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Therapist Fidelity with an Exposure-Based Treatment of PTSD in Adults with Schizophrenia or Schizoaffective Disorder

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Abstract

This study examined therapists' fidelity to a manualized multi-component cognitive-behavioral intervention for posttraumatic stress disorder (PTSD), including exposure therapy, among public sector patients with a psychotic disorder. Therapists' competence and adherence was assessed by clinicians at the master's level or higher who rated 20% of randomly selected audiotaped sessions (n = 57 sessions, coded by two independent raters, with strong interrater agreement). Adherence ratings indicated that therapists complied well with the protocol, and competency ratings typically averaged above "very good" (6 on 7-point Likert scale). Findings suggest that therapists can effectively deliver a manualized cognitive-behavioral intervention for PTSD, with exposure therapy, to patients with severe mental illness without compromise to the structure of sessions and/or to the therapeutic relationship. These data add needed support for the implementation of cognitive-behavioral interventions, including exposure therapy, as effective treatments for PTSD in complicated patient populations such as those with severe forms of mental illness.

Keywords

PTSD; cognitive-behavioral therapy; therapist fidelity; schizophrenia; severe mental illness

There is now a well-established body of literature documenting the extreme vulnerability of adults with severe mental illness (SMI) to both the experience of trauma and the subsequent development of posttraumatic stress disorder (PTSD). Rates of trauma exposure among adults with SMI range from 87% to 96% and include high rates of both physical and sexual assault (Cusack, Grubaugh, Knapp, & Frueh, 2006; Mueser et al., 2004). Rates of PTSD in this population are also high, ranging from 19% to 43% (Cusack et al., 2006; Mueser et al., 2004), which is consistently higher than PTSD rates found in the general population of trauma survivors (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Further, there is evidence that the experience of victimization among patients with SMI is strongly correlated with psychiatric

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difficulties and substance abuse (Briere, Woo, McRae, Foltz, & Sitzman, 1997; Goodman et al., 2001). Together, these data suggest that adults with SMI are highly susceptible to the adverse consequences of trauma, highlighting the importance of delivering effective trauma-related services to this population.

Despite the prevalence of trauma and PTSD among patients with SMI, trauma related symptomatology is frequently overlooked and untreated in this population (Cusack, Frueh, & Brady, 2004; Cusack et al., 2006; Frueh et al., 2002; Mueser et al., 1998). There is also limited empirical treatment outcome data for persons with PTSD and SMI. This is unfortunate given that effective psychosocial treatments have been developed for other traumatized groups. Although cognitive behavioral therapy (CBT) has been evidenced to be efficacious in treating a wide-range of symptoms in individuals with SMI (Dickerson, 2000; Gaudiano, 2005; Gould, Mueser, Bolton, Mays, & Goff, 2001; National Institute of Clinical Evidence, 2002; Pilling et al., 2002), only a handful of studies have examined CBT for PTSD in this population (Hamblen, Jankowski, Rosenberg, & Mueser, 2004; Rosenberg, Mueser, Jankowski, Salyers, & Acker, 2004). Recent findings by Mueser and colleagues (2008) suggest that a trauma-focused CBT intervention for patients with SMI can be effective in reducing PTSD and other psychiatric symptoms, negative trauma-related cognitions, and health concerns. However, this CBT intervention did not include exposure, which is considered a critical element in the treatment of PTSD in the general population (Foa, 2000).

In our parent study, we evaluated the effectiveness of a 22-session multi-component cognitive-behavioral intervention incorporating exposure therapy in alleviating PTSD symptoms among patients with SMI in an open trial design (Frueh et al., in press). Study participants were patients with a diagnosis of schizophrenia or schizoaffective disorder served by a public-sector community mental health system. The treatment protocol used in this study is the only one known to the authors to use exposure therapy for PTSD in a sample of patients with a primary diagnosis of a psychotic disorder. Clinical interview and self-report data from this study demonstrated statistically significant PTSD symptom improvement after treatment and at 3-month follow-up. Outcomes for other targeted domains (i.e., anger, general mental health status, quality of social relationships) also yielded statistically significant improvement and these gains were likewise maintained at follow-up.

In the present study, we evaluated therapist fidelity by examining ratings of clinician competency and adherence to the exposure-based manualized cognitive-behavioral treatment for patients from the above parent study. The Therapist Adherence and Competency Rating Form (TAC), developed for the current study, was used to evaluate clinician competence and adherence to the treatment manual via independent raters across both the group and individual components of the treatment protocol. Using this measure, we were specifically interested in evaluating domains of therapist competence and adherence to general therapeutic factors (structure of sessions, rapport, empathy) and intervention-specific factors (implementation of session activities, feedback to patients).

Method

Participants

Participants were recruited into the study from two programs affiliated with a Community Mental Health Center (CMHC) in a medium sized Southeastern city. To meet study inclusion/exclusion criteria participants had to: 1) be competent to provide informed consent; 2) be enrolled in a regular program of care in one of two CMHC-affiliated programs; 3) be at least 18 years old; 4) meet DSM-IV diagnostic criteria for PTSD on the Clinician Administered PTSD Scale (Blake et al., 1990); and, 5) meet study criteria for SMI, defined as a mental illness resulting in severe and persistent impairment in self-care, work, or social relationships, plus a

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past year history of a DSM-IV Axis I diagnosis of schizophrenia or schizoaffective disorder. Patients could not have a current DSM-IV diagnosis for alcohol or drug dependence or a recent (≤ 2-month) history of psychiatric hospitalization or suicide attempt.

Measures

Two different versions of the 13-item Therapist Adherence and Competence Rating Form (TAC) were used to assess adherence and competence, one for the group and one for the individual treatment component. These rating forms were modeled after therapist adherence/competence forms successfully used in other cognitive behavioral treatment programs (e.g., Frueh et al., 2007) and prompted trained raters to use the treatment manual as the standard for assessing competence and adherence. The first five items assess both adherence and competence to essential and unique elements specific to that particular session (i.e., "Therapist gave instruction on the appropriate new topic(s) of the session"). Items six through ten assess essential, but non-unique, elements that reflect common therapeutic elements (i.e., "Therapist exhibited accurate empathy"). The last three items reflect additional considerations, such as whether any significant departures from the manual occurred during the session.

For the adherence ratings, assessors were asked to determine *if* the therapist appropriately covered the content of each session (i.e., if he/she demonstrated the particular behavior described in each item): "yes" (1), "no" (0), or "not applicable" (99). For competence ratings, assessors were asked to assess *how well* the therapist accomplished the particular behavior described in each item (i.e., how well he/she carried out the particular behavior described in each item) on a 7-point Likert scale: "poor" (1), "barely adequate" (2), "mediocre" (3), "satisfactory" (4), "good" (5), "very good" (6), and "excellent" (7). The specific items from the TAC, as well as adherence and competence item descriptive statistics.

Procedure

Clinical Intervention—The multi-component intervention assessed in the current study was originally used to treat social phobia (Turner, Beidel, Cooley, Woody, & Messer, 1994) and PTSD (Frueh, Turner, Beidel, Mirabella, & Jones, 1996; Turner, Frueh, & Beidel, 2005), and was subsequently adapted for patients with PTSD and SMI (Frueh et al., 2004). The intervention consisted of: one session of psycho-education, two sessions of anxiety management, seven sessions of social skills and anger management training, four sessions of trauma issues management, eight sessions of exposure therapy, and homework activities. The first 14 sessions were conducted via group therapy format, which were held twice-weekly. Following completion of the group component, participants received eight sessions of individual exposure therapy that were also held twice-weekly. All treatment sessions included a review of homework assignments related to the session module content. The intervention was completed over an 11-week period and was provided within the context of each patient's usual care (i.e., case-management and psychiatric medication management).

Clinicians—Treating clinicians were four Ph.D. clinical psychologists and one master's level therapist with previous training in CBT and experience treating individuals with PTSD. All clinicians were oriented and trained to administer the multi-component CBT intervention. Clinicians also met weekly during the treatment phase of the study to discuss progress and/or any problems with the treatment.

Therapist Adherence and Competence—In order to ensure that the treatment was competently administered according to the manual, all sessions were audiotaped, and 20% of the tapes were randomly selected and rated for competence and adherence by master's level or above clinicians (for a total of 57 sessions). Two raters rated the tapes independently to allow for the computation of inter-rater reliability.

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Analyses

All analyses were two-tailed and computed using SPSS 16 for Macintosh. Percentages reflecting the number of times the therapist appropriately covered the content of each adherence item were calculated for both the group and individual sessions. Means and standard deviations of the competency items for the individual and group sessions were also assessed. The binomial approximation z test statistic (Howell, 1997) was used to calculate differences between group vs. individual session format (independent variable) and adherence percentages (dependent variables). The independent samples t-test was used to calculate differences between session format (independent variable) and means of the competency ratings (dependent variables).

Different analyses were used to evaluate level of agreement between the two raters adherence and competence ratings because the scaling of the variables differs across these analyses. Level of agreement between raters across the adherence items was evaluated using the kappa statistic. Confirmatory factor analysis was used to model inter-rater reliability across the 22 variables representing 11 competency ratings across two raters. Since the raters only used between two to four possible response options on the Likert scale to rate the items, we treated the items as categorical and used a weighted least squares estimation with a mean- and variance-adjustment, the preferred estimation method for items containing less than five categories (Flora & Curran, 2004; Wirth & Edwards, 2007). Given the treatment of items as categorical variables, this model examined a tetrachoric (rather than Pearson) covariance matrix, and including probit (rather than linear) regression coefficients. The observed variables (ratings) for a given rater were modeled using a single latent factor presumed to underlie those ratings. Since two raters were implemented, each rater's set of ratings was represented by a separate factor, for a total of two intercorrelated factors.

Results

For details regarding the intent-to-treat and completer samples, refer to the original study (Frueh et. al, in press). Therapists appropriately covered the content queried by each adherence item across a majority of the group and individual sessions (adherence ranged from 77 – 100%; see Table 1). There were only eight occasions (out of 114 responses) on which the raters coded on item 11 that there was a departure from the protocol (i.e., "Did any significant problems arise during the session that led to a significant departure from the treatment protocol?"). While adherence ratings for both individual and group sessions were generally high, comparisons between group vs. individual adherence ratings using the binomial approximation z test statistic resulted in statistically significant differences for seven of the 11 items assessed (z-scores ranged from 2.22 – 77.02, $p < .05$). Individual sessions resulted in significantly higher adherence ratings for five out of these seven items. The level of agreement between the raters across the adherence items was substantial (Landis & Koch, 1977) (κ ranged from 0.71 – 1.00, $p < .001$), with seven of the 11 items evidencing perfect agreement. The only exception was item 11 ($\kappa = 0.47$, $p < .001$), which resulted in moderate agreement. See Table 1 for item-specific details.

All therapist competency ratings ranged from 4 ("good") to 7 ("excellent"), with the average rating across the primary and secondary raters being 6.20 and 6.07 ("very good"), respectively. The only exception was with the usually "non-applicable" item #12, how well therapists dealt with problems when they arose in the group session ($M = 4.67$, $SD = 1.53$). No statistically significant differences were evidenced between individual and group sessions by competency ratings (Table 1).

Interrater agreement between adjacent competency scores was greater than 95%, with the exception of item #12 (50%), for which there were only two adjacent scores, and item #10 (86%). The CFA analysis demonstrated some evidence for an adequate fit, robust $\chi^2(31) =$

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82.26, $p < .001$, comparative fit index = .97, Tucker Lewis index = .97, root mean square error of approximation = .17. The correlation between factors (i.e., raters' item sets) was .42, indicating a roughly a moderate level of inter-rater reliability.

Discussion

Results from this study indicate that clinicians' fidelity to a manualized PTSD cognitive-behavioral intervention for patients with severe and persistent mental illness was excellent. Together with the findings from Frueh and colleagues (2008), these data add further support for the use of exposure therapy as a way to effectively address PTSD in this clinical population. That is, these data provide strong preliminary evidence that patients with SMI can benefit from an exposure-based PTSD treatment, and that clinicians can successfully implement manualized cognitive-behavioral treatments in this population without significant difficulty or compromise to the protocol.

Of particular importance is the finding that therapist ratings were high on items assessing "rapport" and "empathy," which are critical components of any successful psychotherapy intervention. Ratings of empathy and rapport averaged around 6.3 for both the individual and group portions of the treatment, suggesting "very good" rapport and empathy. Other findings from this study indicate that therapists can effectively implement education, relaxation, social skills training, and exposure-based exercises among patients with severe mental illness. Further, competence ratings were comparable across the group and individual sessions. The finding that adherence ratings were somewhat higher for the individual sessions relative to the group sessions is interesting, but not altogether surprising. That is, it is likely easier to adhere to a protocol when there is only one patient rather than several in a session. Additionally, this difference is reassuring in that our overall goal was to evaluate whether or not exposure therapy can be implemented reliably and effectively in a sample of patients with severe mental illness. These findings offer strong preliminary support that it can be. Overall, these findings suggest that therapist competence and adherence to a manualized cognitive-behavioral psychotherapy for PTSD with a complex population that is usually excluded from clinical psychotherapy trials does not compromise therapists' ability to effectively structure sessions or build rapport with patients.

Despite its merits, this and the parent study have important methodological limitations. First, these secondary analyses were based on an open-trial with a relatively small sample. Second, adherence/competency ratings were based on four therapists who had previous training and experience with exposure therapy; albeit one was trained in the context of the study. Thus, the treatment may not translate as well to therapists with less experience in exposure therapies. Also, it is not clear how the treatment would translate to patients with other forms of SMI such as bipolar or severe substance abuse issues. Finally, we do not have additional data on item 11 (i.e., the nature of the problems that arose), which would be useful in understanding the difficulties that therapists had in adhering to the protocol when such problems did arise

In combination with the clinical and process outcomes from the parent study, these findings provide hope that psychosocial interventions for PTSD can be incorporated into current efforts to improve mental health services for adults with SMI treated in public sector clinics (e.g., Cusack, Wells, Grubaugh, Hiers, & Frueh, 2007; Frueh et al., 2001; Rosenberg et al., 2001). These data are timely as increasing attention is paid to disseminating exposure therapy for PTSD from academic medical centers to community mental health centers. Further research efforts are needed to expand these findings, including studies using larger randomized designs and a broader range of psychiatric diagnoses associated with SMI (e.g., bipolar disorder). Such data will ensure that frontline treatments for PTSD are available to patients with SMI—patients who have high rates of victimization and PTSD relative to the general population. Furthermore,

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such data will dispel lingering concerns of mental health care providers that patients with SMI cannot tolerate trauma intensive treatments (Frueh, Cusack, Grubaugh, Sauvageot, & Wells, 2006).

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References

Blake DD, Weathers FW, Nagy LN, Koulepek DG, Klauminizer G, Charney DS, et al. A clinician rating scale for assessing current and lifetime PTSD: The CAPS-1. The Behavior Therapist 1990;18:187–188.

Briere J, Woo R, McRae B, Foltz J, Sitzman R. Lifetime victimization history, demographics, and clinical status in female psychiatric emergency room patients. Journal of Nervous and Mental Disease 1997;185:95–101. [PubMed: 9048701]

Cusack KJ, Frueh BC, Brady KT. Trauma history screening in a community mental health center. Psychiatric Services 2004;55:157–162. [PubMed: 14762240]

Cusack KJ, Grubaugh AL, Knapp RG, Frueh BC. Unrecognized trauma and PTSD among public mental health consumers with chronic and severe mental illness. Community Mental Health Journal 2006;42:487–500. [PubMed: 16868841]

Cusack KJ, Wells CB, Grubaugh AL, Hiers TG, Frueh BC. An update on the South Carolina trauma initiative. Psychiatric Services 2007;58:708–710. [PubMed: 17463355]

Dickerson FB. Cognitive behavioral psychotherapy for schizophrenia: A review of recent empirical studies. Schizophrenia Research 2000;43:71–90. [PubMed: 10858626]

Flora DB, Curran PJ. An empirical evaluation of alternative methods of estimation for confirmatory factor analysis with ordinal data. Psychological Methods 2004;9:466–491. [PubMed: 15598100]

Foa EB. Psychosocial treatment of PTSD. Journal of Clinical Psychiatry 2000;61:49–51. [PubMed: 11154017]

Frueh BC, Buckley TC, Cusack KJ, Kimble MO, Grubaugh AL, Turner SM, et al. Cognitive-behavioral treatment for PTSD among people with severe mental illness: A proposed treatment model. Journal of Psychiatric Practice 2004;10:26–38. [PubMed: 15334985]

Frueh BC, Cousins VC, Hiers TG, Cavanaugh SD, Cusack KJ, Santos AB. The need for trauma assessment and related clinical services in a state public mental health system. Community Mental Health Journal 2002;38:351–356. [PubMed: 12166921]

Frueh BC, Cusack KJ, Grubaugh AL, Sauvageot JA, Wells C. Clinicians' perspectives on cognitive-behavioral treatment for PTSD among persons with severe mental illness. Psychiatric Services 2006;57:1027–1031. [PubMed: 16816289]

Frueh BC, Cusack KJ, Hiers TG, Monogan S, Cousins VC, Cavanaugh SD. Improving public mental health services for trauma victims in South Carolina. Psychiatric Services 2001;52:812–814. [PubMed: 11376230]

Frueh BC, Grubaugh AL, Cusack KJ, Kimble MO, Elhai JD, Knapp RG. Exposure-based cognitive behavioral treatment of PTSD in adults with schizophrenia or schizoaffective disorder: A pilot study. Journal of Anxiety Disorders. (in press).

Frueh BC, Monnier J, Grubaugh AL, Elhai JD, Yim E, Knapp RG. Therapist adherence and competence with manualized cognitive-behavioral therapy for PTSD delivered via videoconferencing technology. Behavior Modification 2007;31:856–866. [PubMed: 17932240]

Frueh BC, Turner SM, Beidel DC, Mirabella RF, Jones WJ. Trauma Management Therapy: A preliminary evaluation of a multi-component behavioral treatment for chronic combat-related PTSD. Behaviour Research and Therapy 1996;34:533–543. [PubMed: 8826760]

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Gaudiano B. Cognitive behavior therapies for psychotic disorders: Current empirical status and future directions. Clinical Psychology: Science and Practice 2005;12:33–50.

Goodman LA, Salyers MP, Mueser KT, Rosenberg SD, Swartz M, Essock SM, et al. Recent victimization in women and men with severe mental illness: Prevalence and correlates. Journal of Traumatic Stress 2001;14:615–632. [PubMed: 11776413]

Gould RA, Mueser KT, Bolton E, Mays V, Goff D. Cognitive therapy for psychosis in schizophrenia: An effect size analysis. Schizophrenia Research 2001;30:335–342. [PubMed: 11295385]

Hamblen JL, Jankowski MK, Rosenberg SD, Mueser KT. CBT treatment for PTSD in people with severe mental illness: Three case studies. American Journal of Psychiatric Rehabilitation 2004;7:147–170.

Howell, DC. Statistical methods for psychology. 4. Belmont, California: Duxbury Press; 1997.

Kessler RC, Sonnega A, Bromet E, Hughes M, Nelson CB. Posttraumatic stress disorder in the National Comorbidity Survey. Archives of General Psychiatry 1995;52:1048–1060. [PubMed: 7492257]

Landis JR, Koch GG. The measurement of observer agreement for categorical data. Biometrics 1977;33:159–174. [PubMed: 843571]

Mueser KT, Goodman LA, Trumbetta SL, Rosenberg SD, Osher FC, Vidaver R, et al. Trauma and posttraumatic stress disorder in severe mental illness. Journal of Consulting and Clinical Psychology 1998;66:493–499. [PubMed: 9642887]

Mueser KT, Rosenberg SD, Xie H, Jankowski MK, Bolton E, Lu W, et al. A randomized controlled trial of cognitive-behavioral treatment for posttraumatic stress disorder in severe mental illness. Journal of Consulting and Clinical Psychology 2008;76:259–271. [PubMed: 18377122]

Mueser KT, Salyers MP, Rosenberg SD, Goodman LA, Essock SM, Osher FC, et al. Interpersonal trauma and PTSD in patients with severe mental illness: Demographic, clinical, and health correlates. Schizophrenia Research 2004;30:54–57.

National Institute of Clinical Evidence. Clinical guideline: Core interventions in the treatment and management of schizophrenia in primary and secondary care. London: NICE; 2002.

Pilling S, Bebbington P, Kuipers E, Garety P, Geddes J, Orbach G. Psychological treatments in schizophrenia: Meta-analysis of family intervention and cognitive behavior therapy. Psychological Medicine 2002;32:763–782. [PubMed: 12171372]

Resnick SG, Bond GR, Mueser KT. Trauma and posttraumatic stress disorder in people with schizophrenia. Journal of Abnormal Psychology 2003;112:415–423. [PubMed: 12943020]

Rosenberg SD, Mueser KT, Friedman MJ, Gorman PG, Drake RE, Vidaver R, et al. Developing effective treatments for posttraumatic disorders among people with severe mental illness. Psychiatric Services 2001;52:1453–1461. [PubMed: 11684740]

Rosenberg SD, Mueser KT, Jankowski MK, Salyers MP, Acker K. Cognitive Behavioral Treatment of PTSD in severe mental illness: Results of a pilot study. American Journal of Psychiatric Rehabilitation 2004;7:171–186.

Turner SM, Beidel DC, Cooley MR, Woody SR, Messer SC. A multi-component behavioral treatment for social phobia: Social Effectiveness Therapy. Behaviour Research and Therapy 1994;32:381–390. [PubMed: 8192637]

Turner SM, Frueh BC, Beidel DC. Multi-component behavioral treatment for chronic combat-related posttraumatic stress disorder: Trauma Management Therapy. Behavior Modification 2005;29:39–69. [PubMed: 15557478]

Wirth RJ, Edwards MC. Item factor analysis: Current approaches and future directions. Psychological Methods 2007;12:58–79. [PubMed: 17402812]

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Table 1

THERAPIST RATINGS	ADHERENCE				COMPETENCE			
	Group Session % Yes	Individual Session % Yes	z[a] (n)	κ[b] (SE)	Group M(SD)	Individual M(SD)	Difference (95% CI)	t[c]
Essentials Elements Specific to Session:								
1a. Therapist gave instruction on the appropriate new topic(s) of the session. (Group) 1b. Therapist gave instruction on the rationale and purpose of exposure therapy. (Individual)	100.00	97.10	8.63** (95)	1.00**	6.36(0.50)	5.94(0.93)	0.42 (−0.17–1.02)	1.43
2a. Therapist allowed patients to practice new social skills in role-plays (or “behavioral rehearsals”). (Group) 2b. Therapist guided patient through imaginal exposure exercise. (Individual)	95.20	98.20	2.22* (97)	0.66 (0.32)**	6.35(0.81)	6.16(0.55)	0.19 (−0.22–0.60)	0.93
3a. Therapist provided appropriate feedback for patients after role-plays. (Group) 3b. Therapist assessed SUDS rating throughout exposure. (Individual)	85.40	100.00	44.71** (95)	1.00**	6.59(0.80)	6.36(0.57)	0.23 (−0.20–0.65)	1.09
4a. Therapist introduced and explained new “flexibility” exercises. (Group) 4b. Therapist provided appropriate feedback to patient after exposure. (Individual).	97.50	98.10	0.37 (93)	0.66 (0.32)**	6.17(0.71)	6.12(0.71)	0.05 (−0.38–0.49)	0.24
5. Therapist introduced and explained new “homework” assignments.	97.40	100.00	7.83** (98)	1.00**	6.45(0.60)	6.23(0.57)	0.22 (−0.12–0.56)	1.23
Essential But Not Unique Items:								
6. Therapist exhibited good rapport with the patients.	100.00	100.00	0.00 (114)	1.00**	6.35(0.57)	6.29(0.46)	0.05 (−0.22–0.33)	0.39
7. Therapist exhibited accurate empathy.	100.00	100.00	0.00 (114)	1.00**	6.65(0.57)	6.35(0.60)	0.30 (−0.02–0.62)	1.89
8. Therapist engaged patients in a professional manner.	100.00	100.00	0.00 (57)	1.00**	6.61(0.66)	6.71(0.46)	−0.10 (−0.39–0.20)	−0.66
9. Therapist reviewed previous “homework” and addressed questions or problems.	77.10	100.00	77.02** (114)	1.00**	6.20(0.77)	5.94(0.85)	0.26 (−0.26–0.79)	1.01
10. Therapist structured time efficiently and was able to keep the focus of the session on the issues appropriate for the session.	91.30	98.50	5.83** (97)	0.79 (0.20)**	6.31(0.87)	6.09(1.03)	0.22 (−0.37–0.82)	0.75
Additional Considerations:								
11. Did any significant problems arise during the session that led to a significant departure from the treatment protocol?	10.90	4.40	2.23* (114)	0.47 (0.23)**	N/A	N/A	N/A	N/A

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THERAPIST RATINGS	ADHERENCE				COMPETENCE			
	Group Session % Yes	Individual Session % Yes	z[a] (n)	κ[b] (SE)	Group M(SD)	Individual M(SD)	Difference (95% CI)	t[c]
12. If "yes," please rate how well the therapist dealt with the problems that lead to a departure from the treatment protocol.	N/A	N/A	N/A	N/A	4.67(1.53)	6.00(0.00)	−1.33 ---[d]	---[d]
13. Please give a rating of the therapist's overall skills as demonstrated in this session.	N/A	N/A	N/A	N/A	6.39(1.03)	6.20(0.64)	0.19 (−0.26–0.63)	0.84

[a] Binomial approximation z test statistic comparing group vs. individual adherence rates.

[b] Kappa test statistic evaluating level of agreement between primary and secondary raters.

[c] Independent t-test examining differences in individual vs. group competency ratings.

[d] There were not enough values for this item (n = 5) to reliably calculate this test.

* $p < .05$,

** $p < .001$