders and members on perceptions of variables can be problematic, as group leaders may select interventions or make other treatment decisions that group members may not be ready or willing to receive. The inability to best time interventions may cause the group treatment to be ineffective or, in some cases, harmful. Group cohesion is regularly described as a vital ingredient that develops over time and allows the group leader and group members to delve more deeply into the identified problem. Cohesion is often understood as a shared emotional and interpersonal bond between group members and between members and the leader with an agreement on tasks and goals of therapy (Compare et al., 2016). Discrepancies between leader and member evaluations on cohesion can be problematic, as leaders may be implementing interventions based on a perceived level of cohesion while group members may not feel committed or comfortable enough to proceed.

This chapter begins with a brief review of the literature on group therapy efficacy. Research has shown that group treatment is effective and often considered to be at least as effective as, and in many cases more effective than, individual counseling (Barlow, Burlingame, & Fuhriman, 2000; Burlingame et al., 2013; Kivlighan, Coleman, & Anderson, 2000; Piper, Ogrodniczuk, Joyce, & Weideman, 2011). Following an overview

of the effectiveness of group treatment, this chapter reviews the research on variables that have been found to be active ingredients in contributing to group psychotherapy effectiveness including cohesion, the main variable of interest in this study. With attention toward cohesion, the chapter will consider theories of group development and how cohesion influences changes within group dynamics, further highlighting the importance of group leadership to accurately gauge the group's cohesion levels in order to apply appropriate therapeutic interventions. Next, the chapter more specifically defines and discusses the importance of group cohesion, including a review of potential variables that moderate the relationship between cohesion and group therapy outcomes. Finally, an exploration of the recent, albeit limited, extant research that examines congruence between therapist and member reports on therapeutic variables is provided.

Group Psychotherapy Efficacy

Though group psychotherapy often continues to be relegated to an understudy behind individual modalities, it has been consistently shown to be effective for a variety of problems and with a wide range of populations. Studies conducted to examine outcomes of group therapy for the treatment of major depressive disorder (Matsunaga et al., 2010), bipolar disorder (Colom et al., 2009), social phobia (Powers, Sigmarrson, & Emmelkamp, 2008), panic disorder (Clerkin, Teachman, & Smith-Janik, 2008; Oei & Boschen, 2009; Rosenberg & Hougaard, 2005), and obsessive-compulsive disorder (Anderson & Rees, 2007; Cordioli et al., 2003; Jaurrieta et al., 2008; Jonsson & Hougaard, 2009) were all shown to have superior results when compared to control conditions with many also showing equal or more positive outcomes when compared to

individual therapy. Similarly, eating disorders (Bailer et al., 2004; Chen et al. 2003), trauma (Chard, 2005; Classen et al., 2011), and schizophrenia (Borras et al., 2009; Granholm et al., 2007; Klingberg et al., 2010) were shown to have comparable effectiveness, particularly in the level of secondary benefits seen following treatment (such as social functioning and quality of life).

Extensive research has shown that groups are a common and effective treatment approach in hospitals and other medical settings, particularly in the treatment of psychological symptoms associated with cancer (especially breast cancer) and chronic pain (Classen et al., 2008; Kissane et al., 2007; Lamb et al., 2010; O'Brien, Harris, King, O'Brien, 2008). More broad meta-analyses also support findings of group psychotherapy efficacy compared to individual treatment. McRoberts, Burlingame, and Hoag (1998) found no significant differences between the outcome levels of group and individual treatments in their meta-analysis of 23 studies comparing the two modalities. Similar meta-analyses have been conducted comparing group treatment with control conditions. These results also have stood the test of time, as a meta-analysis of 111 group studies over 30 years (1980s to 2000s) showed that individuals treated with group therapies had significant improvements over wait-list controls (Burlingame, Fuhrman, & Mosier, 2003). Though evidence of group psychotherapy effectiveness is overall encouraging, the mechanisms responsible for group psychotherapy effectiveness remain perhaps of even greater empirical and clinical importance. The ability for group psychotherapy researchers and practitioners to identify and utilize these mechanisms may continue to increase the utility and effectiveness of group modalities.

Group Psychotherapy Therapeutic Factors and Change Mechanisms

Though some outcomes can be tied to specific models (such as Cognitive-Behavioral Group Therapy, or CBTG, for example), most group psychotherapy scholars maintain that common group properties, inherent across all small groups, are the most likely factors related to change and positive outcomes in group treatment (Burlingame et al., 2003; Burlingame et al., 2013; Hopper, Kaklauskas, & Greene, 2008). Within these group properties, group cohesion stands out as salient across the majority of models describing the therapeutic value of group psychotherapy. This includes Burlingame, Strauss, Bormann, and Johnson's (2008) group anatomy and physiology model, which places emphasis of change in group psychotherapy on both form (which they term "anatomy") and function ("physiology") of the group. The authors compare a group facilitator's knowledge of group dynamics to a physician's knowledge of physiology. Just as living organisms are composed of anatomical forms and physiological functions, groups (and their outcomes) are shaped by their structure and processes. Cohesion is included within the "physiology," or function, of a group as a byproduct of direct member and leader interactions, including interpersonal feedback, self-disclosure, and leader interventions, all of which have been shown to positively impact outcome (Burlingame et al., 2008).

Similar to the anatomy and physiology model of group psychotherapy mechanisms of change, Yalom and Leszcz (2005) put forth a collective of eleven factors to which change in groups can be attributed. These therapeutic factors highlight various processes and experiences of the group as a whole and for individual members which,

according to the authors, impact treatment outcome. Using the eleven factors as a theoretical base, MacNair-Semands and Lese (2000) developed the Therapeutic Factors Inventory (TFI). The TFI was created to highlight perceptions of the group experience from group members. Through the TFI, it was found that items related to several of Yalom and Leszcz's (2005) therapeutic factors were correlated with sustained participation in group. These included feelings of being similar to others (Universality), an increase in hope that issues will be successfully addressed (Instillation of Hope), a relief from tension (Catharsis), and a sense of group togetherness (Group Cohesiveness).

MacNair-Semands et al. (2011) truncated the TFI by creating a short form of the same measure (TFI-S). The authors conducted a factor analysis surveying 174 patients admitted in a day treatment program for patients with affective disorders and maladaptive personality traits. They found that four factors were able to identify the helpful aspects of the patients' experiences in a self-awareness group. These factors were identified as Instillation of Hope, Secure Emotional Expression, Awareness of Interpersonal Impact, and Social Learning, which are a consolidated group of Yalom and Leszcz's (2005) 11 therapeutic factors. The TFI-S, and specifically the Secure Emotional Expression subscale, show strong convergent validity with several other validated measures that capture aspects of group cohesion. Namely, the Secure Emotional Expression subscale was correlated with the Engagement subscale of the Group Climate Questionnaire (.68, $p < .001$), a common measure of group therapy cohesion (Joyce et al., 2011; MacKenzie, 1983). These measures further solidify cohesion as an important, if not essential, component in any successful group therapy experience (MacNair-Semands et al., 2011).

Cohesion, Stages of Group Development, and Appropriate Interventions

Cohesion as a function of positive member relatedness to other members and to the group leader is paramount toward insuring a therapeutic experience in group psychotherapy. However, cohesion is not a static process. In almost all models of group development, change in member behavior is nearly always defined temporally and can most often be understood by the change in the way that group members interact and feel about the group as a whole (Forsyth & Diederich, 2014). The cohesion of a group at any given point is the most salient identifier for the stage of development of the group and its members. Given that an appropriate intervention is chosen for the stage of development, the ability for the facilitator to accurately evaluate the level of the group's cohesion is vital (Stockton, Rohde, & Haughey, 1992). Of course, a leader who does not take into account the cohesion level of a group will also likely not consider the developmental stage of the group when making intervention decisions.

Various stages are present within several different group development models. Tuckman's (1965) model posits that groups travel through five distinct phases that, like many other models, are heavily defined by the type of cohesive interactions between members and between members and the group leader. An example of this is the "forming stage," which characterizes early group behavior through cautious testing of interpersonal boundaries with relatively superficial, if not inhibited, exchanges. Offering a more psychoanalytic flavor of group dynamics, Bion's (1974) Basic Assumption Model emphasizes unconscious processes on a group level. The model describes three "cultures" that groups fluctuate between that detracts from any productive work that could be done

toward the primary task of the group. These cultures rise from unconscious psychic tensions that lead to regressive behaviors. These include acting as if members are irrationally dependent on the leader, like a child to a parent (“dependency culture”), acting as if the leader is inadequate and thus a new leader must be assigned to save the group (“fight/flight culture”), and acting as if certain members of the group will mate in an effort to produce for the group an everlasting legacy of their association (“pairing culture”). Another psychoanalytic model, Bales’ (1965) model of group development, is not linear but rather is based on the premise that group members oscillate between focus on the established tasks of the group (such as learning skills in a CBTG group) and the different relationships that exist within the group. Bales concluded from his work with groups that both task-focused work and relationship maintenance are of equal importance.

Though each respective model offers different ways in which groups come together to accomplish a task, all appear to be centered on aspects of cohesiveness. Tuckman’s (1965) model, for example, contains a “storming stage” in which interpersonal conflict and power struggles are a defining feature. Recognition of this stage is important for group leaders; poor navigation of this stage with mismatched interventions could lead to group rupture beyond repair. However, if the relational markers are identified by leaders, and the stage properly traversed through appropriate interventions, groups can progress to higher level stages in the model. Similar markers of cohesion define both Bion’s (1974) and Bales’ (1965) models of group development. In Bion’s Basic Assumption Model, the behaviors that signal the “culture” that groups

unconsciously fall into are also reflective of a group's cohesive state. For example, perception by the members that the group leader is not empathic or misunderstanding may push members into a fight/flight culture. Bales' (1965) model similarly implies the importance of group leaders to attend and balance aspects of a group's relational patterns. If a group, for example, spends excessive time focused on learning breathing techniques to alleviate anxiety, it is the group facilitator's responsibility to find time to allow for activities that cultivate a sense of group oneness with the focus on satisfying needs to feel connected to- rather than rejected by- the group at-large. The cost of failure by the group leader to do so, according to the model, is an imbalance of the work-relationship equilibrium, which may lead the group to splinter into sub-groups, if not rupture completely. Once again, and similar to the both Tuckman's (1965) and Bion's (1974) model, Bales' (1965) model highlights group cohesion as the most important aspect of group development and the most salient feature to allow group leaders to assess their groups' developmental progression.

All three models establish support for the importance of cohesion. Tuckman's model reflects the importance of leaderships' ability to gauge stage of group development and the facets of group cohesion that make up each stage. Tuckman's (1965) model also has been used to develop several measures of group therapy factors, including cohesion. Further, the development of MacKenzie's (1997) Group Climate Questionnaire parallels facets from each stage of Tuckman's model. The development of this measure offered group facilitators a tool to assess the cohesiveness of group members and, ultimately, the developmental level of the group as a whole. Overall, the model has been examined with

similar conclusions: tracking of group development (most obviously through features of the group's cohesion) can best ensure that appropriate interventions are used to meet the primary task of a group (Fall & Wejnert, 2005; Rickards & Moger, 2000).

As is the case with any developmental model, awareness of issues of cohesion can help the leader control the fantasies that Bion (1974) argued take away from meaningful work toward the primary task of the group. In fact, studies have shown that successful leadership can help groups learn to cope with these distracting impulses and tensions and focus on the task at hand (Wheelan & McKeage, 1993). Though complete absence of assumptive cultures (even in the most advanced groups) is not considered to be possible, excessive time spent in basic assumptive cultures- rather than work group culture- will likely derail a group from achieving its primary task. This is supported by research conducted with groups even outside of the mental health field. Chiriac (2008) demonstrated that the model could be used to better understand and implement problem-based learning in educational settings. Similar to the implementation of appropriate interventions in group psychotherapy, educators were encouraged to attend to the interaction of their classrooms in understanding the dynamic of students when implementing teaching strategies.

Research also has largely supported the basic premise of Bales' (1965) equilibrium model. Studies examining the oscillation between work-focused behavior and relationship-focused behavior have shown an importance in keeping the balance between the two (Birnbaum & Cicchetti, 2012). The tenants of the model have been expanded even outside of the mental health field. One such study examined construction

environments and found that projects were more likely to be completed within budget when task-based behavior (such as communication strictly related to the construction project and construction behavior itself) was balanced with socio-emotional interaction compared to those that strictly enforced the task-oriented behavior (Gorse & Emmitt, 2009). Similar to Tuckman's Five-Stage Model and Bion's Basic Assumptive Model, Bales' model shows the importance of careful and thoughtful leader consideration of group cohesion and whether intentional intervention is needed in order to balance the scales toward a more relational focus and away from a task-focused process that would throw the group off equilibrium.

Definition and Clinical Importance of Group Cohesion

As would be expected, group cohesion is much more complex than the therapeutic alliance due to the increased number of individuals involved in group psychotherapy versus individual psychotherapy. This section of the chapter explores the various definitions of group cohesion that exist in the literature and the importance of the construct for positive therapeutic outcomes, including moderators of the cohesion-outcome relationship.

Attempts to understand and define group cohesion have largely led to a consistent view that it is similar to the concept of therapeutic alliance in the individual psychotherapy literature (Burlingame et al., 2011; Joyce et al., 2007; Yalom & Leszcz, 2005). Despite obvious similarities, including an emphasis on trust, empathic understanding, and acceptance, group cohesion is undoubtedly more complex due to the multiple connections produced by having more than two individuals interacting. While

cohesion carries a certain intuitive logic, an operational definition is difficult to form due to its complexity. Indeed, definitions of cohesion have evolved from one of its first descriptions as a “field of forces” that wills group members to stay together (Dion, 2000). A common feature of most definitions suggest that cohesion contributes to group attractiveness for its members, thus prompting group members to act in ways that maintain the group’s existence (Yalom & Leszcz, 2005). Cohesion stems from several different sources within the group: the client’s relationship and bond with the therapist, the client’s relationship and bond with fellow group members, and the client’s relationship and bond to the group as a whole (Burlingame et al., 2001; Yalom & Leszcz, 2005). The more favorable and desirable that these relationships and bonds are among all group members and the therapist, the higher the assumed level of group cohesion (Burlingame et al., 2001). Burlingame et al. (2011) defined group therapy cohesion in two dimensions- by relationship *structure* and relationship *quality*, with the former referencing the direction of the relationship with both “vertical cohesion” and “horizontal cohesion” reflecting this directionality.

“Vertical cohesion” is described as a group member’s perception (either positive or negative) of the group leader’s competence, genuineness, warmth, and charisma- all traits serving to create an appreciative and trusting connection from the member to the leader (Burlingame et al., 2011). Sexton (1993) tied such feelings toward group leaders directly to outcome by showing that members who perceived warmth, understanding, hope, and a belief of being valued by their group therapist had better reported symptom improvement and increased self-insight. To further support the importance of vertical

cohesion, studies of group member dropout show that perceptions of a therapist as unsupportive and withholding are likely predictors for early member termination (Braaten, 1990). Further, group dynamics researchers often contend that member-to-member cohesion follows member-to-leader cohesion in group therapy, as group members often first seek comfort and safety in the group facilitator before reaching out to other members (Braaten, 1990; Rutan, Stone, & Shay, 2014). Indeed, leaders are seen as “tone setters” for group interactions as members are more likely to model their behavior off of the leader rather than each other (Yalom & Leszcz, 2005). Psychoanalytic theorists contend that members identify with each other based on their shared love and admiration of the leader (Rutan et al., 2014). In other words, through a process known as introjection, a member must first identify appealing and idealizing aspects of the leader within herself. With these internalized characteristics in tow, members then use these similarly introjected traits to bond with each other. Though this is a largely unconscious process, it implies that vertical cohesion is the primary source for garnering group cohesion as a whole, as positive member-to-leader cohesion extends to member-to-member cohesion.

Conversely, “horizontal cohesion” speaks to a group member’s perception of other members of the group. Like vertical cohesion, positive member-to-member interaction has theoretical and empirical support as an essential ingredient toward cultivating greater group cohesion. Mirroring member-to-leader research, specific characteristics of group member interactions have been shown to influence member outcomes. For example, member empathy, acceptance, trust, and shared vulnerability

have all been shown to positively impact the relationships within the group and the subsequent outcomes (Braaten, 1990). Likewise, some early research also found that patients who reported higher levels of relatedness (e.g., feeling understood, protected, and comfortable with their group) also reported the most symptomatic improvement, especially when reported in the latter half of their group (MacKenzie & Tschuschke, 1993). Similar to vertical cohesion, lack of horizontal cohesion has been shown to contribute to early termination of group members (Dion, 2000; Sexton, 1993).

Unlike those who advocate for vertical cohesion as a necessary criterion prior to the formation of horizontal cohesion, Yalom and Leszcz (2005) contend that horizontal cohesion is the primary change agent in groups. Some psychoanalytic group theorists also posit that horizontal cohesion can occur without a true therapeutic alliance with the group leader. Though these viewpoints suggest that the therapist most often serves as the initial and transitional unifying figure, in some circumstances, a member may bond first or primarily to other group members (Rutan et al., 2014). Interestingly, member-to-member bond formation without a bond to the leader most often occurs in the beginning of a group experience, when group members may share a common skepticism or distrust of the therapist or the treatment put forward. Though most successful group outcomes occur after this dynamic is resolved and therapist trust is renewed, this model implies that a higher level of group cohesion is facilitated first between the members before extending to the therapist herself (Rutan et al., 2014). In this perspective, it is horizontal cohesion which precedes vertical cohesion and can be argued to be central to developing group cohesion at-large.

Whereas structure encompasses one branch of group cohesion, it does not address how favorably (or unfavorably) group members view relationships in the group. Burlingame et al. (2011) added relationship *quality* as the second dimension of cohesion as a gauge for valence of the relationships within the group. Three specific factors have been found to help explain how group members view the quality of the group relationships, both member-to-member (horizontal) and to their group leader (vertical). “Positive bond” (described as the perceived closeness to members and leaders in the group), “positive work” (or the ability to the group to undertake the tasks and goals of the group), and “negative relationship” (which alludes to interpersonal disappointments and failure with the leader as well as intergroup conflict) were able to explain the majority of the variance in respect to measures of group cohesion quality (Johnson, Burlingame, Olsen, Davies, & Gleave, 2005). In essence, the degree of the quality of a group’s cohesion can be described by positive relationships between group members with each other and with their leader, with their ability to agree on and progress on specified group tasks, and with the absence of unproductive conflict. This two dimensional framework encompasses the largely accepted current definition of group cohesion in group psychotherapy and can be considered to be the most robust operational definition of the construct of group cohesion in the literature (Burlingame et al., 2011; Chapman et al., 2012; Joyce et al., 2007).

Importance. The clinical importance of cohesion on outcome has long been established. Almost 80% of studies in recent reviews report medium to large effects for the relationship between group cohesion and outcome (Burlingame et al., 2011).

Theoretical writings of group psychotherapy have held the construct of group cohesion as one of the most important therapeutic factors in group therapy (Yalom & Leszcz, 2005). Studies have found cohesion to be associated with a reduction in distressful symptoms and improvement in interpersonal functioning (Burlingame et al., 2011; Taube-Schiff et al., 2007). A meta-analysis, with 40 studies spanning four decades, on the relationship between cohesion and positive outcome, showed a strong relationship between these two variables (Burlingame et al., 2011). These results indicated that as cohesion increases across the group, group members were more likely to improve and show a reduction in mental health symptoms. In one such study that examined whether cohesion predicted outcome, the authors found that group member perceptions of their individual alliance with the group leader did not predict a reduction of depressive symptoms (Crowe & Grenyer, 2008) However, group member perceptions of unproductive interpersonal conflict within the group, and the group's subsequent ability to work actively in treatment as a whole, did predict this reduction (Crowe & Grenyer, 2008). This suggests that horizontal cohesion, where member-to-member relationships and interactions are considered, may have more of an effect on outcome than vertical cohesion, which considers member-to-leader relations.

Aside from the reduction of clinical symptoms, members in highly cohesive groups also have shown additional benefits. These include higher levels of self-esteem and greater levels of motivation to achieve personal goals and increases in group psychotherapy attendance, social engagement, and perceptions of their treatment as therapeutic (Joyce et al., 2007; Tschuschke & Dies, 1994). Hilbert et al. (2007) noted in

a study of persons with eating disorders that groups with low levels of cohesion had significantly poorer symptom reduction outcomes. The relationship between cohesion and outcome has been found in studies that measured member-to-member cohesion levels as well as member-to-leader cohesion levels (MacKenzie & Tsucshke, 1993; Ryum, Hagen, Nordahl, Vogel, & Stiles, 2009; Sexton, 1993; Taube-Schiff et al., 2007).

While cohesion has been supported in the literature in relation to outcomes, cohesion also has been discussed in terms of its importance to process. Burlingame, Whitcomb, and Woodland (2014) referred to process in group psychotherapy as its “operations” or the behaviors, interactions, and dynamics that ultimately lead to positive outcome. One such process includes group performance, or the ability to work toward the agreed upon goal of the group, which has long been noted as a behavior that improves with higher levels of group cohesiveness (Evans & Dion, 1991; Gully, Devine, & Whitney, 1995; Joyce et al., 2007). Other aspects of group psychotherapy process, including amount of self-disclosure and inter-member feedback, have been reported to have a positive correlation with perceived group cohesion. High cohesion is especially important when weathering through stages of group development that are more conflict ridden. MacKenzie (1994) reported that groups with higher cohesion endured conflict and had better outcomes at the conclusion of the group compared to groups reporting lower cohesion levels. Taken together, the literature has long supported cohesion as a positive factor for increasing beneficial interpersonal behaviors during group as well as better outcomes at the end of the group.

The link between cohesion and positive outcome is not without influences that, occasionally, are outside the control of the group leader (Burlingame et al., 2011; Hornsey, Dwyer, & Oei, 2007). Dinger and Schauenburg (2010) concluded that interpersonal style had a moderating effect on the relationship between outcome and group cohesion. Specifically, in a study of 73 depressed clients in group treatment, clients who were identified as interpersonally hostile or distant showed greatest improvement when they reported more experiences of cohesion during the group. Interestingly, the inverse was also found; clients described as “overly friendly” showed greatest improvement when they produced lower scores on a measure of perceived group cohesion during treatment (Dinger & Schauenburg, 2010). The authors suggested that clients that reported as very hostile or very cold profited from an increase in relationship experiences that offered closeness and a sense of belonging. On the other hand, those that were described as overly friendly benefited from establishing stricter boundaries and more control over interpersonal situations.

Group theme also is highlighted in the literature as a group level variable which may moderate the relationship between cohesion and outcome. Burlingame et al. (2011) found that interactive groups (those without specific diagnoses but rather defined by more interpersonal focus and less structure of group time) had a higher relationship between cohesion and positive outcome compared to problem-specific groups (those where members carried similar diagnoses and group time was structured around the specific issue or condition). Finally, group size and average number of group sessions have been pinpointed in research as a further moderator between heightened cohesion and positive

outcome. Groups made up of five to nine members throughout the duration of the treatment showed the highest cohesion to outcome relationship compared to groups of other sizes that had fewer or more members (Burlingame et al. 2011). This result suggests that best practice may be to include five to nine members in group to maximize the effect of group cohesion on positive outcome. This number of group members also has been suggested by Yalom and Leszcz (2005). Further, groups lasting more than 12 sessions, compared to groups of 12 or fewer sessions, demonstrated a higher correlation between cohesion level and positive outcome (Burlingame et al., 2011).

Therapist-Client Congruence on Therapeutic Variables

Burlingame et al. (2001) contended that cohesion informs process, rather than vice versa. In other words, it is only when the group facilitator is able to accurately assess the group's level of cohesion that she can most effectively implement the appropriate intervention. Indeed, Stockton, Rohde, and Haughey (1992) demonstrated that matching a specific structured intervention to the specific developmental level of a group helped groups progress to higher stages of development and also prevented groups from consistently "sliding back" to previous, more conflictual and unproductive stages of development. As would be expected, cohesion should play a large role in informing facilitators of the stage of their group's development. However, it is unknown if group leaders are accurate in their prediction of a group's perceived cohesion level.

The process of measuring similarity of scores on certain variables between clinicians and clients is termed "clinical prediction" (Breslin et al., 1997; Chapman et al., 2012). Historically, clinical prediction has been used in individual psychotherapy

research to evaluate whether psychotherapists are accurate in predicting outcome. The results of those studies have shown that therapists often underestimate negative outcomes in therapy (Hannan et al., 2005). Hannan et al. (2005) conducted a study in which 48 clinicians conducting individual psychotherapy predicted that 3 of the 550 clients (.54%) they were treating would deteriorate by the end of treatment. However, 40 of the 550 (7.3%) were assessed as having deteriorated by the end of treatment. This “positive bias” was also seen in the group psychotherapy literature. In one study, 14 group leaders were surveyed regarding the expected outcome of 64 clients being treated in group treatment. In total, the therapists predicted that 3 members would show “significantly worse” symptoms following group termination. In actuality, at the conclusion of group treatment, 10 members were found to be “significantly worse” (Chapman et al., 2012). In other words, group leaders predicted that 4.7% of group members would deteriorate following treatment when, as results showed, 15.6% were rated worse at termination.

Outcome is not the only variable that has been considered in clinical prediction studies. Though sparse, some research has measured therapeutic variable concordance between members and group leaders on variables related to group process and group dynamics. One study considered clinical prediction on measures of member to leader alliance with groups for binge eating disorder (Compare et al., 2016). Results showed no significant concordance between group members’ and group therapists’ scores on measures of alliance. In a similar study, group leaders were shown to be largely unsuccessful in predicting member scores on a measure of the perceived quality of the therapeutic group relationship (Chapman et al., 2012). Similarly, Jenkins et al. (1971)

compared therapist and group member ratings of therapist effectiveness, member-leader relationship, directiveness of the therapist in leading the group, and the appropriateness of techniques. While scores of leader techniques used and directiveness were most strongly correlated, there was no significant relationship between leader and member ratings on measures of therapist effectiveness and the therapeutic relationship. Further, no study has considered any variables that might moderate the strength of the correlation between group leader scores on a specific variable and group member scores on the same variables. Also, no group member characteristic (such as willingness to be emotionally vulnerable in group) has been examined in the literature as having an impact on group leaders' ability to accurately predict outcome or process variables.

Interestingly, although no significant relationships have been shown between group members and group leaders on measures of group relational variables in the literature, such congruence has been shown in the individual therapy literature. Congruence between clients and therapists in individual therapy on measures of working alliance has been shown to be significant while also showing that this agreement was related to positive outcome (Marmarosh & Kivlighan, 2012). Temporal congruence on measures of relational bond also has been examined over multiple treatment sessions in individual therapy. Statistically significant results highlighted congruence in bond ratings that persisted session-by-session throughout the treatment (Atzil-Slonim et al., 2015). Though no inquiry has been done into why individual psychotherapy shows this convergence while group psychotherapy does not, speculations include the difficulty for

group facilitators to attend to multiple relationships versus only one in individual therapy (Compare et al., 2016).

Conclusion

Several studies of clinical prediction suggest that group leaders' perceptions of both the intended outcome of group treatment as well as group members' respective perceptions on various variables are largely inaccurate (Chapman et al., 2012; Compare et al., 2016; Jenkins et al., 1971; Marmarosh & Kivlighan, 2012). Group cohesion, having been shown to be a primary therapeutic factor in the effectiveness of group psychotherapy, is of particular interest in regards to group leaders' ability to accurately predict group members' perceptions of the cohesion of their respective group. The implementation of appropriate interventions assumes that group leaders are adequate in predicting group cohesion and their group's stage of development. Logic follows that if group cohesion is a primary component for discerning a stage of a group's development, and interventions used by group facilitators are largely based on their group's stage of development, it can be assumed that assessing a group's level of cohesion is vital for group facilitators. However, though some research has examined clinical prediction of the therapeutic alliance in group psychotherapy (Compare et al., 2016; Chapman et al., 2012), no empirical studies have addressed whether group psychotherapists can accurately predict their group's cohesion or what variables predict a group psychotherapist's ability to do so with greater accuracy. Further, no research has examined if certain characteristics of group membership (such as willingness for emotional vulnerability) enabled group leaders to be more accurate in their prediction of

group cohesion. This represents a potential missing link in the literature, as identification of these variables may help inform group facilitators in better gauging their group's level of cohesion in order to implement interventions more effectively. These results can also potentially inform training and education for students or professionals building their group psychotherapy skill set.

The next chapter describes the methodology of the current study which assessed facilitator and group member convergence on relational measures, specifically cohesion. The study also examined the moderating variables on the relationship of facilitator and member convergence levels on measures of cohesion. A detailed description of the procedures that were used to gather data from psychotherapy groups, as well as the samples that were surveyed, is provided. In addition, the next chapter describes information on the instruments that were used to measure both facilitator and member cohesion levels. Finally, the third chapter will highlight the statistical analysis methods that were used to examine the data gathered during the study to address the main research questions.

Chapter Three: Methodology

The following chapter highlights the research design, sample characteristics, measures, procedures, and statistical analyses used for the study. The purpose of this study is to examine group psychotherapists' ability to predict their respective groups' level of perceived cohesion. Research of clinical prediction in group psychotherapy has shown that group leaders are inaccurate predictors of group members on different variables in group treatment. From the research on other variables, it was expected that group leaders will not agree with group members on the level of perceived cohesion in the group. It also was of interest to determine potential moderators that may impact group leader clinical predictions of group member scores on group therapy cohesion.

Willingness for interpersonal vulnerability and closeness was one examined potential moderator between group leader scores and group member scores of cohesion. Although this has not been studied previously, it is intuitive that group members who are willing to be more vulnerable in group will display more active participation and the group leaders will have more information about them, potentially being better able to predict members' views of the group cohesion. Other moderators of interest included the session number when data collection occurs, amount of group leader experience, and the perception by the leader of the percentage of time in group session that uses group process (discussion of the "here-and-now" group dynamics and interpersonal processes). The overall methodology aims to address the research hypotheses described in Chapter One.

Design

A non-experimental, associational research design was used to assess group leaders' clinical prediction on cohesion scores, as well as assessment of moderators. The study was conducted with preexisting psychotherapy groups in Colorado. In total, the study recruited and surveyed 25 psychotherapy groups with a total of 111 group members. However, four groups surveyed were below the membership threshold (three members or less) and were excluded from the study. The final sample contained 103 group members clustered within 21 groups. To assess clinical prediction, group members and group leaders completed the same measure of group cohesion (GCQ: Engagement Subscale, MacKenzie, 1983) as well as demographic questionnaires adapted for group members and group leaders, respectively. Group members also completed a measure of openness to vulnerability in group counseling (GTS-R: Vulnerability Subscale, Carter et al., 2001).

Due to the nature of group therapy in which any given clinical setting rarely conducts more than a few groups at a time, random sampling and control of independent variables were not feasible. In order to ensure a robust sample, convenience sampling was utilized. The disadvantages of convenience sampling are discussed in the literature. Most notably, convenience sampling does not ensure that the research sample is representative of the general population (Gliner et al., 2011). To counter this concern, a sample of 21 groups from several different types of agencies and over 100 group member participants were included.

Similarly, a nonexperimental, associational research design was the most appropriate to the research hypotheses. Nonexperimental approaches are defined in the literature as those with no random selection and without control over independent variables (Gliner et al., 2011). Since this study did not control group membership or treatment received within the groups, a nonexperimental design with therapy groups recruited from the community was the best fit for the research hypothesis. By entering clinical settings in the community that held pre-established groups, a diverse range of group members and group leaders comprise the sample for the current study.

Participants

Group Members. Participants in this study included group members of various demographics who were taking part in group treatment at a variety of clinical settings in Colorado (see Table 2 for demographic and contextual descriptive statistics). Twenty-one groups of four to eight members were surveyed for a total sample of 103 group members. The 103 group member participants exceeded the minimum required sample size of 91 participants (with medium effect size at .5, significance alpha level set at .05, proportion of explained variation by level 1 covariate set at .3, and desired statistical power of .80), as calculated through a single level trial “power versus n ” on Optimal Design software.

Group member participants were consenting individuals attending group therapy in one of six clinical settings included in the study. Community mental health settings encompassed 57% of the sample ($n = 12$), 23% were surveyed in college counseling centers ($n = 5$), 14% in private practice settings ($n = 3$), and 4% in a university training clinic ($n = 1$). Group members identifying as female accounted for 72.8% of the member

sample ($n = 75$), while 23.3% identified as male ($n = 24$) and 3.9% identified as either a transgender male or female ($n = 4$). The age of group members ranged from 18 to 68 years ($M = 35.03$, $SD = 12.98$). Age was normally distributed, with skewness of .559 ($SE = .238$) and kurtosis of $-.655$ ($SE = .472$). Racial/ethnic identification of the group membership was 74.8% White ($n = 77$), 10.7% Hispanic/Latino ($n = 11$), 5.8% biracial or multiracial ($n = 6$), 3.9% Asian/Asian-American ($n = 4$), 2.9% Black/African-American ($n = 3$), and 1.9% Native American ($n = 2$). At the time that members completed questionnaires and measures, they reported that they had attended an average of 13.4 sessions of their current group ($SD = 12.635$, Range = 2-60). Many members (63.1%, $n = 65$) reported they were taking medication for at least one mental health issue.

The study ruled out recruitment of groups meant to treat higher levels of cognitive delay or psychotic disorders, such as those categorized under Schizophrenia Spectrum and Other Psychotic Disorders in the DSM-5 (American Psychiatric Association, 2013), as these conditions may have impacted a member's reality testing and ability to complete measures based on interpersonal experience. Instead, during recruitment, groups were included whose membership presented with psychosocial issues, mood and anxiety disorders and symptoms, and adjustment difficulties. Though no diagnostic information was formally gathered, group leaders were consulted to discuss the membership prior to inclusion or exclusion into the study, including whether the group was formed to treat members with cognitive or developmental delay or psychotic disorders. Further, only members participating in closed groups (in which membership is set at the start of group and no new members enter throughout the duration of the group) or semi-open groups (in

which new members are recruited only when an existing member leaves the group) were recruited for the study. Open groups (where members come and go as they wish) were not included to the study sample. Finally, number of group members in the group was also be an exclusion criteria, as the study only included groups with 4 to 8 members.

Group Leaders. The study surveyed and analyzed data from 30 leaders across 21 groups (see Table 2 for demographic and contextual variable descriptive statistics). Twelve groups were run individually by leaders while 9 were co-led. Both leaders in co-led groups were surveyed, but only one leader per group was included in the analysis, resulting in 21 leaders as part of the sample. For co-led groups, a random number generator was employed to decide which leader would be clustered within their group.

Group leader participants in the study were consenting individuals facilitating therapy groups in one of six clinical sites recruited in the study. Leaders identifying as female comprised 71.4% ($n = 15$) of the leader sample, while 28.5% ($n = 6$) identified as male. The age of leaders ranged from 24 to 63 years ($M = 39.52$, $SD = 11.85$). Age was non-normally distributed, with skewness of 1.06 ($SE = .501$) and kurtosis of $-.010$ ($SE = .972$). Racial/ethnic identification of the group leaders was 71.4% White, ($n = 15$), 23.8% biracial/multiracial ($n = 5$) and 4.8% ($n = 1$) identified as Asian/Asian-American.

Leader experience was measured both in the number of months leading therapy and counseling groups (where training years were included also) and number of unique groups led (rather than individual group sessions). Months leading groups ranged from 30 to 408 months ($M = 120.05$, $SD = 98.20$). Group leader experience in months over their career leading groups was non-normally distributed, with skewness of 2.037 ($SE = .501$)

and kurtosis of 4.089 ($SE = .972$). Groups led or co-led ranged from 5 to 150 ($M = 26.95$, $SD = 33.20$). These data also were non-normally distributed, with skewness of 2.791 ($SE = .501$) and kurtosis of 9.452 ($SE = .972$). As described for sampling of group members, group leaders facilitating open groups, groups with fewer than four members or more than 15 members, or groups meant to treat cognitive delay or psychotic disorders were not included in the sample.

Table 2
Demographic and Contextual Variables

		<i>n (%)</i>	Mean	<i>SD</i>
Group Variables	Setting	Community Mental Health	12 (57%)	
		College Counseling Center	5 (23%)	
		Private Practice	3 (14%)	
		University Training Clinic	1 (4%)	
Age			35.03	12.98
Sex/Gender	Female	75 (72.8%)		
	Male	24 (23.3%)		
	Transgender male/female	4 (3.9%)		
Member Variables	Racial/Ethnic Identification	White	77 (74.8%)	
		Hispanic/Latino	11 (10.7%)	
		Biracial/Multiracial	6 (5.8%)	
		Asian/Asian-American	4 (3.9%)	
		Black/African-American	3 (2.9%)	
		Native American	2 (1.9%)	
Individual Member Sessions Attended			13.4	12.64
YES to psychotropic medication		65 (63.1%)		

	Age		39.52	11.85	
Leader	Sex/Gender	Female	15 (71.4%)		
		Male	6 (23.8%)		
	Racial/Ethnic Identification	White	15 (71.4%)		
		Biracial/Multiracial	5 (23.8%)		
		Asian/Asian-American	1 (4.8%)		
	Experience (months leading groups over career)			120.05	98.20
Experience (groups led over career)			26.95	33.20	

Measures

Group Member Demographic Questionnaire. Demographic information was gathered from group members through a self-report questionnaire. The questionnaire was provided to the group members either prior to the beginning of the group session or following the conclusion of the group session by the principal investigator of the study, with group session number tracked by the group leader's report of number of completed sessions. The 6-item questionnaire included items on age, identified gender, and race and ethnicity and took approximately two to three minutes to complete. It also included an item requesting number of completed sessions in the surveyed group as well as any psychotropic medications being taken. This information was used to describe the sample (see Appendix A).

Group Leader Demographic Questionnaire. Group leaders were asked to complete a demographic questionnaire. The questionnaire included age, identified gender, and race and ethnicity. The questionnaire also obtained contextual information regarding group leaders' experience and characteristics of the group. These included

items addressing years facilitating group psychotherapy, total number of groups facilitated over the course of group leaders' careers, the session number at the time of data collection, the expected number of total sessions until the conclusion of the group, and the percentage of group session time used for group process. The questionnaire also included an item related to "deliberate practice," which refers to the amount of planning and thinking about upcoming group sessions done by the group leader (as measured in hours per week). In total, the form is 10 items in length and took approximately four to five minutes to complete. Regarding the amount of group processing, group leaders were asked to provide the percentage of time spent discussing "here-and-now" group process and interpersonal dynamics (see Appendix B).

Group Climate Questionnaire- Engagement Subscale. The Engagement Subscale of The Group Climate Questionnaire (GCQ) was used to measure group cohesion (MacKenzie, 1983). The GCQ has been used frequently as a group process assessment tool in the extant literature (Johnson et al., 2006). As a self-report measure, the GCQ assesses participants' opinions of the group therapy environment. Though the full scale consists of three subscales (Engagement, Conflict, and Avoidance), only the Engagement subscale was used. The Engagement subscale has been used in research studies to assess perceptions around group affiliation and group cohesion (Deane et al., 2012; Johnson et al., 2006, MacKenzie, 1983; Orfanos & Priebe, 2017). The Engagement subscale includes 5 items. Example items include, "The group members like and care about each other," and "The members feel what is happening was important and there is a sense of participation." Each item is rated on a 7-point scale with 1 indicating "not at all"

and 7 indicating “extremely.” A total score is obtained by calculating the mean of the five items with a total score range from 1 to 7. Higher total scores indicate a perception of greater overall group therapy cohesion (MacKenzie, 1983).

The subscale lines up closely with Burlingame et al.’s (2001) definition of cohesion, specifically the concept of “horizontal cohesion.” According to this definition, a major source of group cohesiveness stems from member-to-member relationships (with member-to-leader relations being a separate facet of cohesion). Research has shown horizontal cohesion as linked to outcome (Braaten, 1990; Dion 2000; MacKenzie & Tschuschke, 1993) and has been regarded by some theorists as more imperative in building overall group cohesion than vertical cohesion (member-to-leader relationships) (Rutan et al., 2014; Yalom & Leszcz, 2005). The items on the Engagement Subscale reflect the importance of member-to-member interaction, as well as general feelings of belonging between members within the psychotherapy group.

Overall, the Engagement Subscale of GCQ has demonstrated strong validity and reliability and has been used as the main measure of group cohesion in several past studies (Burlingame et al., 2001; Constantini et al., 2002; Deane et al., 2012; Johnson et al., 2006). Research has shown high internal consistency using the Engagement Subscale with demonstrated reliability of 0.80 (Deane et al., 2012), 0.94 (Kivlighan & Goldfine, 1991), and .0.75 (Johnson et al., 2006). Construct validity also has been established in previous research, with demonstrated links to both outcome and process (Johnson et al., 2006; Kivlighan & Goldfine, 1991). The Engagement Scale has shown convergent validity with the Therapeutic Factors Scale, specifically with the factor labeled “Secure

Emotional Expression” which is described by the authors as an “indication of safety and comfort in group, and thus may be associated with the members communicating openly and honestly” (Joyce et al., 2011, p. 203). The Engagement Subscale of the GCQ was significantly correlated with the Secure Emotional Expression factor (.68, $p < .001$) (Joyce et al., 2011). See Appendix C for sample copy of the GCQ-E.

Group Therapy Survey- Vulnerability Subscale. The Group Therapy Survey-Revised was used to measure group member vulnerability (Carter, Mitchell, & Krautheim, 2001). Previous literature has used the measure to assess members’ perceptions of group treatment on several constructs, including a member’s comfort in being emotionally open and vulnerable in group (Marmarosh et al., 2009). The scale consists of 25 total items and includes the Efficacy Subscale (which considers the perception that group treatment is helpful), the Myths Subscale (which addresses misconceptions regarding group therapy), and the Vulnerability Subscale. This study only included the Vulnerability Subscale. This subscale, which is made up of seven items, measures a group member’s willingness to engage in the group process and comfort in group. Example items include “I am uncomfortable in group counseling when the focus of attention is on me,” and “I am afraid I will be criticized or humiliated by another group member.” Items are rated on a 5-point Likert scale from 1 (strongly agree) to 5 (strongly disagree). High scores on the Vulnerability Subscale infer that a group member has positive expectations regarding their ability to be vulnerable in group therapy context (Carter et al., 2001). Research indicates moderate reliability of the Vulnerability Subscale. Marmarosh et al. (2009) reported a test-retest of .80 and Carter et al. (2001)

reporting internal consistency of .75. Discriminant validity was found between the Vulnerability Subscale of the GTS-R and the Avoidance Subscale of the Experiences in Close Relationship Scale ($p < .01$; Marmarosh et al., 2009). This implies that items on the Vulnerability Subscale negatively correlate with items of an Avoidance Subscale, as would be expected, and demonstrate greater validity of the measure (see Appendix D).

Procedure

This study was approved by the University of Denver IRB prior to data collection at any clinical site (#968298; see Appendix I). Groups were recruited from various clinical settings in the Colorado area through solicitation by electronic and in-person requests (see Appendix G for Sample e-mail Recruitment Letter). Specifically, the principal investigator of the study contacted settings in Colorado that offer group treatment. An explanation of the study and impact on the group was given to the contact of the clinical setting. Upon written approval from a clinical director or research coordinator of a setting agreeing to participate in the study, an IRB package was submitted as an update to include the site in the data collection pool.

After IRB approval, the principal investigator contacted group leaders at the various settings to describe the study and set a date and time to present to the group for data collection. Discussion with the group leader regarding the study's goals, details of the group to gauge appropriateness for inclusion, and answering any questions from the group leader was held either in-person or over e-mail, depending on the preference of the respective group leader. Once group leaders approved participation in their group, they were given the Group Member Information Sheet (Appendix H) to distribute to group

members at the group session prior to the session agreed upon for data collection. The Information Sheet introduced the principal investigator and the study, offered a URL to a video link that described the study in greater depth for group members to review outside the group as they considered participation, and outlined an incentive for participation. The sheet also explained to members that, should they wish to participate, the principal investigator would be present 10 minutes prior to or following (depending on the preference of the group leader) the next group session to distribute and collect informed consent forms and administer The Group Member Demographic Questionnaire, the Engagement Subscale, and the Vulnerability Subscale. For all group members, data collection occurred through paper-and-pencil means.

During the date agreed upon by the group leader and principal investigator for data collection, group leaders completed all measures and questionnaires either prior to or after a group therapy session depending on leader preference. All leaders completed measures independent from members. If the leader deemed it more conducive that data collection occur before the group, the leader was surveyed first, followed by group members as they arrived. If the group leader preferred that data collection occur after the group, group members were surveyed following the conclusion of the group (separate from the group leader), followed by the leader once all member data was collected.

For members, total time for distribution of informed consent forms and completion of the demographic questionnaire, the GCQ: Engagement Subscale, and the GTS-R: Vulnerability Subscale was approximately 10 to 20 minutes for all participating group members. Upon completion of paper and pencil measures, the principal

investigator collected all measures and signed informed consent forms. Measures and consent forms were placed in two separately sealed envelopes until transferred to a password-protected electronic dataset. Ten dollar gift cards were provided to all members upon collection of consent forms, questionnaires, and measures.

Group leader review of consent forms took approximately 5 to 10 minutes and completion of measures and questionnaires also took approximately 5 to 15 minutes on this day. The paper and pencil measures and informed consent forms were collected by the principal investigator and put in two separately sealed envelopes until transferred to password-protected electronic dataset. Ten dollar gift cards were provided to all participating group leaders upon completion and collection of questionnaires and measures.

All measures and questionnaires were anonymous. Identification numbers were used solely to be able to cluster group members and group leaders with their respective groups. Specifically, all participants were given a 6 digit code to attach their response to their group, with the first two digits indicating either group member or group leader (01 or 02), the second two digits distinguishing members or (in the case of co-leaders) leaders of the group, and the final two digits distinguishing the group surveyed. For example, 010510 would translate to the fifth group member in the 10th group surveyed. Identification number 020210 identified the co-leader in the 10th group surveyed. Data collection packets, which included all questionnaires and measures, were labeled individually with identification numbers before providing them to group leaders and

group members. All paper forms were stored in a secured lockbox before being destroyed after data were entered electronically. Electronic data were then password protected.

Incentives were offered to all participating group members and group leaders in the form of a \$10 Amazon Gift Card. Group leaders were given their gift card in person by the principal investigator upon completion of all measures and questionnaires. Similarly, all group members were given their gift cards in person by the principal investigator upon completion of all measures and questionnaires. No names, addresses, or other contact information were gathered for any identification purposes pertinent to the data. No other contact with each respective group or individual member occurred following the completion of demographic questionnaires, GCQ: Engagement Subscale, and the GTS-R: Vulnerability Subscale. Contact information was gathered from all group members and group leaders that expressed interest in a results summary through a tear-off section of the informed consent form. A summary of the results was sent to any group members or group leaders who provided contact information via e-mail following the conclusion of the study. All contact information is kept separate from collected data. Any paper copies of contact information were destroyed following transfer to a password protected electronic document.

Data Analysis

With 103 group members and 21 group leaders nested within 21 groups, hierarchical linear analysis was conducted using the statistical software HLM7. Hierarchical linear modeling was the utilized statistical analysis for the proposed hypotheses (Raudenbush, Bryk, & Congdon, 2002). Descriptive statistical analysis on

group demographics was done using SPSS. Demographic information was calculated for both group member and group leader samples. The relationship between group leaders' scores on the GCQ: Engagement Subscale and group members' scores on the same measure were analyzed using a Means-As-Outcomes model. A one-way random ANCOVA was used in order to assess for the moderating effect of group member scores on the GTS-R: Vulnerability Subscale on the relationship between group leader and group member scores on the GCQ: Engagement Scale. Group Facilitator Professional Experience, Amount of Group Processing in the group and Session Number at the time of data collection was also assessed for a moderation effect on the group leader and group member cohesion score correlation using an Intercepts and Slopes-as-Outcomes model. The hierarchical models to address each hypothesis are provided in the following chapter.

Summary

This chapter offered a detailed description of the research design, sample and settings, measure, study procedures, and statistical analyses that were used to examine the hypotheses of the study. The study utilized a nonexperimental, associational design with convenience sampling. Under examination is the relationship between group leaders' scores on a measure of group cohesion and group members' scores on the same measure, in an effort to better understand group facilitators' ability to predict a groups' cohesion. Various variables were analyzed as possible moderators to this relationship. These variables include Session Number at the time of data collection, level of Group Leader Experience, and the Amount of Group Processing across group therapy sessions. Further, scores on a group member measure of vulnerability was utilized to examine if group

leaders are able to more accurately predict perceived cohesion levels in members who report high versus low willingness to be emotionally vulnerable in group treatment. The study used established therapy groups in Colorado from various clinical settings that offer group psychotherapy services.

Both group members and group leaders completed demographic questionnaires and the Group Climate Questionnaire: Engagement Subscale. These instruments provided data on demographic characteristics of both groups as well as scores for the perceived level of group cohesion. The demographic questionnaire tailored for the group leaders also contained items related to information regarding their group, as well as professional information (such as amount of group therapy facilitation experience). Only group members completed the Group Therapy Survey: Vulnerability Subscale. The study, which analyzed 103 group members and 21 group leaders nested within 21 therapy groups, used hierarchical linear modeling to analyze the data. Data from the GCQ: Engagement Subscale was used to assess group leaders' ability to predict group cohesion, measured as the intraclass correlation between the two scores. Potential moderators, including group leader experience, session number at time of data collection, and percentage of time spent on processing in group, were assessed through an Intercepts and Slopes-as-Outcomes model. Group member vulnerability, as measured using the GTS-R: Vulnerability Subscale, was also assessed as a moderator through a One Way Random ANCOVA. The methodology of the study was designed to determine group therapists' ability to predict cohesion levels of their respective psychotherapy groups.

Chapter 4: Results

The following chapter reviews the results of this study. Participating group members and group leaders completed all items on all measures; there were no missing data. Descriptive statistics are provided for outcome and predictor variables, including those created to test interaction effects. Following, an unconditional model for the group member GCQ-E score outcome variable is presented. An overview of the five main hypotheses (addressing group leader GCQ-E score association with the group member GCQ-E score), the hierarchical models for each hypothesis, and the results of analysis for each model follow.

Descriptive Statistics

Descriptive statistics of all variables were included when creating the MDM file in HLM7. These statistics are displayed in Table 3 by level 1 (member level) and level 2 (leader level) variables. Of note, GTS-Vulnerability subscale means and standard deviations for the member sample ($M = 27.63$, $SD = 3.98$) were similar to the normative sample for the scale ($M = 24.01$, $SD = 3.43$; Carter et al., 2001). These statistics were not provided for the GCQ-E, and can therefore not be compared to the current study (MacKenzie, 1983). Descriptive statistics are also included for centered level 2 variables as well as the variables created to test interaction effects. Eight leaders' GCQ-E scores fell outside of one standard deviation from the mean with five that were below one standard deviation and three that were larger than one standard deviation (see Figure 2 for

Leader GCQ-E distribution graph). For the member distribution, 62 members fell within one standard deviation of the mean while 18 fell one standard deviation below and 23 fell one standard above the mean, respectively (see Figure 1 for Member GCQ-E distribution graph).

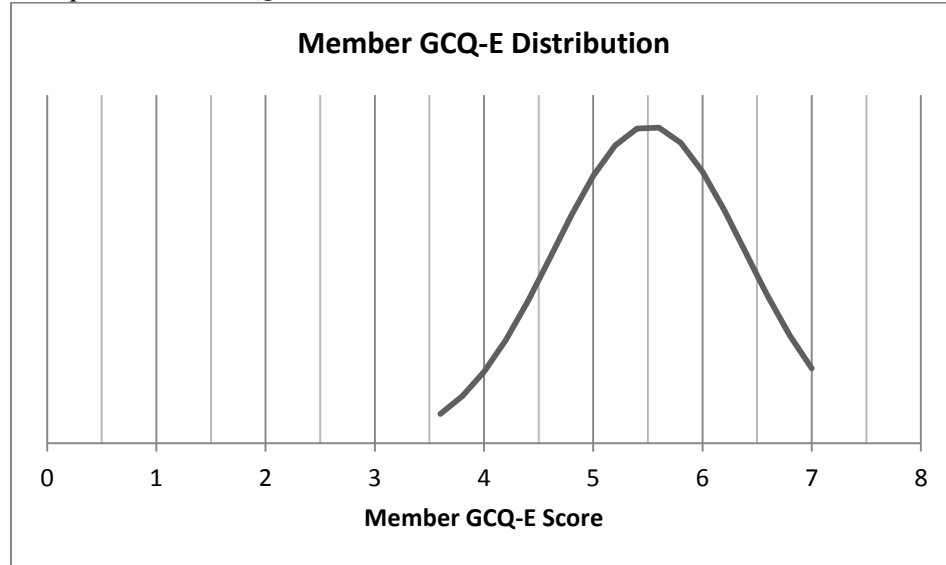
The three level 2 variables examined as possible moderators- Leader Experience (L_XP), Percentage of Group Processing (G_PRO), and Session Number (G_NUM) - showed large deviation between groups. For example, Leader Experience was measured by leaders' number of therapy groups led over the course of the leader's career. Descriptive analysis shows that while the mean was 26.95 groups led, with an SD of 33.19, one leader reported to have led 150 groups, which may have significantly skewed these data. In order to examine the impact of outliers on the significance of the moderating effect, all analyses across these three variables also were run with outliers removed from the data set. Per Wike (2006), variables that are two standard deviations from the mean are commonly removed during an outlier analysis. In the current study, very few variables were two (or more) standard deviations from the mean. Therefore, analysis was run with outliers at two standard deviations removed. In order to further test moderation effect, results are also shown with removal of outliers greater than one standard deviation, though these results should be interpreted with caution due decrease in variability from the sample.

Table 3
Descriptive Statistics

Variable Name	Possible Instrument Range	<i>N</i>	Mean	<i>SD</i>	Minimum	Maximum
<i>Level 1 descriptive statistics</i>						
M_GCQE	1-7	103	5.51	.88	3.60	7.00
M_VUL	7-35	103	27.63	3.98	16.00	35.00
<i>Level 2 descriptive statistics</i>						
L_GCQE	1-7	21	4.80	.85	3.60	6.40
L_XP		21	26.95	33.19	5	150
G_PRO		21	39.05	30.93	0	95
G_NUM		21	19.62	16.71	4	60
L_GCQE_CEN		21	-.01	.85	-1.21	1.59
L_XP_CEN		21	-3.74	33.19	-25.59	119.41
G_PRO_CEN		21	-1.10	30.93	-40.15	54.85
G_NUM_CEN		21	-.52	16.70	-16.14	39.86
LXP_LGCQ_I		21	6.41	18.09	-25.29	46.37
GPRO_LGCQ_I		21	-1.56	25.21	-66.46	42.59
GNUM_LGCQ_I		21	-2.57	14.18	-36.18	31.42

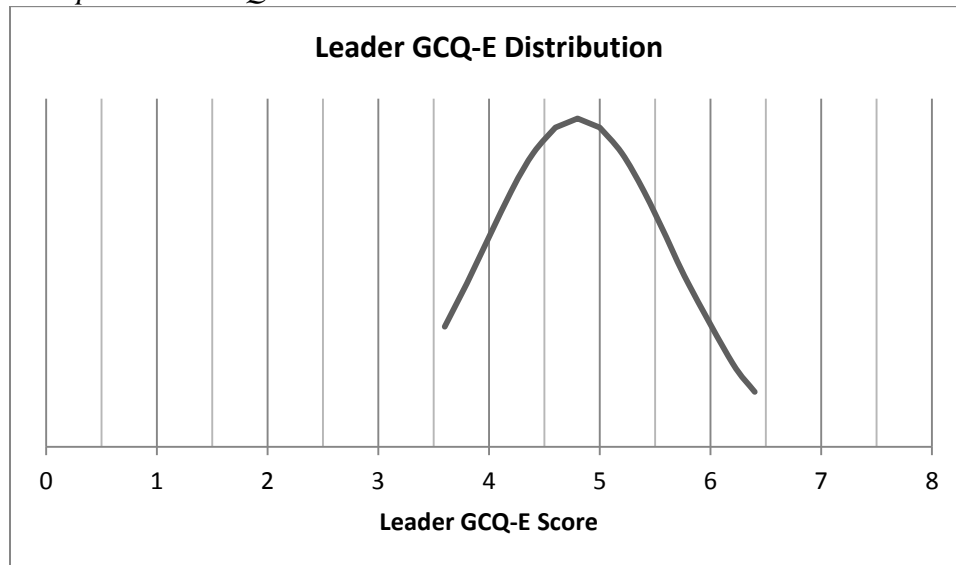
Note. Possible GCQ-E scores ranged from 1-7; possible GTS-R (Vulnerability subscale) scores ranged from 7-35. M_GCQE = Member Group Climate Questionnaire-Engagement subscale score; M_VUL = Member Group Therapy Survey- Vulnerability subscale score; L_GCQE = Leader Group Climate Questionnaire- Engagement subscale score; L_XP = Group leader experience in reported number of groups led over career; G_PRO = Reported percentage of session time spent in “here-and-now” group processing; G_NUM = Group Session Number; L_GCQE_CEN = Leader GCQ-Engagement subscale score centered; L_XP_CEN = Leader experience centered; G_PRO_CEN = Reported percentage of “here-and-now” group processing centered; G_NUM_CEN = Group Session Number centered; LXP_LGCQ_I = Group leader experience and leader GCQ-E score interaction; GPRO_LGCQ_I = “Here-and-now” group processing and leader GCQ-E score interaction; GNUM_LGCQ_I = Group session number and leader GCQ-E score interaction.

Figure 1
Group Member GCQ-E Distribution



Note. $n = 103$, Member GCQ-E mean = 5.51, Standard Deviation = .88, skewness = .247 ($SE = .238$), kurtosis = -.749 ($SE = .472$), range = 3.60-7.00; 60% ($n = 62$) within one standard deviation; 40% ($n = 41$) above or below one standard deviation.

Figure 2
Group Leader GCQ-E Distribution



Note. $n = 21$, Leader GCQ-E mean = 4.80, Standard Deviation = .85, skewness = .153 ($SE = .501$), kurtosis = -.775 ($SE = .972$), range = 3.60-6.40; Eight of 21 leaders' GCQ-E scores fell outside one standard deviation from the mean (five were under one standard deviation and three were over one standard deviation).

Unconditional Model

The HLM analysis began with an unconditional model, or a model with an outcome variable and no predictors, as is recommended in the literature (Adelson & Owen, 2012; Kivlighan & Kivlighan, 2016). The model (see Table 4) differentiates the variance in member GCQ-E scores into within-group and between-group components (known as the intraclass correlation coefficient, or ICC) and also provides the average member GCQ-E score. The ICC is calculated as:

$$\rho = \frac{\tau_{00}}{\tau_{00} + \sigma^2}$$

With τ_{00} equal to variance between groups and σ^2 equal to variability within the group members nested within groups, the ICC is calculated as .181. This suggests that 18% of the variance in member GCQ-E score is explained at the group level. That is, 18% of the variability in group member GCQ-E scores can be explained by differences between groups (or, for that matter, group leaders). As is also shown in the above descriptive statistics, the average Member GCQ-E score across all groups was 5.51. Further, the between group variance component (τ_{00}) is statistically significant ($p = 0.003$), indicating variance in average member GCQ-E score across groups.

Table 4
Unconditional Model

Fixed Effects	Coefficient (SE)	t-ratio	df	p
Model for Member GCQ-Engagement Score (β_0)				<0.00
Intercept (γ_{00})	5.51 (0.11)	48.22	20	1
Random Effects (variance components)	Variance (SD)	df	X²	p
Var. in group means (τ_{00})	0.141 (0.376)	20	41.56	0.003
Var. within groups (σ^2)	0.636 (0.798)			

Leader GCQ-E Scores as a Predictor of Member GCQ-E Scores

It was expected that no significant relationship would exist between Group Leader GCQ: Engagement Subscale scores and Group Member GCQ: Engagement Subscale scores. In other words, it was expected that group facilitators were likely to be inaccurate in their ability to predict their group members' perceptions of the level of group cohesion. Data collected from the GCQ: Engagement Subscale was utilized to examine this hypothesis. The Engagement Subscale has been shown to be a valid and reliable measure of group cohesion in several research studies (Burlingame et al., 2001; Deane et al., 2012; Johnson et al., 2006; Kivlighan & Goldfine, 1991). In regards to model specification to address the first hypothesis, which uses a Means-As-Outcomes model to examine Group Leader GCQ: Engagement Subscale scores (L_GCQE) as a significant predictor of Group Member GCQ: Engagement Subscale scores (M_GCQE), group member scores serve as the outcome variable and group facilitator scores serve as a level 2 predictor in finding the relationship between the two variables. The level 1, level 2, and combined models are:

$$\text{Level 1 Model: } M_GCQE_{ij} = \beta_{0j} + r_{ij}$$

$$\text{Level 2 Model: } \beta_{0j} = \gamma_{00} + \gamma_{01} * (L_GCQE) + u_{0j}$$

$$\text{Combined Model: } M_GCQE_{ij} = \gamma_{00} + \gamma_{01} * L_GCQE_j + u_{0j} + r_{ij}$$

The conditional model results are shown in Table 5. The hypothesis is best addressed by examining Leader GCQ-Engagement score (γ_{01}). The positive coefficient (0.30) suggests that for every one unit increase in leader GCQ-E score, there is a .30 increase in group

member GCQ-E score. The t test, ($t(19) = 2.35, p = .029$) indicates that leader GCQ-E score is significantly related to group member GCQ-E score.

Table 5
Mean-As-Outcomes Model- Leader GCQ-E as Level-2 Predictor

Fixed Effects	Coefficient (SE)	t -ratio	df	p
Model for Member GCQ-Engagement Score (β_0)				
Intercept (γ_{00})	4.07 (0.62)	6.56	19	<0.001
Leader GCQ-Engagement Score (γ_{01})	0.30 (0.13)	2.36	19	0.029
Random Effects (variance components)				
Var. in group means (τ_{00})	0.097 (0.311)		19	33.30
Var. within groups (σ^2)	0.632 (0.795)			0.022

Further, variance components for between group means (τ_{00}) should also be noted. The variance component (.10) and associated p value (0.022) indicates that group members do vary significantly in their GCQ-E scores across groups. In other words, group members of different groups do not rate cohesion statistically similar. In order to determine what percentage of variance in group member GCQ-E scores can be attributed to group leader GCQ-E, the following calculation of the proportion of variance explained (PVE) was used:

$$PVE = \frac{(\tau^2_{null} - \tau^2)}{\tau^2_{null}} = \frac{.141 - .097}{.141} = .312$$

The above calculation shows that group leader GCQ-E score explains 31.2% of the between group variance of group member GCQ-E scores. Though the small sample size needs to be considered, this would otherwise be considered a larger effect in psychotherapy research than is normally seen. In their meta-analysis, Cuijpers et al. (2010) found the mean effect size for high-quality psychotherapy studies to be $d = 0.22$.

To further test the relationship between group leader GCQ-E and group member GCQ-E, a Pearson correlation was calculated using the mean group member score from each group and the group leader score from each respective group. Results showed a significant positive relationship between mean group member score and group leader score ($r = .499, p = .021$). Finally, 17 of 21 group leaders (81%) reported cohesion scores that were lower than the aggregate cohesion score for their respective group.

Overall, the results do not support the first hypothesis (that no significant relationship will exist between group leader ratings of group cohesion and group member ratings of group cohesion on the same measure of group cohesion). Hierarchical linear modeling analysis shows a significant relationship, with 31.2% of variance in the group member score explained by the group leader score. This suggests that the relationship between group member score and group leader score are related beyond chance. Further, aggregate member group scores show a statistically significant positive association with group leader scores. Originally, it was presumed that there would be no relationship between group leader and group member cohesion scores. It was thought that certain moderating variables might be seen as factors that lead to more accurate prediction by group leaders. Since the above analysis shows a statistically significant relationship between the group and members scores on cohesion, moderators were studied to see if the relationship could be stronger.

Exploring Group Member Vulnerability as a Moderator

It was expected that Group Member Vulnerability would be a moderator of the relationship between Group Leader GCQ: Engagement Subscale scores and Group

Member GCQ: Engagement Subscale scores. The total score provided by the Vulnerability Subscale of the GCQ has been shown to be a valid and reliable measure of comfort and willingness to be vulnerable in group therapy settings (Carter et al., 2001; Marmarosh et al., 2009). Given that Group Member Vulnerability (shown in the model as M_VUL) is a level 1 variable, a One Way ANCOVA was used to examine the potential moderating effect. Similarly to Hypothesis 1, GCQ: Engagement Subscale score of the Leader (L_GCQE) serves as a level 2 predictor with Group Member Vulnerability (M_VUL) as a level 1 covariate for the outcome variable, Group Member GCQ: Engagement Subscale score (M_GCQE). The level 1, level 2, and combined models are:

$$\text{Level 1 Model: } M_GCQE_{ij} = \beta_{0j} + \beta_{1j}*(M_VUL_{ij}) + r_{ij}$$

$$\begin{aligned} \text{Level 2 Model: } \beta_{0j} &= \gamma_{00} + \gamma_{01}*(L_GCQE_j) + u_{0j} \\ \beta_{1j} &= \gamma_{10} + \gamma_{11}*(L_GCQE_j) + u_{1j} \end{aligned}$$

$$\begin{aligned} \text{Combined Model: } M_GCQE_{ij} &= \gamma_{00} + \gamma_{01}*L_GCQE_j \\ &+ \gamma_{10}*M_VUL_{ij} + \gamma_{11}*L_GCQE_j*M_VUL_{ij} \\ &+ u_{0j} + u_{1j}*M_VUL_{ij} + r_{ij} \end{aligned}$$

The results of the analysis are shown in Table 6. The cross-level interaction for group leader GCQ-E score on the vulnerability slope (γ_{11}), suggests that group member vulnerability is not a significant moderator between group leader and group member GCQ-E scores. In other words, there is no significant interaction effect between the group member and group leader cohesion scores when accounting for group member reported vulnerability scores. The significant relationship between group leader and group member GCQ-E scores is not significantly impacted by group member vulnerability. Thus, the second hypothesis (group member reported vulnerability as a moderator) is not supported. Further, the impact magnitude of the group member vulnerability score on

group member GCQ-E score (τ_{11}) varied significantly across groups ($p = 0.031$). In other words, the strength of the effect of group member vulnerability on group member cohesion score varied significantly between groups.

Table 6
Mean-As-Outcomes Model- Vulnerability as a Moderator

Fixed Effects	Coefficient (SE)	t-ratio	df	p
Model for Member GCQ-Engagement Score (β_0)				
Intercept (γ_{00})	5.51 (0.10)	52.87	19	<0.001
Leader GCQ-Engagement Score (γ_{01})	0.30 (0.13)	2.40	19	0.027
Model for vulnerability slope (β_1)				
Intercept (γ_{10})	0.06 (0.03)	1.75	19	0.097
Leader GCQ-Engagement Score (γ_{11})	-0.01 (0.04)	-0.28	19	0.786
Random Effects (variance components)				
Var. in group means (τ_{00})	0.13 (0.36)	19	44.23	0.001
Var. in vulnerability slopes (τ_{11})	0.01 (0.09)	19	32.02	0.031
Var. within group (σ^2)	0.48 (0.69)			

Exploring Group Leader Experience as a Moderator

It was expected that Group Facilitator Professional Experience would be a moderator of the relationship between Group Leader GCQ: Engagement Subscale scores and Group Member GCQ: Engagement Subscale scores. Leader Experience was assessed using data from the Group Leader Demographic Questionnaire, and defined as the number of reported groups facilitated by the group leader. With Leader Experience as a level 2 variable, an Intercepts and Slopes-as-Outcomes model was used to examine the potential moderating effect. In order to perform the interaction analysis, Group Facilitator Professional Experience (L_XP_CEN) and Group Leader GCQ (L_GCQE_CEN) scores were both centered around their respective means in SPSS before analysis in HLM7. The interaction (LXP_LGCQ_I) between the two variables was also produced in SPSS before

analysis in HLM7. Group Member GCQ: Engagement Subscale score (M_GCQE) served as the outcome variable. The level 1, level 2, and combined models are:

$$\text{Level 1 Model: } M_GCQE_{ij} = \beta_{0j} + r_{ij}$$

$$\text{Level 2 Model: } \beta_{0j} = \gamma_{00} + \gamma_{01}*(L_XP_CEN_j) + \gamma_{02}*(L_GCQE_CEN_j) + \gamma_{03}*(LXP_LGCQ_I_j) + u_{0j}$$

$$\text{Combined Model: } M_GCQE_{ij} = \gamma_{00} + \gamma_{01}*L_XP_CEN_j + \gamma_{02}*L_GCQE_CEN_j + \gamma_{03} *LXP_LGCQ_I_j + u_{0j} + r_{ij}$$

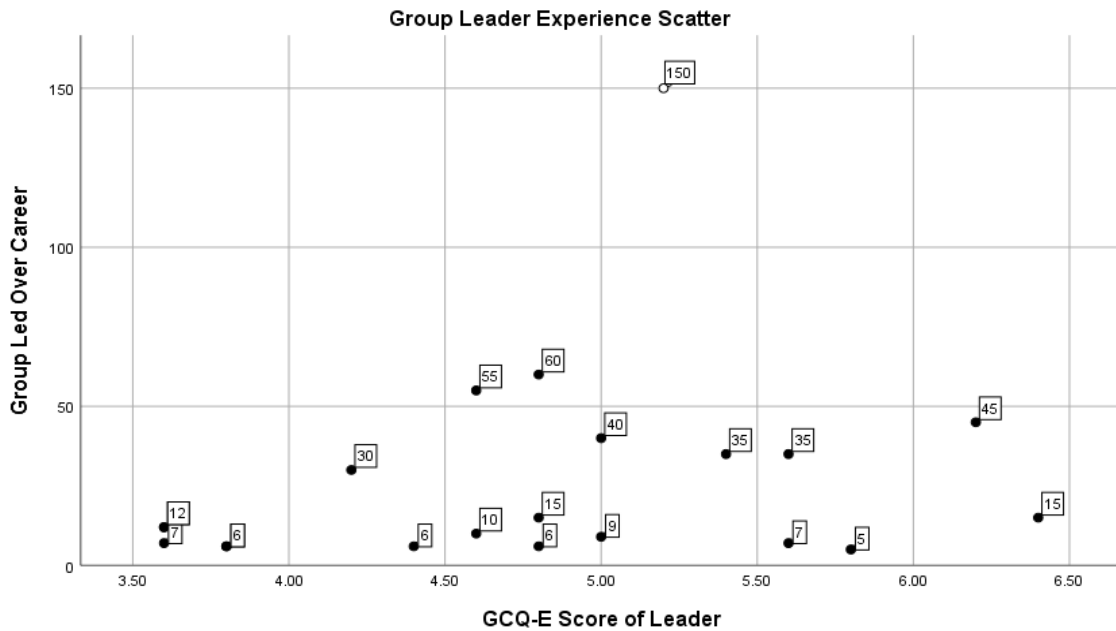
The interaction effect in Table 7 (γ_{03}) shows that the number of reported groups led over a group leaders' career is not a significant moderator to the relationship between group leader GCQ-E score and group member GCQ-E score. Thus, the third hypothesis postulating that group leader experience would, in fact, be a moderator is not supported. Only one group (reported as 150 groups led over the group leader's career) fell outside of two (and one) standard deviations from the mean and was removed to examine outlier impact on moderation effect (see Figure 3 for scatterplot of group leader experience). All other data fell within 1 standard deviation from the mean.

Table 7
Intercepts and Slopes-as-Outcomes model- Experience as a Moderator

Fixed Effects	Coefficient (<i>SE</i>)	<i>t</i> -ratio	<i>df</i>	<i>p</i>
Model for Member GCQ-Engagement Score (β_0)				
Intercept (γ_{00})	5.57 (0.13)	44.05	17	<0.001
Leader Experience (Centered) (γ_{01})	-0.001 (0.004)	-0.16	17	0.88
Leader GCQ-E score (Centered) (γ_{02})	0.22 (0.19)	1.18	17	0.25
Experience & Leader GCQ-E Interaction(γ_{03})	-0.01 (0.01)	-0.84	17	0.42
Intercept (γ_{00})	5.58 (0.11)	49.37	16	<0.001
Leader Experience (Centered) (γ_{01})	-0.001 (0.004)	-0.16	16	0.276
Leader GCQ-E score (Centered) (γ_{02})	0.22 (0.19)	1.18	16	0.034
Experience & Leader GCQ-E Interaction(γ_{03})	-0.01 (0.01)	-1.34	16	0.20
Random Effects (variance components)	Variance (<i>SD</i>)	<i>df</i>	<i>X</i> ²	<i>p</i>
Var. in group means (τ_{00})	0.11 (0.33)	17	31.08	0.019
Var. within groups (σ^2)	0.63 (0.80)			

Note. Results of analysis with removal of 1 outlier from level 2 moderating variable shown in bold. Group removed due to being >2SD from mean at 150 led groups of experience per report (M= 26.95; SD = 33.19)

Figure 3
Group Leader Experience Outliers



Note. Groups within 2 SD of mean shown in black; group outside of 2 SD of mean shown in white. No data points fell outside of 1 SD of the mean. Two groups surveyed had leaders with the same number of groups led over their career and same reported GCQ-E score, leading to overlapping data points (6 years, 3.80 GCQ-E and 12 years, 3.60 GCQ-E, respectively).

Exploring Group Processing as a Moderator

It was expected that Percentage of Group Processing would be a moderator of the relationship between Group Leader GCQ: Engagement Subscale scores and Group Member GCQ: Engagement Subscale scores. Percentage of Group Processing was assessed using data from the Group Leader Demographic Questionnaire. Similar to Group Facilitator Professional Experience, Percentage of Group Processing (G_PRO_CEN) and Group Leader GCQ (L_GCQE_CEN) scores were both centered around their respective means in SPSS before analysis in HLM7. The interaction (GPRO_LGCQ_I) between the two variables was also produced in SPSS before analysis

in HLM7 with Group Member GCQ: Engagement Subscale score (M_GCQE) as the outcome variable. Level 1, level 2, and combined models are:

$$\text{Level 1 Model: } M_GCQE_{ij} = \beta_{0j} + r_{ij}$$

$$\text{Level 2 Model: } \beta_{0j} = \gamma_{00} + \gamma_{01}*(G_PRO_CEN_j) + \gamma_{02}*(L_GCQE_CEN_j) + \gamma_{03}*(GPRO_LGCQ_I_j) + u_{0j}$$

Combined Model:

$$M_GCQE_{ij} = \gamma_{00} + \gamma_{01}*G_PRO_CEN_j + \gamma_{02}*L_GCQE_CEN_j + \gamma_{03} *GPRO_LGCQ_I_j + u_{0j} + r_{ij}$$

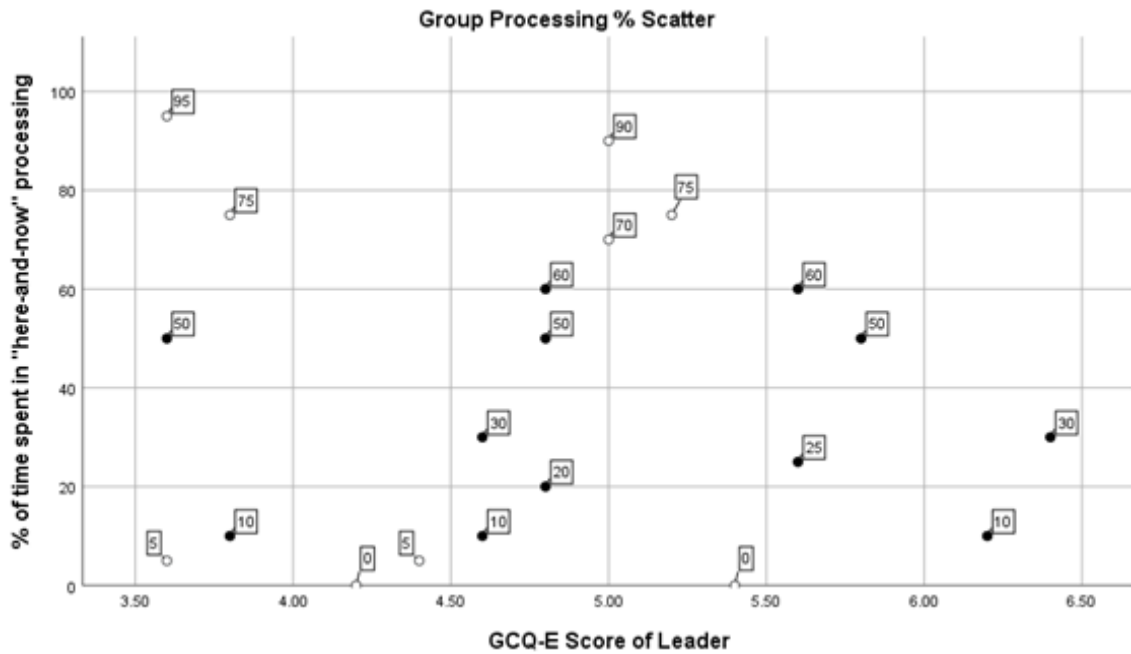
The interaction effect in Table 8 (γ_{03}) shows that the amount of group processing reported by the leader is not a significant moderator to the relationship between leader GCQ-E score and member GCQ-E score. This fourth hypothesis that proposed group processing as a moderator is not supported. No groups reported a processing percentage two standard deviations or larger from the mean, and therefore all group processing scores were included in the analysis, which found that group processing was not a statistically significant moderator of group leader and member cohesion score ($p = .09$). Following, the data were removed for groups in which leaders reported group processing percentage as greater than 1 SD from the mean. Nine of 21 groups fell outside of one standard deviation from the mean and were removed to examine outlier impact on moderation effect (see Figure 4 for scatterplot). Statistical significance for the moderating effect was not reached after removal. Elimination of these nine outlier groups changed the p-value from $p = 0.09$, as shown in Table 8, to $p = 0.597$, which may be explained by excessive loss of variability with removal of nine of 21 groups.

Table 8
Intercepts and Slopes-as-Outcomes model- Group Processing as a Moderator

Fixed Effects	Coefficient (<i>SE</i>)	<i>t</i> -ratio	<i>df</i>	<i>p</i>
Model for Member GCQ-Engagement Score (β_0)				
Intercept (γ_{00})	5.53 (0.10)	56.33	17	<0.001
Group Processing (Centered) (γ_{01})	0.005 (0.003)	1.71	17	0.11
Leader GCQ-E score (Centered) (γ_{02})	0.34 (0.12)	2.82	17	0.01
Group Processing & Leader GCQ-E Interaction(γ_{03})	0.01 (0.004)	1.79	17	0.09
Intercept (γ_{00})	5.61 (0.11)	50.98	8	<0.001
Group Processing (Centered) (γ_{01})	0.02 (0.01)	2.87	8	0.02
Leader GCQ-E score (Centered) (γ_{02})	0.32 (0.14)	2.35	8	0.047
Group Processing & Leader GCQ-E Interaction(γ_{03})	0.004 (0.01)	0.550	8	0.597
Random Effects (variance components)				
Var. in group means (τ_{00})	0.07 (0.26)	17	26	0.07
Var. within groups (σ^2)	0.63 (0.80)		18	

Note. Results of analysis with 9 outliers removed from level 2 moderating variable shown in bold.

Figure 4
Percentage of Group Processing Outliers



Note. Groups within 1 SD of mean shown in black; group outside of 1 SD of mean shown in white. No groups fell at or over 2 SDs of the mean.

Exploring Group Session Number as a Moderator

It was expected that the Session Number at the time of data collection (as reported by the leader) would be a moderator of the relationship between Group Leader GCQ: Engagement Subscale scores and Group Member GCQ: Engagement Subscale scores. Session Number was assessed using the Group Leader Demographic Questionnaire. As with Group Facilitator Professional Experience and Amount of Group Processing, Session Number (G_NUM_CEN) and Group Leader GCQ (L_GCQE_CEN) scores were both centered on their respective means in SPSS before analysis in HLM7. The interaction (GNUM_LGCQ_I) between the two predictor variables was also produced in SPSS before analysis in HLM7. With GCQ: Engagement Subscale scores of Group

Members (M_GCQE) as the outcome variable, the level 1, level 2, and combined models are:

$$\text{Level 1 Model: } M_GCQE_{ij} = \beta_{0j} + r_{ij}$$

$$\text{Level 2 Model: } \beta_{0j} = \gamma_{00} + \gamma_{01}*(G_NUM_CEN_j) + \gamma_{02}*(L_GCQE_CEN_j) + \gamma_{03}*(GNUM_LGCQ_I_j) + u_{0j}$$

Combined Model:

$$M_GCQE_{ij} = \gamma_{00} + \gamma_{01}*G_NUM_CEN_j + \gamma_{02}*L_GCQE_CEN_j + \gamma_{03} *GNUM_LGCQ_I_j + u_{0j} + r_{ij}$$

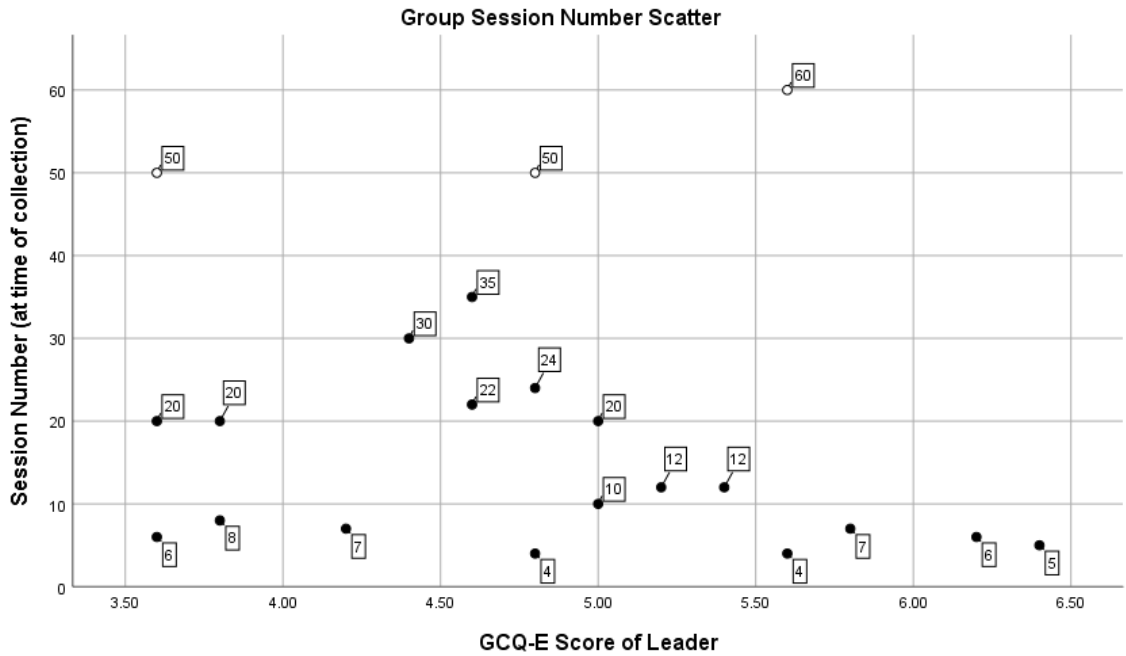
The interaction effect in Table 9 (γ_{03}) shows that the group session number is not a significant moderator to the relationship between leader GCQ-E score and member GCQ-E score. Thus, the fifth hypothesis suggesting that the session number at the time of data collection would be a moderator is not supported. A single group fell outside of two standard deviations (group was reported at session 60) and that data was reanalyzed with this data point removed. This removal did not greatly impact the moderation effect or make the effect statistically significant (from $p = 0.55$ to $p = .50$). Three of 21 groups fell outside of one SD from the mean and were removed to further examine outlier impact on moderation effect (see Figure 5 for scatterplot for the number of sessions in each group). Statistical significance for the moderating effect was not reached after removal and elimination of these three outliers reduced the significance (from $p = 0.55$ to $p = 0.69$), as shown in the below Table 9.

Table 9
Intercepts and Slopes-as-Outcomes model- Group Session Number as a Moderator

Fixed Effects	Coefficient (<i>SE</i>)	<i>t-ratio</i>	<i>df</i>	<i>p</i>
Model for Member GCQ-Engagement Score (β_0)				
Intercept (γ_{00})	5.53 (0.10)	51.43	17	<0.001
Group Session (Centered) (γ_{01})	0.01 (0.01)	1.08	17	0.295
Leader GCQ-E score (Centered) (γ_{02})	0.35 (0.13)	2.59	17	0.02
Group Session & Leader GCQ-E Interaction(γ_{03})	0.004 (0.01)	0.62	17	0.55
<i>Intercept (γ_{00})</i>				
<i>Group Session (Centered) (γ_{01})</i>	<i>5.52 (0.13)</i>	<i>43.84</i>	<i>16</i>	<i><0.01</i>
<i>Leader GCQ-E score (Centered) (γ_{02})</i>	<i>-0.01 (0.01)</i>	<i>-1.20</i>	<i>16</i>	<i>0.247</i>
<i>Group Session & Leader GCQ-E Interaction(γ_{03})</i>	<i>0.19 (0.18)</i>	<i>1.06</i>	<i>16</i>	<i>0.307</i>
<i>Intercept (γ_{00})</i>	<i>-0.01 (0.01)</i>	<i>0.01</i>	<i>16</i>	<i>0.50</i>
Intercept (γ_{00})	5.47 (0.11)	43.78	14	<0.001
Group Session (Centered) (γ_{01})	-0.01 (0.01)	-0.98	14	0.345
Leader GCQ-E score (Centered) (γ_{02})	0.28 (0.29)	1.46	14	0.17
Group Session & Leader GCQ-E Interaction(γ_{03})	0.01 (0.03)	0.40	14	0.69
Random Effects (variance components)				
Var. in group means (τ_{00})	0.10 (0.32)	17	30.52	0.02
Var. within groups (σ^2)	0.63 (0.80)			

Note. Results of analysis with removal of 1 outlier >2 SDs shown in italics and removal of 3 outliers >1SD shown in bold.

Figure 5
Group Session Outliers



Note. Groups within 1 SD of mean shown in black; group outside of 1 SD of mean shown in white. Only one group (group session listed as 60) fell beyond 2 SDs of the mean.

Data also were collected on the number of group sessions attended by each group member individually and considered as a potential moderator. Following analysis of session number as a moderator, the number of sessions attended (as reported by the group member) also was considered as a potential moderator. In this model, Sessions Attended by Member (shown in the model as M_SES) is a level 1 variable and a One Way ANCOVA was used to examine the potential moderating effect. GCQ: Engagement Subscale score of the Leader (L_GCQE) serves as a level 2 predictor with Sessions attended by Member (M_SES) as a level 1 covariate for the outcome variable, Group Member GCQ: Engagement Subscale score (M_GCQE). The level 1, level 2, and combined models are:

$$\text{Level 1 Model: } M_GCQE_{ij} = \beta_{0j} + \beta_{1j}*(M_SES_{ij}) + r_{ij}$$

$$\begin{aligned} \text{Level 2 Model: } \beta_{0j} &= \gamma_{00} + \gamma_{01}*(L_GCQE_j) + u_{0j} \\ \beta_{1j} &= \gamma_{10} + \gamma_{11}*(L_GCQE_j) + u_{1j} \end{aligned}$$

$$\begin{aligned} \text{Combined Model: } M_GCQE_{ij} &= \gamma_{00} + \gamma_{01}*L_GCQE_j \\ &+ \gamma_{10}*M_SES_{ij} + \gamma_{11}*L_GCQE_j*M_SES_{ij} \\ &+ u_{0j} + u_{1j}*M_SES_{ij} + r_{ij} \end{aligned}$$

The cross-level interaction for leader GCQ-E score on the member attended sessions slope (γ_{11}), suggests that the number of attended sessions by individual member is not a significant moderator between leader and member GCQ-E scores (see Table 10). In other words, there was no significant interaction effect between the group member and group leader cohesion scores when accounting for the number of attended sessions by group members ($p = .810$).

Table 10
Mean-As-Outcomes Model- Sessions Attended by Member as a Moderator

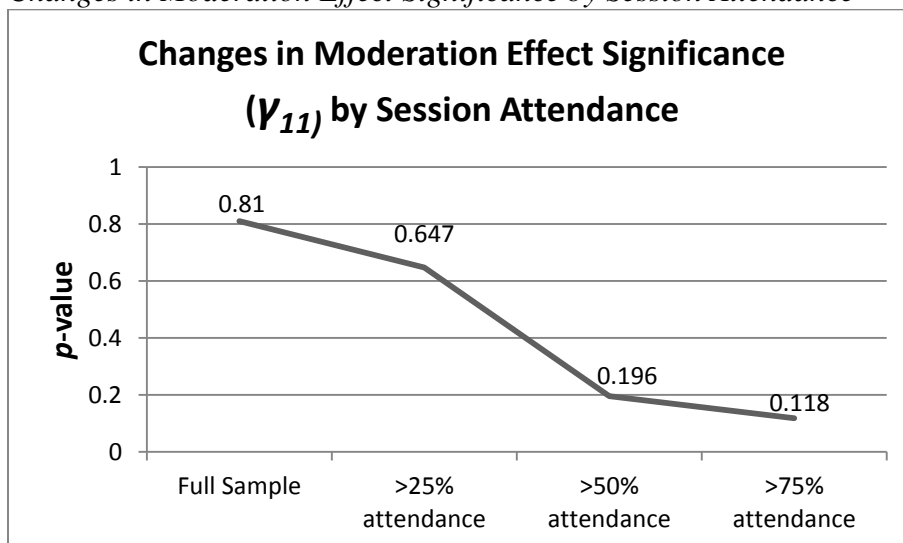
Fixed Effects	Coefficient (SE)	t-ratio	df	p
Model for Member GCQ-Engagement Score (β_0)				
Intercept (γ_{00})	5.51 (0.10)	52.87	19	<0.001
Leader GCQ-Engagement Score (γ_{01})	0.30 (0.13)	2.40	19	0.029
Model for member sessions slope (β_1)				
Intercept (γ_{10})	0.01 (0.01)	0.659	19	0.518
Leader GCQ-Engagement Score (γ_{11})	-0.003 (0.01)	-0.24	19	0.810
Random Effects (variance components)				
Var. in group means (τ_{00})	0.31 (0.10)	17	30.92	0.020
Var. in member sessions slope (τ_{11})	0.01 (0.0002)	17	19.16	0.319
Var. within group (σ^2)	0.80 (0.634)			

As shown, the overall sample of attended sessions was not a significant moderator. Looking more closely at 103 members' reports of sessions attended, only 56 (54%) group members attended all sessions of their group at the time of data collection. An additional 15 members attended 75% to 92% of the sessions, 8 members attended 51% to 71% of

the sessions, 14 members attended 32% to 46% of the sessions, and 10 members attended 2% to 24% of their sessions. Looking at these data cumulatively, 56 members (54%) attended 100% of the sessions, 71 members (69%) attended at least 75% of the sessions, 79 members (77%) reported attending at least 50% of the sessions, 93 (90%) attended at least 25% of the sessions, and 10 others attended less than 25% of the sessions. Of the 21 groups surveyed, only two had members that reported they attended all of the sessions.

The cross-level interaction for group leader GCQ-E score on the member attended sessions slope(γ_{11}) was compared across all groups while controlling for percentage of sessions that group members reported attending. Analysis compared p -values for the full sample to data sets created for members who reported attending at least 25%, 50%, and 75% of sessions (see Figure 6). Analysis of ranges of reported sessions attended (e.g., only 18 members who attended 26-50%) was not possible given the small number of members in each reported range. Results show that p -values move closer to significance as members attend more sessions, though it did not reach statistical significance.

Figure 6
Changes in Moderation Effect Significance by Session Attendance



Summary

This chapter offered a review of results following analysis of the data set. The objective of the analysis was to ascertain the statistical significance (if any) of the relationship between group leader cohesion score and group member cohesion score on the GCQ-E. The analysis also tested variables that could potentially moderate the relationship between the two cohesion scores. An unconditional model was also run and showed that 18% of the variability in group member GCQ-E scores can be explained by differences between groups and group leaders. Further, the unconditional model indicated variance in average member GCQ-E score across groups, meaning that average scores were significantly different across groups. When group leader GCQ-E score was added as a level-2 predictor, a significant relationship was shown (counter to the study hypothesis). The results suggest that for every one unit increase in group leader GCQ-E score, there is a .30 increase in group member GCQ-E scores, meaning that group leader GCQ-E score is significantly associated with group member GCQ-E score beyond chance. An analysis of effect size indicated that group leader GCQ-E score explains 31.2% of the between group variance of group member GCQ-E scores. Though sample size of both total group members and number of groups needs to be taken into consideration, this would be considered a large effect size for psychotherapy research.

Potential moderators were another focal point for analysis. Due to large variation in level-2 variables, analyses were run with the data set as a whole as well as with outliers (of greater than two and one standard deviations) removed. Of the five moderators examined (group member vulnerability, group leader experience, percentage of group

processing used in group, and group session number, and group sessions attended by individual members) no significant moderators were found for the relationship between group leader GCQ-E score and group member GCQ-E score.

Chapter 5: Discussion

This study was the first to examine group leaders' ability to predict their group members' perceptions of cohesion. Past research has suggested that group leaders are mostly inaccurate predictors of several variables, including member to leader alliance, quality of the therapeutic relationship, and perceived group therapist effectiveness (Chapman et al., 2012; Compare et al., 2016; Jenkins et al., 1971). Though individual psychotherapy studies have shown clinical prediction of relational variables (such as therapeutic alliance), groups studies have not. Other studies of individual psychotherapy have found that therapists underrate the percentage of clients who have negative outcomes at the end of treatment (Hannan et al., 2015). Group psychotherapy research has not yet studied how accurately group leaders can predict their group members' responses on many variables. Member to leader alliance, general satisfaction with the group climate, and perceived therapist effectiveness have encompassed the research on clinical prediction in group psychotherapy, all of which have shown that leaders are largely inaccurate in predicting these variables (Chapman et al., 2012; Compare et al., 2016; Jenkins et al., 1971). In group psychotherapy, it is expected that concordance between group leader and group member responses will be more difficult than in individual psychotherapy given that there are several members in a group who are likely to have some (or considerable) variability in their perceptions of group variables.

Although this study predicted that there would be no relationship between group leaders and group members on the level of cohesion in the group, results actually showed a strong relationship where group leaders consistently reported lower cohesion than group members. The data suggest that group leaders do not see the group as cohesive as do group members. Although the hypothesis expected no relationship, the results that group leaders underreported cohesion compared to group members is not entirely unexpected. In individual psychotherapy, for example, Hannan et al. (2015) pointed to psychotherapists' underreporting of clients who deteriorated by the end of therapy. In a survey of 48 psychotherapists regarding 550 individual psychotherapy clients, they found that clinicians predicted deterioration of far fewer clients than actually deteriorated (3 were predicted compared to 40 who actually reported worse symptoms). Although underreporting has not been found in group studies, several authors have shown that leaders often struggle to accurately predict (whether lower than clients or no relationship at all) various processes in their groups (Burlingame et al., 2014; Chapman et al., 2014; Yalom & Leszcz, 2005). These authors have highlighted the idea that group leaders may want to consider using standardized measures to better understand their members' perceptions rather than making assumptions. Standardized measures also can be used to create discussion with group members on their views of specific variables such as group cohesion. The results of this study, showing that group leaders underreported cohesion, demonstrates the importance of having conversations with the group members about how well- or how poorly- group members are perceiving their connections with each other.

These discussions are likely to help guide group leader decision on appropriate interventions.

This field study was conducted with a sample of 21 groups and 103 group members. The sample included various types of groups with different numbers of members from different settings. Not surprisingly, there was considerable variability among the group member and the group leader reports of cohesion. What was surprising was the consistent and large effect of the underreporting of cohesion by group leaders. The percentage of variance explained ($PVE = .312$) is relatively large for psychotherapy research and if this result is supported in future research, the implications are clear that more information from clients about their perceptions of group processes is essential.

A second goal of the study was to determine whether prediction, which was thought to be uncorrelated, could be improved with additional information. Several moderators were selected to determine if group leader prediction would improve when factoring in this additional information. Given that a strong correlation was found with group leaders reporting lower levels of cohesion than group members, the question is still relevant as to whether some moderators might help group leaders come closer to their group member reports of cohesion.

Group member vulnerability was considered to be a possible moderator. Shared vulnerability has been shown to be a predictor for positive outcomes in group treatment, as it leads to more valuable interpersonal interactions and engagement in the group (Braaten, 1990; Yalom & Leszcz, 2005) As such, it seemed logical to include the construct as a moderator since both interpersonal vulnerability and cohesion have been

related to positive outcomes in group therapy (Braaten, 1990; Marmarosh et al., 2009; Yalom & Leszcz, 2005) It was thought that member vulnerability might provide group leaders with more observable data when making conclusions on the level of cohesion in their therapy groups.

Vulnerability was not shown to be a significant moderator between the cohesion scores, meaning that it did not make group leader scores more (or less) concordant to group member score. Though difficult to speculate the reason for this result, explanations could relate to the conceptual understanding of vulnerability. The GTS-R Vulnerability subscale frames items in ways that value internal comfort or discomfort (e.g. “I am uncomfortable in group counseling when the focus of attention is on me.”), rather than outward emotional expression. With the hypothesis centered on the leader receiving observable data on the cohesion of the group by the degree to which the group members engage with each other, it is possible that the scale used measured a different aspect of interpersonal vulnerability. It is also possible that even outward expressive vulnerability that could be seen by the group leader would not be a predictor of greater concordance in cohesion scores. Depending on the type of group, members could be outwardly expressive related to specific topics (such as a specific goals or behaviors being discussed in a psychoeducation group) but may be more closed off regarding personal aspects of their treatment. Though members may feel comfortable in these settings, they may not be offering the valuable interpersonal data that the group leader would benefit from in attempts to determine the cohesion of the group.

Similarly to group member vulnerability, group leader experience was not shown to be a moderator of clinical prediction of cohesion in group psychotherapy, despite the hypothesis that such an interaction would exist. The assumption that experience would lead to greater concordance on measures of cohesion was largely intuitive. The logic for this hypothesis was that group leaders who have led more groups over their careers would be better at deducing the dynamics of their groups. It was thought that group leaders with more experience should be able to identify the subtleties that allow them to key into what the group members perceive about each other and the group.

The results for this moderation is consistent with past research that shows little relationship between therapist experience in both individual and group psychotherapy and outcome (Blow, Sprenkle, & Davis, 2007; Classen et al., 2008; Tracey et al., 2014). One possible implication of this result is that group member perceptions are difficult to assess for any group leader regardless of their experience. There is research, however, that suggests that novice group leaders are considerably less able to see and respond to the complexities of the group process (Kivlighan & Tibbits, 2012; Li, Kivlighan, & Gold, 2015). For these studies, novice group leaders were those in their first group psychotherapy class and had not conducted any or few groups. In the Kivlighan and Tibbits study, the experienced group leaders were reported to have 20 to 30 years of group facilitation experience. Results found that, compared to more experienced group leaders, early group facilitators focus so much on behavior of individual members that the larger dynamics, such as the connectedness of the group, often was missed. It is not clear how many groups it takes for a group leader to be “experienced” but in this study of 21

groups, leaders stated that they had led between 5 and 150 groups in their professional career. The number of groups facilitated by the leader did not prove to be a moderator for cohesion scores.

Another consideration is that group leaders often have little training on how to facilitate a group, how to ascertain how their group members perceive the group, and even less emphasis on assessing whether group leader perceptions are correct (Riva, 2014). Group leaders were asked about their experience, rather than their training, and therefore it may be that these two variables are quite different. This result does suggest, however, that more group leader training should focus on engaging with group members about their perceptions of group variables, and particularly about cohesion.

Session number also was a predicted moderator of cohesion, but it too was not found to be significant in impacting the relationship between the two cohesion scores. The hypothesis was strongly informed by past research, especially the Burlingame et al. (2011) study that showed that cohesion explains outcome most strongly when a group lasts more than 12 sessions. It was assumed that group leaders would more easily be able to ascertain this variable with more sessions of observable data. One possible explanation is that this study did not have any groups that met for less than four sessions. The first several sessions are a critical time point for developing and understanding the dynamic of the group. It is possible that a different outcome may have occurred if groups meeting between their first and third sessions were included in the sample.

Looking closer at the session number, another possible moderator was the number of sessions attended by individual members. Sessions attended as reported by group

members also was not a moderator of cohesion congruence scores. These data did show, and what is a common feature of psychotherapy in general, is that clients miss some amount of sessions. In this study all sessions were attended by 56 group members (of 103 total), an additional 15 group members attended 75% to 92% of the sessions, 8 group members attended 51% to 75% of the sessions, 14 group members attended 32% to 46% of the sessions, and 10 group members attended 2% to 24% of their sessions. In order to meet sample size restrictions for HLM, analysis was run by considering members who had participated in a minimum number of sessions, rather than within a specific range. These groups broke down as 56 group members who attended all sessions, 71 group members who attended at least 75% of the sessions, 79 group members who attended at least 50% of group sessions, and 93 members reporting attending at least 25% of the group sessions that had been held at the time of data collection. It seems logical that group members who attend more sessions will feel more connected to their group and the leader will have more information about them. Future research on whether the number of sessions attended (or conversely how many sessions are missed) is related to the perception of cohesiveness for either or both group leader and group members is a positive next step.

Amount of group processing proved to be the most interesting potential moderator. The amount of group processing (i.e., group leader report of the overall percentage of sessions spent discussing “here-and-now”) had a p-value of .09. The rationale for inspecting level of group processing as a moderator centers on the possibility that more open discussion around group process and individual member

experience would allow the group leader a better understanding of the cohesiveness of the group. It was thought that if group leaders no longer needed to “guess” how their members felt about each other, group leaders might have tangible evidence for the strong- or weak- bonds within a group. The variable was measured in a rather simplistic manner which asked group leaders what percentage of their group sessions included group process. Group leaders may have responded in a variety of ways to this question since group process, like cohesion, can have multiple definitions. Research that uses a definition of group process or that directly observes group sessions could provide more (or less) support for this result that seems to show a trend toward significance.

The importance of “here-and-now” discussions has been noted in past group psychotherapy research, especially in its impact as a predictor for developing positive group cohesion (Hornsey, Dwyer, & Oei, 2007; Slavin, 1993). In this study, the reported amount of group process varied from 0 to 95% ($M = 39.05$, $SD = 30.93$). This variation was likely due to the goals of the psychotherapy groups included in the study, as psychoeducation groups are less likely to utilize group process than, for example, interpersonal process groups. Yet, in this study, there was no clear difference in how well group leaders of psychoeducational groups and more interpersonally oriented groups accurately predicted cohesion. It is unclear why the group process variable was not a moderator of cohesion. Group psychotherapy is complex and therefore it may be that one moderator is not the best method of assessing prediction of cohesion. For example, the amount of group process in addition to groups who have met for several sessions might

produce better concordance. In other words, it may be a combination of variables that increase prediction, which serves as an important question for further research.

Limitations of the Study

This study intended to expand on previous studies that have examined clinical prediction in group psychotherapy (Chapman et al., 2012; Compare et al., 2016; Jenkins, Keefe & Rosata, 1971). It was the first to look at prediction of cohesion and the first study to consider moderators to the relationship between group leader and group member scores on a measure of cohesion, specifically variables that address leader traits (experience), member traits (vulnerability), and contextual traits (amount of interpersonal processing and group session number). The study has notable strengths including the utilization of group leader data which is often not provided in group psychotherapy research. It also recruited community-based groups in several different practice settings in order to offer diversity in member and leader demographics, as well as contextual factors. The inclusion of 21 groups in order to examine between-group differences is an additional strength of the study. Still, there are several limitations of this study.

The sample focused entirely on adults in group psychotherapy treatment at specific clinical settings. While providing information for group psychotherapy facilitators with regards to the importance of accurate prediction of cohesion was a goal of the study, it is limited to those practicing exclusively with adults. Any results or conclusions are likely not generalizable with populations of children or those receiving treatment in settings other than those that were included in this study.

The increased size of group membership (compared to only a single client in individual treatment) often creates confounding variables for group psychotherapy research. These can include certain demographic or clinical characteristics of members and leaders, differences in group process and treatment implementation, and group cultures (Burlingame & Barlow, 1996). Due to the number of groups recruited within a variety of settings, treatment itself was not provided within the context of the study and therefore not controlled for. Similarly, it was not feasible to control for individual member variables, such as age, gender, ethnic background, and other variables of the group leaders or group members. Likewise, it was not possible to control for differences in group facilitation or in group format.

The study also lacked more clearly defined measures. For example, the study used a single item leader reported percentage for the amount of group processing that occurs in the group. This offered an unstandardized measurement of group processing. Standardized measures were used for cohesion and vulnerability yet several moderators may have been less clear and could have benefited from a definition or specific examples.

In order to reduce the invasiveness of the research procedures on the group treatment, the study did not include repeated measures across group sessions. Group dynamics change across group sessions and tracking cohesion and the other variables would have been beneficial, and a potential direction for the future. Due to the assessment limited to one time point, no conclusions are possible regarding how leader congruence with member ratings of cohesion changed over time. Further, no conclusions could be made regarding how demographic and contextual variables change over time in

the magnitude of their moderation on leader and member measures of cohesion. Future studies could assess groups that begin at the first session and follow them across the duration of the group. The study used the session number (e.g., fourth session, sixth session, etc.) as a contextual variable in the data analysis to examine if it was a moderating variable between leader-member cohesion.

Recommendations and Future Research

Several future research directions have been mentioned earlier. Based on this study, some additional implications for both clinical practice and future research are outlined here. Noted in past research, and supported in this study, group leaders are not particularly accurate in predicting cohesion. As other authors have underscored, group leaders will benefit from using standardized measures or, at minimum, specific discussions in the group to understand the group members' perceptions of cohesion and other important group variables (Burlingame et al., 2013; Corey, 2012; Greene, 2000; Hopper et al., 2008). One important consideration from this study is the possibility that group leaders may consistently underestimate the cohesion of their groups. It is expected that group leaders who respond to the group process, use assessment measures, and have specific discussions with their group members about progress in group and how they perceive their connection to the group, may be much more accurate in their predictions. The use of assessment measures is a practical and objective option in gathering data on cohesion and making subsequent decisions regarding interventions. The GCQ-E, used in the current study, is one example of a viable tool that group leaders can use to better understand this important variable. Measures validated for group cohesion can be

administered over the course of the group to monitor changes over time. While such application would be ideal, and take some of the “guess work” out of assessing cohesion, additional training in understanding the construct and how it may impact intervention selection may be helpful as well.

Conclusions

Perhaps unexpectedly, the hypotheses made in this study based either on clinical intuition or past research were unsupported. Though the study assumed no relationship between group leader cohesion score and group member cohesion score, a large relationship was found that demonstrated a consistent underreporting of group members’ perceptions of cohesion. Group member vulnerability, group leader experience, group session number at the time of data collection, number of sessions attended by individual group members, and percentage of group processing, were all not found to be moderators of the clinical prediction relationship, despite assumptions that they would be.

This study did raise some important considerations. It seems clear from past studies, and from the results of this study, that concordance between leaders and group members is problematic. The study also demonstrated the complexity of cohesion prediction and that variables thought to help with prediction were not found to be moderators. Clinical predication as a research topic is still relatively new to the psychotherapy research landscape. This is the first study with this focus and seeks to provide guidance for further research.

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Appendix A: Group Member Demographic Questionnaire

Instructions: Please respond to each of the following questions regarding your demographic information and your experience in your group therapy sessions. **All responses are completely anonymous and will not be tied to any of your personal information.** Thank you for your participation.

Age: _____

Identified Ethnicity (check all that apply):	<input type="checkbox"/> African-American/Black	<input type="checkbox"/> Hispanic/Latino/a
	<input type="checkbox"/> American Indian	<input type="checkbox"/> Pacific Islander
	<input type="checkbox"/> Asian	<input type="checkbox"/> White/Caucasian
	<input type="checkbox"/> Other: _____	

Identified Gender:	<input type="checkbox"/> Male	<input type="checkbox"/> Female
	<input type="checkbox"/> Transgender Male/Female	<input type="checkbox"/> Do not identify as Male, Female, or Transgender

How many sessions have you attended of this group?	Number of Attended Sessions: _____
---	------------------------------------

Are you currently taking any medications for any mental health issue?	<input type="checkbox"/> Yes	If yes, please include the name of the medication: _____
	<input type="checkbox"/> No	

Appendix B: Group Leader Demographic Questionnaire

Instructions: Please respond to each of the following questions regarding your demographic information, your experience facilitating group therapy, and your experience with the group members in your current therapy group. Thank you for your participation.

Age: _____

Identified Ethnic/Racial Background (check all that apply):	<input type="checkbox"/> African-American/Black	<input type="checkbox"/> Hispanic/Latino/a
	<input type="checkbox"/> American Indian	<input type="checkbox"/> Pacific Islander
	<input type="checkbox"/> Asian	<input type="checkbox"/> White/Caucasian
	<input type="checkbox"/> Other: _____	

Identified Gender:	<input type="checkbox"/> Male	<input type="checkbox"/> Female
	<input type="checkbox"/> Transgender Male/Female	<input type="checkbox"/> Do not identify as Male, Female, or Transgender

How would you best describe the clinical setting in which the current group is being held?	<input type="checkbox"/> Community Mental Health
	<input type="checkbox"/> College Counseling Center
	<input type="checkbox"/> Hospital/VA
	<input type="checkbox"/> Private Practice
	<input type="checkbox"/> Other _____

How many years of experience do you have leading groups?	Years: _____	Months: _____
---	--------------	---------------

Roughly how many groups have you led or co-led in your career?	Groups Led: _____
---	-------------------

What is the current session number for today's meeting (e.g. if it is the 3rd group meeting, please write "3")?

Session:

How many total sessions is the group expected to run for?

Expected

Sessions:

Approximately what percentage of time in your current group is spent on "here-and-now" processing of group dynamics and interpersonal interactions (e.g. if roughly 60% of your group time is spent on "here-and-now" processing, please write "60%")?

% of time on

"here-and-

now"

processing:

Approximately how many hours per week do you spend planning for your upcoming group session?

Hours per week:

Appendix C: Group Climate Questionnaire- Engagement Subscale (GCQ) Sample

- Read each statement carefully.
- **As you answer the questions, think about your current therapy group.**
- For each statement fill in the box under the MOST APPROPRIATE heading that best describes the group sessions as you have experienced them.
- Please mark only ONE box for each statement.
- **No group members, or your group leader, will see your responses. Please respond as honestly as possible.**

	Not at All	A Little Bit	Somewhat	Moderately	Quite a Bit	A Great Deal	Extremely
The members like and care about each other.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The members try to understand why they do the things they do and try to reason it out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The members feel what is happening is important and there is a sense of participation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The members challenge and confront each other in their efforts to sort things out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The members reveal sensitive personal information or feelings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix D: Group Therapy Survey-Revised- Vulnerability Subscale (GTS-R) Sample

- Read each statement carefully.
- **As you answer the questions, think about your personal experience in your current group with other group members and your group leader.**
- For each statement fill in the box under the MOST APPROPRIATE heading that best describes the group sessions as you have experienced them.
- Please mark only ONE box for each statement.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Group counseling provides an opportunity for trying out new types of social behavior.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am afraid I will be criticized or humiliated by another group member.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My individuality or uniqueness is lost in group counseling.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am uncomfortable in group counseling when the focus of attention is on me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In group counseling, I may be forced to do something I do not want to do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I wouldn't be able to open up enough to ask the counseling group for the time or attention I need.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In group counseling, I am forced to become emotionally close to the other members.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix E: Consent Form for Group Members

DESCRIPTION:

You are invited to participate in a research study on the ability of group leaders to predict the cohesion level of their groups. The purpose of the current study is to gather information on member and leader perceptions of their group's cohesion level. This research is being conducted by Ron Dolgin, M.A., a doctoral student from the University of Denver, and is supervised by Maria T. Riva, Ph.D., a faculty member of the College of Education at the University of Denver.

RISKS AND BENEFITS:

The risks associated with this study are minimal. No changes will be made to your treatment plan with your group therapy program and participation in the study will in no way impact your status in the group. You will be asked to complete questionnaires about your experience in group therapy that will take approximately 10 to 15 minutes to complete. The benefits, which may reasonably be expected to result from this study, stem from reflection on the relationships within your therapy group. We cannot and do not guarantee or promise that you will receive any benefits from this study.

Participation in the study qualifies you for a \$10 Amazon Gift Card. Your gift card will be provided to you by the principal investigator of the study following your completion of all questionnaires and surveys. No contact information will be needed from you for any reason and, thus, no identifiable information will be connected to your responses on any questionnaire or survey.

All information gathered through questionnaires will be kept confidential and will be coded with identification numbers, as well as stored in a locked area. To protect confidentiality, findings will be general and no individual data will be included so no individual can be identified.

There are two exceptions to confidentiality in this study. If information is revealed concerning suicide, homicide, child abuse, or child neglect, it is required by law that this be reported to the proper authorities. In addition, should any information contained in this study be the subject of a court order or lawful subpoena, the University of Denver might not be able to avoid compliance with the order of the subpoena.

SUBJECT'S RIGHTS

Your decision whether or not to participate in this study will not affect your placement or status in your group treatment program. If you have read this form and have decided to participate in this study, please understand your participation is voluntary and you have the right to withdraw your consent or discontinue participation at any time without penalty or loss of benefits to which you are otherwise entitled.

CONTACT INFORMATION:

The researcher carrying out this study is Ron Dolgin, M.A. If you have questions, you may call Ron Dolgin at (847) 830-4487 or contact him at rdolgin1@gmail.com.

I will participate in this study: Yes
 No

Signature

Date

If the researchers cannot be reached, or if you would like to talk to someone other than the researcher about questions, concerns, or complaints regarding this study, research participant rights, research-related injuries, or other human subject issues, you may contact the Chair of the Institutional Review Board for the Protection of Human Subjects at 303-871-4015 or by e-mailing IRBChair@du.edu. You may also contact the Office of Research Compliance by calling 303-871-4050 or e-mailing IRBAdmin@du.edu or in writing to: University of Denver, Office of Research and Sponsored Programs, 2199 S. University Blvd., Denver, Colorado 80208-2121.

Detach slip and return if you would like a summary of the results at the conclusion of the study

Name _____

E-mail Address _____

Appendix F: Consent Form for Group Leaders

DESCRIPTION:

You are invited to participate in a research study on the ability of group leaders to predict the cohesion level of their groups. The purpose of the current study is to gather information on member and leader perceptions of their group's cohesion level. This research is being conducted by Ron Dolgin, M.A., a doctoral student from the University of Denver, and is supervised by Maria T. Riva, Ph.D., a faculty member of the College of Education at the University of Denver.

RISKS AND BENEFITS:

The risks associated with this study are minimal. No changes will be made to your group therapy program and participation in the study will in no way impact your status as the leader in the group. You will be asked to complete questionnaires about your experience leading your therapy group that will take approximately 10 to 15 minutes to complete. The benefits, which may reasonably be expected to result from this study, stem from reflection on the relationships and dynamics within the therapy group you lead. We cannot and do not guarantee or promise that you will receive any benefits from this study.

Participation in the study qualifies you for a \$10 Amazon Gift Card. Your gift card will be provided to you by the principal investigator of the study following your completion of all questionnaires and surveys. No contact information will be needed from you for any reason and, thus, no identifiable information will be connected to your responses on any questionnaire or survey.

All information gathered through questionnaires will be kept confidential and will be coded with identification numbers, as well as stored in a locked area. To protect confidentiality, findings will be general and no individual data will be included so no individual can be identified.

There are two exceptions to confidentiality in this study. If information is revealed concerning suicide, homicide, child abuse, or child neglect, it is required by law that this be reported to the proper authorities. In addition, should any information contained in this study be the subject of a court order or lawful subpoena, the University of Denver might not be able to avoid compliance with the order of the subpoena.

SUBJECT'S RIGHTS

Your decision whether or not to participate in this study will not affect your status as group leader in your therapy group. If you have read this form and have decided to participate in this study, please understand your participation is voluntary and you have the right to withdraw your consent or discontinue participation at any time without penalty or loss of benefits to which you are otherwise entitled.

CONTACT INFORMATION:

The researcher carrying out this study is Ron Dolgin, M.A. If you have questions, you may call Ron Dolgin at (847) 830-4487 or contact him at rdolgin1@gmail.com.

I will participate in this study: Yes
 No

Signature

Date

If the researchers cannot be reached, or if you would like to talk to someone other than the researcher about questions, concerns, or complaints regarding this study, research participant rights, research-related injuries, or other humans subject issues, you may contact the Chair of the Institutional Review Board for the Protection of Human Subjects at 303-871-4015 or by e-mailing IRBChair@du.edu. You may also contact the Office of Research Compliance by calling 303-871-4050 or e-mailing IRBAdmin@du.edu or in writing to: University of Denver, Office of Research and Sponsored Programs, 2199 S. University Blvd., Denver, Colorado 80208-2121.

Detach slip and return if you would like a summary of the results at the conclusion of the study

Name _____

E-mail Address _____

Appendix G: Sample e-mail Recruitment Letter

(Clinic Director/Contact Name)
(Clinic Director/Contact Job Title)
(Clinic Name)
(Clinic Address)
(City, State, Zip)

Dear (Contact Name),

Thank you for taking the time to read this e-mail. My name is Ron Dolgin; I'm a fourth year doctoral student in Counseling Psychology at the University of Denver. I am very interested in many topics related to group psychotherapy and for my dissertation I am researching the perceived cohesion level of groups from the perspective of both group leaders and group members. I am under the supervision of Dr. Maria Riva. I am contacting you in hopes that your clinic site, clinicians, and patient base might consider participating in the study.

I am conducting a study examining group psychotherapist's ability to predict the cohesion level of their groups, compared to group members. Participation in the study would require minimal commitment. For group members, data collection would encompass completion of an informed consent form, demographic questionnaire, and two short clinical measures (each 5 to 7 items long). Group members would likely spend less than 10 to 15 minutes completing all forms. For group leaders, all that is necessitated is an informed consent form, demographic questionnaire, and one short clinical measure (5 items long). Group leaders would likely spend less than 10 to 15 minutes completing all forms.

All individuals in the study (both group members and group leaders) will receive a \$10 Amazon Gift Card for their participation. Of course, I would be happy to discuss details in more depth and answer any questions regarding the study if your clinical site is considering participation. Please do not hesitate to contact me with any questions or concerns.

Thank you for your consideration,

Ron Dolgin, M.A.
Doctoral Candidate
University of Denver
Counseling Psychology

Appendix H: Sample Group Member Information Sheet

Title of Research Study: Moderators of the Clinical Prediction of Cohesion in Group Psychotherapy

Researcher(s): Ron Dolgin, M.A., University of Denver
Maria Riva, PhD, University of Denver

Hello – My name is Ron Dolgin and I am a doctoral student from the Counseling Psychology department at the University of Denver. I am writing to you today to invite you to participate in my research study. This is a study about cohesion in group therapy from both the group leader and group member perspective. You are eligible to be in this study because you are a group member in a therapy group.

If you decide to participate in this study, you will be asked to complete a short packet of questionnaires and surveys. Completion of all forms takes approximately 10-15 minutes. You *will* be compensated for your participation in the study. All participants will be given a \$10 Amazon Gift Card upon completion of the questionnaires for this study.

Participation in the research study is completely voluntary. You can choose to be in the study or not and you can withdraw your participation at any time. The survey is completely anonymous and no responses can be traced back to any individual. If you are interested in participating, I will be present 10-30 minutes prior to your next week's group session to answer any questions, collect the informed consent forms, and administer the short packet of questionnaires and surveys. In total, the entire process should take only 10-20 minutes of your time.

For more information, please visit the Study Participant Recruitment Video on YouTube, which describes the study in more depth and highlights the benefits of participating. The video may be found at: <https://youtu.be/eG4dzbVWgdk>. If you need more time or information to decide if you would like to participate, you may also call or e-mail me with your questions directly. I may be reached at rdolgin1@gmail.com or at 720-258-6132. You can also contact the faculty sponsor on the study, Dr. Maria Riva, at maria.riva@du.edu.

Thank you so much for your time and considering participation in this study.

Sincerely,

Ron Dolgin, M.A.
Doctoral Candidate,
Counseling Psychology,
University of Denver

Appendix I: University of Denver IRB Approval



DATE: February 22, 2017
TO: Ron Dolgin
FROM: University of Denver (DU) IRB

PROJECT TITLE: [968298-3] Moderators of the Clinical Prediction of Cohesion in Group Psychotherapy
SUBMISSION TYPE: New Project
APPROVAL DATE: February 22, 2017

- PI Response to Modifications: 02/02/17
- Reviewed/Modifications Required: 12/09/16
- PI Response to Modifications: 12/05/16
- Prelim Review/Modifications Required: 11/04/16
- Initial Submission: 11/01/16

EXPIRATION DATE: February 21, 2018

RISK LEVEL: Minimal Risk
CONTINUING REVIEW: Expedited
REVIEW PERIOD: 12 months
REVIEW TYPE: Expedited Review

ACTION: **APPROVED**

REVIEW CATEGORY: Expedited category # 7

Category 7: Research on group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Thank you for your submission of the requested materials in Response to Modifications for this New Project. The University of Denver IRB has granted **FULL APPROVAL** for your submission. This approval is based on an appropriate risk/benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission. The IRB determined that the criteria for IRB approval of research, per 45 CFR 46.111, has been met.