AN INVESTIGATION OF THE RELATIONSHIP BETWEEN THERAPIST
CHARACTERISTICS AND ALLIANCE IN GROUP THERAPY FOR INDIVIDUALS
WITH TREATMENT-RESISTANT AUDITORY HALLUCINATIONS

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Abstract

KATY HARPER: An Investigation of the Relationship between Therapist Characteristics and Alliance in Group Therapy for Individuals with Treatment-Resistant Auditory Hallucination
(Under the direction of David Penn)

Alliance is a well-studied construct across psychotherapy research; however little research has investigated predictors of alliance in a group context. This study investigates the relationship between therapist characteristics and behaviors in 65 individuals with schizophrenia receiving outpatient group therapy for treatment-resistant auditory hallucinations. Trained raters coded 120 sessions of cognitive behavioral therapy or supportive therapy for therapist warmth and friendliness, therapist exploration and negative therapist attitude. The results showed that higher levels of therapist warmth and friendliness in sessions four, and lower levels of negative therapist attitude in sessions two and three predicted stronger alliance at week six. Therapist exploration in sessions one to five did not predict alliance at week six. Additional analyses indicated that lower negative therapist attitude in sessions two and five was associated with higher post-treatment symptom scores. Therapist characteristics did not predict treatment attendance or participation. Implications for clinical practice are discussed.

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ABBREVIATIONS

BCIS   Beck cognitive insight scale

CBT   Cognitive behavioral therapy

MLR   Multiple linear regression

NTA   Negative therapist attitude

PANSS   Positive and negative syndrome scale

PTCS   Psychosocial treatment compliance subscale

SFS   Social functioning scale

ST   Supportive therapy

TE   Therapist exploration

TWF   Therapist warmth and friendliness

VPSS   Vanderbilt psychotherapy process scale

WAI-G   Group working alliance scale

CHAPTER 1

INTRODUCTION

The therapeutic alliance has been widely investigated as a factor linked to outcome across various kinds of psychotherapy (Elvins & Green, 2008). Conceptualized as the collaborative work and emotional bond between client and therapist, meta-analyses have found a modest but consistent relationship between alliance measures and treatment outcome, with effect sizes ranging from .22-.26 (Horvath & Symonds, 1991, Martin, Garske & Davis, 2000) across diagnoses and treatment modalities (Horvath & Symonds, 1991, Martin et al., 2000).

Among individuals with schizophrenia spectrum disorders, therapeutic alliance has been associated with multiple outcomes. These include medication compliance (Frank & Gunderson, 1990), social functioning (Svensson & Hansson, 1999), symptom reduction (Frank & Gunderson, 1990) client attendance and drop-out (Frank & Gunderson, 1990, Kreyenbuhl, Nossel, & Dixon, 2009, Johnson, Penn, Bauer, Meyer, & Evans, 2008), homework compliance (Dunn, Morrison, & Bentall, 2006), successful referral (Loneck, Banks, Way & Bonaparte, 2002), vocational rehabilitation performance (Davis & Lysaker, 2007), and level of support from case managers (Hopkins & Ramsundar, 2006). Although these results are drawn from research on individual therapy, they highlight the importance of identifying factors related to alliance in group therapy, as this modality may increase the efficiency, cost-effectiveness and availability of psychosocial treatments

for schizophrenia; an important issue given the lack of therapists trained in these interventions and the lack of resources to provide individual treatment (Johnson et al. 2008, Lecomte et al., 2008).

Alliance within group psychotherapy can refer to multiple relationships (Marziali, Munroe-Blum, & McCleary, 1999, Yalom, 2005), including the relationship between the therapist and an individual member, an individual member and other members, and an individual member and the group as a whole. This latter relationship represents group alliance and it may be particularly important as clients in group therapy place a greater emphasis on interpersonal factors than clients in individual therapy (Holmes & Kivlighan, 2000). Further, it has been suggested that relationships among clients may represent a mechanism of change unique to group therapy (Holmes & Kivlighan, 2000, Yalom, 2005). In keeping with this idea, studies have shown that group alliance is related to outcome in samples with borderline personality disorder (Marziali et al., 1999), anxiety, depression (Budman et al., 1989), complicated grief (Joyce, Piper, & Ogrodniczuk, 2007) and schizophrenia (Johnson et al. 2008).

The consistent relationship between therapeutic alliance and outcome underscores the need to identify factors that are predictive of alliance in group therapy. Of particular interest are factors that can be consciously altered to impact alliance and thus potentially affect subsequent outcomes (Wittorf et al., 2009). Previous research in populations with psychotic disorders has focused on the impact of client and therapist factors, as both individual and group alliance are characterized by transactional processes between these two parties.

Client characteristics that have been found to be related to alliance among

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individuals with schizophrenia include symptoms (Bjorngaard, Ruud & Friis, 2007, McCabe & Priebe, 2003, Wittorf et al., 2009), insight (Dunn et al., 2006, Johnson et al., 2008, Wittorf et al., 2009), cognitive factors (Dunn et al., 2006, David & Lysaker, 2004) and social functioning (Couture et al. 2006, Johnson et al. 2008). However, the amount of variance in therapeutic alliance explained by client factors is moderate at best, ranging from 3-28%, indicating the need to understand other factors contributing to alliance (McCabe & Priebe, 2003, Wittorf et al., 2009). In addition, many client factors associated with alliance in schizophrenia are not easily altered, (e.g. medication-resistant symptoms, insight, cognitive factors), especially for individuals experiencing chronic symptoms. Consequently, the exploration of client factors is unlikely to identify predictors that are amenable to intervention. Thus, one needs to identify malleable factors than can impact the alliance. Therapist characteristics are one such factor.

Therapist factors linked to alliance seem to fall into two domains: therapist techniques and personal characteristics (reviewed in Ackerman & Hilsenroth, 2003). Across studies, alliance was positively impacted by techniques such as exploration, reflection and interpretation, as well as by personal characteristics, such as trustworthiness, flexibility, warmth, interest, and confidence (Ackerman & Hilsenroth, 2003).

Although these findings suggest that therapist factors represent predictors of alliance that may be modifiable, only two studies have examined the relationship between specific therapist behaviors and qualities, and group alliance in individuals with schizophrenia. Svensson and Hansson (1999) reported that alliance ratings from both client and therapist were correlated with client ratings of depth and smoothness in therapy

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sessions; however these ratings were obtained one week after each session and may not have reflected actual in-session interactions. Loneck et al. (2002) examined the impact of process variables on referral outcome for individuals diagnosed with substance use and mental disorders, 69% of whom carried a diagnosis of schizophrenia, using the Vanderbilt Psychotherapy Process Scale (VPPS). They found that therapist warmth and friendliness interacted with alliance level to predict successful referral outcome, defined as successful client contact with services. However, methodological concerns such as potential rater biases, and construct validity issues (VPPS ratings of therapist characteristics were actually for the treatment team characteristics, not a single therapist) limit the study's conclusions.

Limitations in previous studies were mainly due to how therapist characteristics were assessed. Observer ratings of actual sessions can remove some sources of bias from the measurement of therapist characteristics (Elkin & Green, 2008). The VPPS is an observer rated measure used to quantify clinically meaningful dimensions of the therapy process while they occur in session (O'Malley, Suh, and Strupp, 1983) and may be less susceptible to rater confounds than other measures (Elkin & Green, 2008). The VPPS has eight subscales (O'Malley et al. 1983), three of which assess therapist factors. These subscales, therapist warmth/friendliness, therapist exploration, and negative therapist attitude capture both personal characteristics and techniques, analogous to the domains linked to alliance (Ackerman & Hilsenroth, 2003). Further, a relationship between the VPPS therapist subscales and alliance and outcome has been found in several studies (Bachelor, 1991, Loneck et al., 2002, Mohl, Martinez, Ticknor, Huang, & Cordell, 1991, Rounsaville et al., 1987, Windholz and Silberschatz 1988).

The current study has two aims. The primary aim is to investigate the relationship between therapist characteristics and group alliance among individuals with schizophrenia receiving either group cognitive-behavioral therapy (CBT) or group supportive therapy (ST) for medication-refractory auditory hallucinations (Penn et al., 2009). Previous research suggests that therapists' personal characteristics and therapist techniques are predictive of therapeutic alliance. Based on these findings, the following three hypotheses were proposed: 1) Higher levels of therapist warmth/friendliness as rated in the first five sessions of treatment would predict stronger group alliance at week six (as this was the earliest time point that alliance was assessed in this trial), 2) lower levels of negative therapist attitude, as rated in the first five sessions, would predict stronger group alliance at week six and 3) higher levels of therapist exploration, as rated in the first five sessions, would predict stronger group alliance at week six.

A small number of studies have found that therapist warmth and friendliness, negative therapist attitude and therapist exploration, as measured by the VPPS, are related to client outcomes, such as symptoms and attendance rates (Bachelor, 1991, Loneck et al., 2002, Rounsaville et al., 1987, Windholz and Silberschatz 1988); however no study has investigated this link in populations with schizophrenia. Thus, the second aim of this study was to explore the relationship between therapist characteristics across sessions, symptoms (as measured by Positive and Negative Syndrome Scale [PANSS] post-treatment total score) and treatment engagement and attendance (as measured by the Psychosocial Treatment Compliance subscale). Given that therapist characteristics are a non-specific factor in therapy, it is desirable to use an instrument that captures the broad

range of symptoms, such as the PANSS, as therapist characteristics may affect symptoms targeted by treatment (e.g. voices) but also those not directly targeted (e.g. hostility).

For both proposed aims, baseline symptoms scores (as measured by total score on the PANSS), baseline level of insight, and baseline social functioning were included in analyses, as these client characteristics have been found to be linked to both alliance and outcome (Johnson et al., 2008, as reviewed in McCabe & Priebe, 2004) and may impact the magnitude of these relationships. Given the pantheoretical nature of the VPPS and the non-specific nature of alliance, differences in VPPS scores are not expected to differ by treatment modality, although treatment condition was included in the analyses to account for any treatment effects.

CHAPTER 2

METHODS

<u>Participants</u>

Participants were part of a randomized clinical trial comparing group Cognitive Behavioral Therapy (CBT) to Supportive Therapy (ST) for treatment-refractory auditory hallucinations (Penn et al., 2009). Participants (N= 65) were primarily recruited from an outpatient clinic at the University of North Carolina Hospital in Chapel Hill, as well as mental health centers in the surrounding areas of Durham and Wake counties, North Carolina. Demographic data for the sample is summarized in Table 1. The sample was 51% male, 52% Caucasian, 38% African American, 3% Caucasian-Hispanic, and 5% African-American Hispanic, with a mean age of 42.1 years (SD=12). Participants met the following criteria for study participation: 1)DSM IV diagnosis of schizophrenia or schizoaffective disorder (based on the Structured Clinical Interview for DSM IV (SCID-P; First, Spitzer, Gibbon & Williams, 1995) 2) aged 18 to 65 3) an IQ greater than 70 (as assessed by the Wechsler Abbreviated Scales for Intelligence (WASI; Wechsler, 1999) 4) no current substance dependence 5) auditory hallucinations of at least moderate severity (as measured by the PANSS) despite two pharmacological trials, one of which was an atypical neuroleptic or clozapine for 8 weeks prior to being randomized.

Therapists (N=10) included a clinical psychologist, a psychiatrist, a social work graduate student and doctoral students in clinical psychology who had obtained a Masters in psychology or the equivalent thereof. Therapists were trained in both CBT and ST by

didactic presentations, readings and role-plays prior to treatment commencement. Therapists also listened to treatment tapes of CBT and ST from competent therapists in previous groups. Therapists attended weekly supervision with the primary investigator of the initial study (DLP) where feedback was given on audio taped sessions.

CHAPTER 3

MEASURES

<u>Therapist characteristics and alliance measures</u>

Vanderbilt Psychotherapy Process Scale (VPPS)- The VPPS consists of 80 items, each rated on a 5-point Likert scale. The VPPS measures factors in client-therapist interactions relevant to the construct of therapeutic alliance, but was not designed to measure alliance itself, rather global process variables that may be linked to outcome, including therapist characteristics (Henry & Strupp, 1994). As the current study is interested in therapist not client factors, an abbreviated version of the 80-item full VPPS scale was used, consisting of all items pertaining to therapist attributes or behaviors, resulting in 44 items being rated. These items correspond to three therapist subscales: *Therapist Warmth and Friendliness* assessing the level of therapist warmth and involvement with a client (for example "Responded empathically to the patient"), *Negative Therapist Attitude* assessing an intimidating or threatening attitude (for example "Confronted the patient in a negative manner"), and *Therapist Exploration* assessing attempts to explore reasons underlying feelings and behaviors (for example "Tried to help the patient recognize his/her feelings"). Although the VPPS has not been used to assess group therapists, it has been shown to have strong psychometric properties in assessing individual therapists, including inter-rater reliability and internal consistency (Bachelor, 199, O'Malley et al. 1983, Piper et al. 1999). As the items on the VPPS will not be

altered for this investigation and only the therapist scales were used, we expect these properties to hold.

Scores for each therapist on each therapist factor (Warmth-Friendliness, Negative Attitude, and Exploration) were obtained for each coded session (e.g. therapist X received a score on each subscale for each session included in the analyses). As therapists were in dyads, a single score was obtained for each therapist subscale by averaging the scores of both co-therapists. This is consistent with the idea of simultaneous participation and simultaneous contribution of co-therapists to the therapy experience (Yalom, 2005).

Group working alliance inventory-client rated (WAI-G). The working alliance group scale was created by modifying the working alliance scale-client version (Horvath & Greenberg, 1989) such that participants rated the relationship with the group rather than the therapist only. No changes were made to the 7-point Likert scale, anchors, three subscales (*bond*-the degree to which participant and therapist/group become attached, *tasks*-the degree of collaboration on therapeutic activities, *goal*-agreement on objectives of therapy), or number of items (36). Group participants completed this measure before beginning the sixth group session. Participants were informed that only research personnel, not therapists, had access to this information in an attempt to reduce social desirability bias (Johnson et al. 2008). In a prior study, no differences in group alliance were found between CBT and ST groups (Johnson et al., 2008). Research has shown high correlations between the subscales of the WAI (Horvath & Greenberg, 1989, Tracey & Kokotovic, 1989), thus for the proposed study, only the WAI-G total score was used with higher scores indicating better alliance.

Clinical measures

Positive and Negative Syndrome Scale (PANSS). The PANSS (Kay, Fiszbein, & Opler, 1987) is a semi-structured clinical interview with sound psychometric properties consisting of 30 items designed to assess positive, negative, mood, and behavioral symptoms over the last week.. A research assistant, who had been trained to adequate reliability (ICC > .80 with a gold standard rater) and was blind to treatment condition, administered the PANSS. The total score on the PANSS was used, with higher total scores corresponding to greater symptom severity.

Beck Cognitive Insight Scale (BCIS). The BCIS (Beck, Baruch, Balter, Steer, & Warman, 2004) is a self-report scale that assesses cognitive insight in people with psychosis and has been found to have adequate internal consistency and convergent validity. Factor analyses have identified two subscales, self-reflectiveness (nine items) and self-certainty (six items). A composite Reflectiveness–Certainty Index (or R-C Index) score is computed with higher R-C Index scores indicating greater cognitive insight.

Psychosocial Treatment Compliance Subscale (PTCS). The PTCS (Tsang, Fung, & Corrigan, 2006) is a 17-item, therapist-rated, Likert scale of compliance and treatment engagement with psychosocial interventions designed for people with psychotic disorders. It is comprised of two subscales, participation and attendance, which both have excellent reliability and convergent validity with insight and self-stigma in the original Tsang et al. study. In this study, both subscale scores were used as separate outcome variables, with treatment engagement operationalized as a participation score and attendance as an attendance score. Higher scores represent better psychosocial treatment compliance.

Social Functioning Scale (SFS). The SFS (Birchwood, Smith, Cochrane, Wetton, & Copestake, 1990) is a commonly used self-report measure of social and occupational functioning for individuals with schizophrenia, which has excellent psychometric properties. For this study, the total score on the SFS was used as an index of social functioning.

Procedure

Three advanced undergraduate psychology students were trained to code the VPPS by didactic readings on clinical skills and listening to audiotapes of group sessions under the supervision of the principal investigator (KHR). Once raters were familiar with the VPPS manual, and items and clinical skills used in group therapy, consensus ratings were obtained for a random subset of tapes representing 5% of the sessions (n=6) resulting in excellent reliability (ICC= .92). In total 116 tapes were coded. Four sessions were not recorded due tape recorder malfunction. For these sessions, therapist scores were obtained by averaging the score for each item from the session immediately before and after, as this was considered the best approximation of the therapist's behavior during the unrecorded session.

In this randomized clinical trial, five CBT groups and five ST groups were completed, representing five study cohorts. Eight groups had co-therapists. Group alliance scores (WAI-G) were obtained prior to beginning the sixth session of either CBT or ST. Measures of symptoms, social functioning and insight, assessed by the PANSS, SFS and BCIS respectively, were obtained prior to treatment, at post-treatment and at 3 month follow-up.

CHAPTER 4

RESULTS

<u>Data Analysis Overview</u>

First, descriptive statistics were obtained for all predictor and outcome variables. Pearson correlations were then computed to examine the interrelationships among the therapist factors. Correlations were computed between the mean levels of each therapist factor across all 12 sessions. Then, multiple linear regression models were used to evaluate the contribution of each therapist factor, across sessions one to five, to client rated group alliance at week 6. Exploratory analyses were also conducted using multiple linear regression models to explore the contribution of each therapist factor, across sessions 1-12, to symptom level at end of treatment (measured by the PANSS), treatment compliance (measured by the compliance subscale on the PTCS) and attendance (measured by the attendance subscale on the PTCS).

<u>Descriptive Statistics</u>

Descriptive statistics for covariates, therapist factors and outcome variables are summarized in Table 2.

<u>Correlational analyses</u>

We examined the correlations among the mean therapist factors across all 12 sessions. Therapist warmth and friendliness and therapist exploration were significantly positively correlated with one another (r=.53, p=.038), but neither factor was significantly

correlated with negative therapist attitude (TWF & NTA, r=-.04, TE & NTA, r=-.15). This suggests that the presence of negative therapist attitudes may be independent of levels of warmth and friendliness, and exploration.

<u>Multiple Linear Regression</u>

In order to test the hypotheses that therapist behaviors and characteristics, as rated in sessions one to five, would predict group alliance as rated at session six, three multiple linear regression models were run. First, scores for therapist warmth and friendliness for each session, one to five, were entered into a model with pre-treatment PANSS score, BCIS score, social functioning level and treatment condition to predict WAI-G score at session six. Results are summarized in Table 3. The model R^2 was significantly greater than zero, $F(9, 56) = 2.84, p = .009, R^2 = .35$. This R^2 value corresponds to an effect size of 0.53, representing a large effect (Cohen, 1988).

When the contributions of individual predictors were examined, therapist warmth and friendliness in session four had a significant positive regression weight, which indicates that higher levels of warmth and friendliness in session four were associated with higher group alliance ratings at session six after controlling for the other variables in the model. The regression weight for therapist warmth and friendliness at session one also approached statistical significance (p=.077) suggesting that higher levels of warmth and friendliness in session one may also predict higher group alliance ratings at week six. Pre-treatment PANSS scores and the social functioning scale had significant negative weights, indicating that after controlling for all other covariates, individuals who had higher PANSS and SFS scores at baseline had lower group alliance ratings at week six,

which is consistent with previous research suggesting that lower social functioning (Johnson et al., 2008) and less severe symptoms are associated with higher alliance ratings (Bjorngaard et al., 2007, McCabe & Priebe, 2003). The finding that lower social functioning is associated with higher alliance is counterintuitive. It may be that individuals who have a more impoverished social network are particularly open to forming an alliance with group therapists and members.   Insight, treatment condition (group), and therapist warmth and friendliness in sessions two, three and five did not contribute to the model.

A second MLR model examined the hypothesis that lower levels of negative therapist attitude in session one to five would predict higher group alliance ratings at session six. This model produced an R^2=.30, F(9,56)=2.26, p=.033, indicating about 30% of the variance in group alliance score was accounted for by these predictors. This corresponds to an effect size of 0.43, a moderate to large effect (Cohen, 1988). As can been seen in Table 4, pre-treatment PANSS score, social functioning score, and negative therapist attitude in sessions two and three, had significant negative regression weights. This indicates that individuals with higher levels of symptoms at baseline, higher social functioning at baseline, and whose therapists demonstrated more negative attitudes in sessions two and three had lower group alliance ratings at week six, after controlling for the other variables in the model. Level of insight, treatment condition and negative therapist attitude in sessions one, four and five did not contribute to the model.

To test the hypothesis that higher levels of therapist exploration in sessions one to five would predict stronger group alliance, a third MLR model was run. The model was

not statistically significant $R^2=0.182$, $F(9,56)=1.19$, $p=0.323$, indicating that therapist exploration does not predict alliance ratings at week 6.

In order to explore the relationship between therapist factors as measured by the VPPS, and symptoms at post-treatment, as measured by the PANSS, three MLR models were run, one including therapist warmth and friendliness scores in sessions 1-12, one including therapist exploration scores from sessions 1-12, and one including negative therapist attitude scores from sessions 1-12. Each model contained pre-treatment PANSS score, level of social functioning, insight and treatment condition as covariates.

Therapist warmth and friendliness scores in sessions 1-12 were entered into the first exploratory model, which was statistically significant $R^2=.50$, $F(16, 49)=3.27$, $p=.001$. However, pre-treatment PANSS score emerged as the sole significant predictor from this model and no other regression weights were significant. Therapist warmth and friendliness in sessions 1-12 did not contribute to the model, indicating it was not associated with symptom level post-treatment. A second model entered therapist exploration scores from sessions 1-12 as predictors along with the same covariates. This model was also statistically significant, $R^2=.498$, $F(16, 49)=3.58$, $p=.001$, however this appears to be due to the sole contribution of pre-treatment PANSS score, which again, emerged as the sole significant predictor of post-treatment PANSS score. Therapist exploration did not contribute to the model suggesting that therapist exploration is not associated with symptom level post-treatment. The results from these two exploratory models indicate that individuals with higher symptom levels at baseline are expected to have higher symptom levels at post-treatment.

The third model included all covariates and negative therapist attitude scores from sessions 1-12. Results are summarized in Table 5. Negative therapist attitude scores for sessions 1, 6, 10 were highly collinear with the other independent variables in the model (Tolerance < .10). They were therefore removed from the model. The overall model was statistically significant, R^2=.502, $F(16, 49)$=3.56, p=.001, indicating that this linear combination of predictors accounts for approximately 50% of the variance in post-treatment PANSS score. As can been seen in Table 5, pre-treatment PANSS score and Negative Therapist Attitude in sessions two and five had significant positive regression weights; higher scores on these variables predict a higher post-treatment PANSS score, when all the other variables are controlled for. This indicates that individuals who had a higher level of symptoms at baseline and whose therapists demonstrated more negative attitudes in sessions two and five had a higher level of symptoms at post-treatment. The regression weight for Negative Therapist Attitude in session eight approached statistical significance (p=.097), suggesting that increased negative therapist attitude in session eight may also be associated with higher post-treatment PANSS scores.

In order to explore the relationship between therapist characteristics and treatment compliance and attendance, six additional MLR models were run: One for each therapist factor (TWF, TE, NTA) and three for each outcome (PTCS compliance and PTCS attendance). The results of these analyses are summarized in Table 6. None of the overall models were statistically significant indicating that therapist characteristics were not predictive of treatment compliance or attendance in this sample.

CHAPTER 5

DISCUSSION

The present study examined whether therapist characteristics and behaviors were predictive of alliance in a group therapy context. In addition, the relationship between therapist characteristics and symptoms, and the relationships between therapist characteristics and treatment participation and attendance were explored.

The hypothesis that higher levels of therapist warmth and friendliness in sessions one to five would predict stronger alliance at week six was partially supported. Higher levels of therapist warmth and friendliness in session four predicted higher group alliance ratings at week six. A trend for higher levels of therapist warmth and friendliness in session one to predict stronger alliance at week six also emerged, although this was not statistically significant at the $p<.05$ level. Although our findings for sessions one and four are consistent with previous research showing that higher levels of therapist warmth are related to higher ratings of alliance (Ackerman & Hilsenroth, 2003, Mohl et al., 1991), the failure to find this relationship for sessions two, three and five, suggests that different therapist characteristics may be associated with alliance at different time points. Indeed, there is some evidence that variation across sessions in alliance contributing behaviors occurs in psychodynamic therapy (Coady & Marziali, 1994). This finding also underscores previous work that suggests therapist warmth and empathy are of particular importance to client's perception of alliance (Bachelor, 1991, 1995).

Although previous research has found that therapist techniques, such as exploration, are associated with alliance (Ackerman & Hilsenroth, 2003, Svensson & Hansson, 1999), the hypothesis that higher levels of therapist exploration in sessions one to five would predict stronger group alliance at week six was not supported. The failure to find this relationship could be due to differences between individual and group therapy or differences in the samples studied. Previous research has focused on individual therapy with non-psychotic populations, thus it is possible that the group therapy dynamic alters the impact of therapist techniques on client's alliance ratings. It is also possible that the relationship found between therapist exploration and alliance in other populations does not exist in populations with schizophrenia. Until further investigations are conducted, we can only conclude that exploration does not predict group alliance among individuals with schizophrenia.

In regards to the relationship between negative therapist attitude and alliance, the hypothesis that lower levels of negative therapist attitude in sessions one to five would predict stronger alliance ratings at week six was partially supported. Higher levels of negative therapist attitude in sessions two and three were predictive of lower group alliance ratings at week six. As with therapist warmth and friendliness, it appears that the association between negative therapist attitude and alliance may vary across sessions, further supporting the possibility that therapist attributes may differentially impact alliance at different time points (Coady & Marziali, 1994). The finding of a relationship between negative therapist attitude and alliance is supported by the group therapy literature, (Yalom, 2005, Holmes & Kivlighan, 2000) which suggests that it is the therapist's task to shape group norms and that these norms are being formed in the early

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group sessions. Displays of negative attitude from the therapist during sessions two and three may have been incorporated into the norms of the group and worked against the formation of a strong therapeutic alliance. Negative attitudes shown by the therapist may also have an impact on the individual group member directly. Hersoug, Hoglend, Monsen, and Havik (2001) found that therapists whose interpersonal styles were characterized as being cold, dismissing, aggressive or distant received lower individual alliance ratings from clients.

Lastly we conducted exploratory analyses of the relationship between therapist characteristics and treatment outcomes, including symptoms and attendance. An association was found between negative therapist attitude in sessions two and five and post-treatment symptom level. This is consistent with research on expressed emotion (EE), a comparable construct to negative therapist attitude, which includes similar dimensions of behavior (such as expressions of hostility). Some studies have found that higher levels of expressed emotion (increased levels of criticism, hostility and emotional overinvolvement) in mental health workers is linked to poorer outcomes in individuals with schizophrenia spectrum disorders (Solomon, Alexander & Uhl, 2010, Sydner, Wallace, Moe & Lieberman, 1994). Evidence also suggests that the impact of negative therapist attitudes and behaviors may be indirect. Clarke and Kissane (2002) propose that negative beliefs and attitudes demonstrated by mental health caregivers may contribute to clients feeling discouraged and hopeless regarding treatment (Clarke & Kissane, 2002), this in turn, may lead to increased symptoms among individuals with schizophrenia (Lysaker, Bell, Bioty & Zito, 1995, White, McCleery, Gumley & Mulholland, 2007). This explanation is supported by the work of Solomon et al. (2010), who found a

relationship between higher levels of EE in caregivers and poorer attitudes about medication compliance in clients, which is related to relapse rates and symptom exacerbation. In the current sample, therapist' displays of negative attitudes and behaviors in sessions two and five may be associated with post-treatment PANSS score through similar indirect pathways.

We did not find evidence that levels of therapist warmth and friendliness, or therapist exploration were associated with symptom level at post-treatment. We also found no evidence of a relationship between any of the therapist characteristics (i.e. TWF, TE and NTA) and treatment participation and attendance. The finding that only negative therapist attitude was related to any of the outcomes measured in this study is inconsistent with the small number of studies that found an association between therapist variables (warmth and friendliness, exploration) and outcomes in non-psychotic samples (Bachelor,1991, Loneck at al., 2002, Rounsaville et al., 1987, Windholz & Silberschatz, 1988). However the pattern of results found in this sample indicates that negative but not positive therapist behaviors are related to symptoms at post-treatment. As discussed above, it is possible that negative therapist attitudes have a unique impact on symptoms through variables that are proximal to psychopathology levels, such as attitudes about medication and treatment expectations, which is not seen with positive therapist behaviors (Clarke & Kissane, 2002, Solomon et al., 2010). In addition, the failure to find an association between therapist characteristics, both positive and negative, and participation and attendance, could reflect the fact that some group members were provided with transportation to group. It is also possible that the decision to attend or participate in group therapy, for individuals in this sample, was not influenced by the

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characteristics therapists displayed in session but rather by other aspects of group treatment such as interest in the material covered or a desire to interact with other group members.

This study has several limitations. First, due to the small number of therapists, we were unable to account for the nesting of individuals within therapists. Therefore, individual's scores on the outcome variables (WAI, PANSS, PTCS) reflect both therapist effects and group effects. This interdependence in the data may increase Type I error. Therefore we cannot rule out the possibility that the effects we have seen are due not to therapist characteristics and behaviors but to group level processes. As such, these findings should be interpreted with caution. However, as we are not drawing conclusions about the effectiveness of treatment in this study, the consequences of potential interdependence in data are less severe (Baldwin, Murray & Shadish, 2005).

Second, by averaging the scores for therapist dyads, significant variability may have been lost in therapist behaviors, resulting in the small standard deviations of therapist scores on the 3 VPPS subscales. The limited range of scores may explain our failure to find relationships between therapist exploration and alliance, and therapist characteristics in general with attendance/participation. Third, the use of audiotaped sessions did not allow raters to incorporate non-verbal therapist behaviors or attitudes into their ratings on the VPPS. Fourth, the use of undergraduate raters may have impacted the validity of the findings due to their lack of clinical experience. Finally, this study examined client-rated group alliance; however some researchers have found that therapist rated alliance may be a better predictor of treatment outcome than client-rated alliance (Gehrs & Goering, 1994; Neale & Rosenheck, 1995). This may be

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significant given the failure to find relationships between therapist characteristics and the bulk of the outcomes studied in this sample.

Despite these limitations, our results suggest that therapist attributes (warmth, negative attitude), but not therapist techniques (exploration), are associated with client's perceptions of alliance. Clinicians working with individuals with schizophrenia spectrum disorders in a group setting can foster alliance by minimizing negative attitudes, such as being judgmental or authoritarian, and maximizing displays of warmth and friendliness. Our findings also suggest that negative therapist behaviors are associated with higher symptom levels at post-treatment. Although this finding must be interpreted with caution, it suggests that therapists should be aware of and attempt to minimize negative behaviors in group therapy sessions. Overall, the results of this study contribute to the understanding of how non-specific factors may influence perceptions of alliance and outcomes in groups, an area that has been traditionally understudied in populations with psychotic disorders (Bentall et al., 2003). Therapists working with this population should be encouraged to monitor and reflect on their in session behavior in as these behaviors may influence the alliance forged between them and group members.

Table 1

Participant Demographics

	N	%
Gender-Female	32	49
Ethnicity- Caucasian	34	52
African-American/Black	25	38
Hispanic	5	8
Not Reported	1	2
Primary Diagnosis- Schizophrenia	32	49
	M	**SD**
Age	42.1	12
Education	12.7	1.5
IQ score (WASI)	93.7	6.4
Reading level (WRAT)	95.3	14.6
Age at First Hospitalization	24.7	9.4
Total Hospitalizations	7.9	6.1

Table 2

Descriptive Statistics for Predictor and Outcome Variables

Covariates (Baseline)	**Mean**	**SD**	**Min**	**Max**
PANSS Pre-treatment [a]	61.77	10.40	43	83
Insight (BCIS)[a]	5.20	5.82	-10	21
Social Functioning (SFS)[a]	122.83	22.89	70	166
Therapist Characteristics (across all sessions)				
Therapist Warmth and Friendliness(TWF)[a]	27.55	1.35	26.00	31.25
Therapist Exploration (TE)[a]	35.62	1.84	33.25	39.04
Negative Therapist Attitude (NTA)[a]	6.36	.17	6.13	6.67
Outcome Variables				
Working Alliance (WAI-G)[b]	193.12	26.73	122	246
PANSS Post-Treatment [c]	57.11	10.40	38	83
Participation (PTCS)[d]	47.00	9.15	23	60
Attendance (PTCS)[d]	18.99	4.22	6.5	25

[a] n=65; [b] n=58; [c] n=60 [d] n=60

Table 3

Prediction of group alliance: Model 1

Variable	B	SE(B)	t	p
TWF Session 1	2.47	1.37	1.81	.077
TWF Session 2	2.45	1.63	1.50	.139
TWF Session 3	-.685	1.14	-.94	.551
TWF Session 4	5.177	1.503	3.45	.001*
TWF Session 5	-2.066	1.625	-3.02	.210
Social Functioning	-.489	.162	-3.018	.004*
Pre-treatment PANSS	-1.32	.397	-3.31	.002*
Insight	.093	.560	.166	.869
Group (ST or CBT)	-25.22	14.11	-1.79	.080

TWF=Therapist Warmth and Friendliness
*significant at p=.05

Table 4

Predicting group alliance Model II

Variable	B	SE(B)	t	p
NTA Session 1	13.14	10.98	.49	.238
NTA Session 2	-14.92	6.06	-2.46	.018*
NTA Session 3	-30.80	11.26	-2.74	.009*
NTA Session 4	-.71	9.69	-.12	.942
NTA Session 5	-102.15	75.59	-.54	.183
Social Functioning	-.551	.162	-3.40	.001*
Pre-treatment PANSS	-1.51	.43	-3.50	.001*
Insight	.517	.644	.80	.426
Group (ST or CBT)	7.09	8.46	.838	.406

NTA=Negative Therapist Attitude
*significant at p=.05

Table 5
Predicting post-treatment PANSS score

Variable	B	SE(B)	t	p
NTA Session 1 #				
NTA Session 2	4.36	1.76	2.49	.017*
NTA Session 3	8.11	9.19	.88	.382
NTA Session 4	-1.98	3.46	-.57	.57
NTA Session 5	22.77	10.94	.34	.043*
NTA Session 6#				
NTA Session 7	-7.09	6.09	-1.16	.25
NTA Session 8	8.02	4.74	1.69	.097
NTA Session 9	-.181	2.59	-.07	.945
NTA Session 10#				
NTA Session 11	1.91	1.76	1.09	.282
NTA Session 12	2.26	2.67	.847	.402
Social Functioning	.03	.05	.64	.526
Pre-treatment PANSS	.56	.13	4.44	.000*
Insight	-.14	.20	-.68	.501
Group (ST or CBT)	-4.83	7.74	-.62	.536

NTA=Negative Therapist Attitude
#not included in model due to high collinearity
*significant at p=.05

Table 6

Predicting Treatment Compliance and Attendance

Model	Outcome	R^2	F(16,49)	p
Therapist Warmth and Friendliness Sessions 1-12	PTCS Attendance	.23	1.06	.411
Therapist Exploration Sessions 1-12	PTCS Attendance	.23	1.06	.411
Negative Therapist Attitude Sessions 1-12	PTCS Attendance	.25	1.14	.356
Therapist Warmth and Friendliness Sessions 1-12	PTCS Compliance	.24	1.14	.352
Therapist Exploration Sessions 1-12	PTCS Compliance	.24	1.14	.352
Negative Therapist Attitude Sessions 1-12	PTCS Compliance	.23	1.03	.439

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