WILEY

ORIGINAL ARTICLE

Factor structure of therapist fidelity to individual resiliency training in the Recovery After an Initial Schizophrenia Episode Early Treatment Program

Julia Browne[1] | Alexandra N. Edwards[1] | David L. Penn[1,2] | Piper S. Meyer-Kalos[3] | Jennifer D. Gottlieb[4] | Paul Julian[1] | Kelsey Ludwig[1] | Kim T. Mueser[4] | John M. Kane[5]

[1]Department of Psychology and Neuroscience, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina

[2]School of Psychology, Australian Catholic University, Melbourne, Victoria, Australia

[3]Minnesota Center for Chemical and Mental Health, School of Social Work, University of Minnesota, St. Paul, Minnesota

[4]Center for Psychiatric Rehabilitation, Departments of Occupational Therapy, Psychology, & Psychiatry, Boston University, Boston, Massachusetts

[5]Division of Psychiatry Research, Zucker Hillside Hospital, North Shore–Long Island Jewish Health System, New York, New York

Corresponding Author: Julia Browne, Department of Psychology, The University of North Carolina at Chapel Hill, 235 E. Cameron Ave, Davie Hall, CB #3270, Chapel Hill, NC 27599 (jbrowne@unc.edu)

Background: Evidence-based approaches and early intervention have improved the long-term prognosis of individuals with schizophrenia. However, little is known about the therapeutic processes involved in individual therapy in first-episode psychosis. A comprehensive psychosocial/psychiatric programme for this population, NAVIGATE, includes an individual therapy component, individual resiliency training (IRT). Fidelity of clinicians' adherence to the IRT protocol has been collected to ensure proper implementation of this manual-based intervention. These data can provide insight into the elements of the therapeutic process in this intervention.

Materials and Methods: To achieve this goal, we first examined the factor structure of the IRT fidelity scale with exploratory factor analysis. Second, we explored the relationships among the IRT fidelity ratings with clinician years of experience and years of education, as well as client's baseline symptom severity and duration of untreated psychosis.

Results and Conclusions: Results supported a 2-factor structure of the IRT fidelity scale. Correlations between clinician years of education and fidelity ratings were statistically significant.

KEYWORDS

adherence, competence, fidelity, psychosis, psychosocial treatment

1 | INTRODUCTION

Schizophrenia is a chronic, markedly diverse mental disorder that involves a multitude of risk factors (Sullivan, 2012; Walder, Faraone, Glatt, Tsuang, & Seidman, 2014), a wide range of treatment outcomes (Harrington, Neffgen, Sasalu, Sehgel, & Woolley, 2013), and creates significant functional impairment for individuals and high treatment costs on the health-care system (Mark, Coffey, Vandivort-Warren, Harwood, & King, 2005; Mueser & McGurk, 2004). Generally, psychosocial therapies have proven beneficial for people with psychotic disorders (Drake et al., 2001; Fenton & Schooler, 2000; Mueser et al., 2002; Shean, 2009; Villeneuve, Potvin, Lesage, & Nicole, 2010) with early intervention programmes demonstrating a promising approach for reducing relapse and ameliorating illness chronicity (Buchanan et al., 2010; Lee, Ahn, Park, & Chung, 2012; Lieberman, Dixon, & Goldman, 2013; Marshall et al., 2005).

Multi-element first-episode treatment models are especially effective for first-episode psychosis (FEP) (Uzenoff et al., 2012), and have proliferated internationally in Australia (EPPIC) (McGorry,

Edwards, Mihalopoulos, Harrigan, & Jackson, 1996), the United Kingdom (LEO) (Craig et al., 2004) and Scandinavia (Opus) (Jørgensen et al., 2000), but not in the United States. Research suggests that these programmes have the potential to improve clinical and functional outcomes for FEP individuals (Addington, 2007; Craig et al., 2004; Mihalopoulos, Harris, Henry, Harrigan, & McGorry, 2009; Petersen et al., 2005). The success of international research on comprehensive first episode programmes has led to the development of similar programmes designed to be implemented within the US mental health-care system (Srihari, Tek, & Kucukgoncu, 2015).

Researchers have recently completed a large US multi-site first-episode cluster randomized controlled trial, the Early Treatment Program (ETP), sponsored by the broader NIMH initiative, Recovery After an Initial Schizophrenia Episode (RAISE). RAISE-ETP examined the effectiveness of the NAVIGATE programme, a comprehensive, goal-oriented treatment programme involving the coordination of mental health professionals who provide various sets of collaborative services in comparison to community care (CC). The NAVIGATE programme sought to provide early and effective treatment to

individuals who have experienced a first episode of psychosis with a multicomponent treatment plan including: medication management, individual resiliency training (IRT), family psychoeducation and supported employment and education (Kane et al., 2015; Mueser et al., 2015). Results indicated superior outcomes for individuals in the NAVIGATE group vs those in CC (Kane et al., 2016).

The IRT, a manual-based psychosocial intervention, contains recovery and resiliency foci, both of which have been associated with long-term improvements in outcomes such as self-sufficiency and quality of life (Mead & Copeland, 2000). The multifaceted treatment targets of IRT include illness self-management, substance use, residual and/or emerging symptoms, the trauma of psychosis, social relationships and leisure activities and health and functional difficulties. The IRT comprises 14 modules, of which the first 7 are considered standard (foundational modules that all clients receive as part of therapy), and the second 7 are individualized (modules which are covered if they address client-specific obstacles to recovery) (Meyer, Gottlieb, Penn, Mueser, & Gingerich, 2015).

The IRT programme used fidelity scales as well as weekly group consultation of clinicians to ensure effective implementation (Miller & Binder, 2002). This type of training and ongoing support is vital for the dissemination and implementation of such interventions as clinician behaviours and characteristics could assist or obstruct the transportability of manual-based treatments (Baumann, Kolko, Collins, & Herschell, 2006; McGuire et al., 2014; Perepletchikova, Treat, & Kazdin, 2007). Additionally, discontinuities between practices as described in the literature and as implemented in real-world settings become even more problematic once they become widely disseminated (Bond et al., 2002). The use of fidelity scales can be beneficial by establishing the quality of implementation and informing an understanding of the critical elements of treatment success.

Fidelity scales have been utilized in evidence-based practices geared towards persons with severe mental illness (Alvarez-Jimenez et al., 2008; Carlson & Weisman de Mamani, 2010; Harvey, Killaspy, Martino, & Johnson, 2012; Marvin, Miklowitz, O'Brien, & Cannon, 2016; McGuire et al., 2014; McHugo et al., 2007; Rollinson et al., 2008) and research has revealed that ensuring fidelity to guidelines for treatment of FEP can enhance and improve care (Petrakis et al., 2011). Yet, little is known about the distinct components of individual therapy with FEP individuals that may be captured by underlying factors of fidelity scales, as well as how such components are related to treatment-related variables. Identifying the distinct factors underlying the IRT fidelity scale could enhance the quality and specificity of feedback for clinicians, thereby improving the implementation of IRT, as well as enhancing effectiveness and lowering treatment costs (Addington, Addington, Maticka-Tyndale, & Joyce, 2012). Further, an examination of the relationship between clinician years of experience and level of education could inform and improve how clinicians are trained and supervised in the delivery of IRT.

The present study sought to identify the underlying factors of a fidelity scale based on a standardized individual therapy programme for FEP individuals, and to examine the relationships between these factors and baseline clinician and client characteristics. To achieve these goals, we conducted an exploratory factor analysis (EFA) on the IRT fidelity scale. Next, we examined the correlations between the derived factors and baseline client characteristics, including duration of untreated psychosis (DUP) and symptom severity. Finally, we examined the associations between the fidelity scores and baseline clinician variables, including years of experience and highest level of education.

2 | METHODS

2.1 | Participants

The RAISE-ETP study included 34 clinical sites randomized to provide NAVIGATE (n = 17) or CC (n = 17). The entire study included 404 subjects who met Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition criteria for a schizophrenia spectrum disorder, and were recovering from their first psychotic episode. See Kane et al. (2016) for full demographic data and inclusion criteria.

TABLE 1 Means and SDs of client baseline characteristics[1]

	IRT clients n = 101
Age, M (SD)	24.02 (5.93)
Gender, n (%)	
Male	76 (74.5)
Female	26 (25.5)
Race, n (%)	
American Indian or Alaskan Native	8 (7.8)
Asian	4 (3.9)
Black or African American	31 (30.4)
White	59 (57.8)
Ethnicity, n (%)	
Hispanic or Latino	26 (25.5)
Not Hispanic or Latino	76 (74.5)
Highest level of education, n (%)	
Some post-graduate training, no degree	2 (2.0)
Completed college, 4-y degree	2 (2.0)
Some post-secondary school, no degree	32 (31.4)
Completed high school, diploma	35 (34.3)
Attended high school, no diploma	27 (26.5)
Completed 8th grade, no high school	2 (2.0)
Attended grade school, not through 8th grade	1 (1.0)
Duration of untreated psychosis (mo), M (SD)	196.29 (276.12)
Symptom severity ratings, M (SD)	
PANSS total	76.85 (14.50)
PANSS positive factor	12. 27 (3.60)
PANSS negative factor	16.76 (5.37)
PANSS disorganized/concrete factor	8.11 (3.01)
PANSS excited factor	6.66 (2.85)
PANSS depressed factor	7.90 (3.14)
CDSS total	4.53 (3.97)

Abbreviations used: CDSS, Calgary Depression Scale for Schizophrenia; IRT, individual resiliency training; PANSS, Positive and Negative Syndrome Scale.

[1] Duration of untreated psychosis and baseline PANSS/CDSS scores is missing for one client; PANSS; Factors were computed using the Wallwork 5-factor solution.

TABLE 2 Means and SDs of clinician baseline characteristics[1]

	IRT clinicians (n = 33)
Gender, n (%)	
Male	9 (27.3)
Female	24 (72.7)
Years of experience, M (SD)	7.52 (8.25)
Years of education, M (SD)	18.42 (1.32)
Level of education, n (%)	
Bachelor's Degree	2 (6.1)
Master's Degree in Psychology	10 (30.3)
Master of Science Degree in Psychology	4 (12.1)
Master of Social Work Degree	11 (33.3)
Doctorate (Ph.D.)	4 (12.1)
Doctorate (Psy.D.)	2 (6.1)

[1] Demographic data is missing for 3 clinicians.

Of these subjects, 223 were randomized to 17 clinics implementing NAVIGATE (and IRT as part of that programme). Fidelity ratings were collected from the sessions of 102 clients receiving IRT from 36 clinicians. Fidelity ratings were utilized for clinician certification as well as evaluating adherence to treatment protocol. Four out of the first consecutive 8 sessions for each clinician were rated for fidelity. In order to become IRT certified, clinicians needed to receive a fidelity score of at least 3 (satisfactory) on all 4 of these sessions out of a possible 5. If they did not receive at least a 3 (out of 5) on all 4 sessions, additional sessions were rated until 4 out of 5 sessions received at least a 3 (satisfactory). Once a clinician received IRT certification, their subsequent sessions were rated randomly to monitor fidelity to the treatment protocol (Tables 1 and 2).

2.2 | Measures

The IRT fidelity rating scale comprises 14 items that cover treatment goals including setting and effectively implementing an agenda, reviewing and setting new home assignments, resiliency/recovery orientation and cognitive behavioural therapy-based skills (ie, cognitive restructuring) (see Appendix). Each item is rated on a Likert scale from 1 (unsatisfactory or unobserved) to 5 (excellent). Feedback given to clinicians included these fidelity ratings and narrative feedback noting strengths of the session and suggestions for improvements.

Clients were assessed across all sites by trained interviewers who were blind to treatment assignment using 2-way video. The DUP was measured by determining the time between onset of first psychotic symptoms and initiation of antipsychotic medication (Norman, Lewis, & Marshall, 2005). Symptoms were measured at baseline using the Positive and Negative Syndrome Scale (Kay, Fiszbein, & Opler, 1987; Wallwork, Fortgang, Hashimoto, Weinberger, & Dickinson, 2012) and the Calgary Depression Scale for Schizophrenia (Addington et al., 2012).

2.3 | Procedure

All IRT clinicians received initial training, weekly supervision with the onsite supervisor, biweekly consultation calls with IRT experts (licensed clinical psychologists), and fidelity ratings based on

TABLE 3 The IRT standard modules[1]

Module
1. Orientation
2. Assessment and Goal Setting
3. Education about Psychosis
4. Relapse Prevention Planning
5. Processing the Episode
6. Developing Resiliency: Part 1
7. Building a Bridge to your Goals

Abbreviation used: IRT, individual resiliency training.

[1] The Orientation module was not included in the analyses.

audiotaped therapy sessions. The main goals of the clinical consultation were to aid trained clinicians by monitoring their delivery of IRT, providing feedback about their implementation of IRT within the agency, creating opportunities for clinicians to practice IRT skills, and offering clinicians support while implementing IRT.

The IRT clinicians were required to audio-record therapy sessions in order to monitor treatment fidelity until they reached IRT certification. In order to reach certification for the standard and individualized modules of IRT, the clinician was required to recorde at least 4 sessions that received a rating of a 3 (satisfactory) or above on the Overall Quality of the Session (overall quality) item. In addition to 3 expert IRT consultants who conducted the majority of the ratings, 10 students and staff at a southeastern university were trained as IRT consultants to rate sessions for fidelity. Trainees were required to reach acceptable levels of inter-rater reliability (α = .70) for all items on the fidelity scale for both standard and individualized sessions.

For the current analyses, the fidelity ratings of sessions from standard modules for the first 12 months of treatment were included in order to capture early therapy processes of the foundational component of IRT (received by all clients). Ratings from the first standard module (orientation) were excluded because this module was intended to be an initial socialization period for IRT, rather than a primary treatment target. Fidelity ratings of sessions from the individualized modules were also not included because clients received different modules based on their specific needs. Because we focused on fidelity ratings for standard modules (see Table 3), 3 items of the fidelity scale (positive reinforcement and shaping, cognitive restructuring and skills training strategies) were excluded from analyses given that they tend to be module-specific and did not receive a rating for most standard sessions (Table 3).

3 | RESULTS

The EFA was selected using iterated principal factors (ordinary least squares) method because it identifies a set of underlying factors that best account for the measured variables, such as those of the IRT fidelity scale. This method is effective in seeking a set of dimensions, each of which is common to a subset of the items of the scale in question (Fabrigar, Duane, MacCallum, & Strahan, 1999). The unit of analysis for the EFA was the clinician-client dyad. Overall, there were 102 eligible clinician-client dyads each of which had at least 1 complete, recorded

session that focused mainly on the standard modules 2 through 7. All dyads had between 1 and 7 completed standard sessions (M = 2.00, SD = 1.38), excluding sessions of module 1. Mean fidelity scores were taken across all standard sessions for each clinician-client dyad.

To determine the number of factors to retain, a scree test was conducted in conjunction with inspection of factors with eigenvalues greater than one, combined with evaluating the interpretability of each factor. Finally, an oblique rotation was used in this analysis to yield independent factors. Factor scores were computed by taking the mean of the individual IRT fidelity scale raw items that corresponded to each factor. Mean scores were used in place of raw total scores because of the potential for different numbers of items loading onto each factor.

The EFA was conducted twice once including the last item of the scale (overall) and a second time excluding it given that its rating was based upon the ratings of the additional items. The results and factor structure did not change as a function of the overall item; therefore, results are presented with this item excluded.

Results indicated that the model of best fit for the IRT fidelity scale was a 2-factor solution. Four items (agenda setting, use of IRT education materials, developing home assignment, structuring the session and using time efficiently) loaded heavily onto the first factor and was labelled "Technical," because all of these items describe specific, concrete skills necessary for the treatment. The second factor comprised motivational enhancement strategies, therapeutic relationship, recovery and resiliency focus, which are centred on the interpersonal and non-specific aspects of IRT, and therefore, was labelled "Relational" (Table 4).

Three items (goal-setting and goal follow-up, review of home assignment and educational strategies) had split loadings on both factors. These items were therefore assigned to an appropriate factor based on theoretical rationale. As a result, the educational strategies item was conceptually aligned with the first, technical factor, as it represents a clinician's ability to provide the specific IRT strategies outlined in the manual. Goal setting and goal follow-up and review of home assignment items were placed on the relational factor because clinicians needed to utilize interpersonal skills and flexibility to effectively implement these components.

The final item, overall, was not included in the factor solution presented in this paper (described above). The correlations between the overall item and both the technical ($r[100] = 0.83$, $P < .01$) and relational ($r[100] = 0.79$, $P < .01$) factor scores were significant, indicating a strong relationship between both factor scores and the overall item. Additionally, the technical and relational factors were significantly inter-correlated ($r[100] = 0.69$, $P < .01$).

Correlations between clinician variables and factor scores and overall ratings were conducted in 2 ways. First, clinician data were entered along with each client for whom he/she provided treatment, reflecting the client-clinician unit of measurement. Therefore, if a clinician provided care for 4 clients, his/her data were entered 4 times (corresponding to each client). Second, we averaged factor and overall scores across clients for each clinician so that each clinician's data could be entered once. Results when using this first method (n = 93) revealed that clinician years of education were significantly and positively associated with both the relational factor and the overall quality item. When using the second method (n = 33), clinician years of education remained significantly associated with the relational factor but were no longer significantly associated with the overall quality item (although the magnitude of the correlation coefficient was virtually identical across both analyses). All other correlations were not statistically significant (see Table 5) including relationships between clinician fidelity and symptoms or DUP. As a result, there is no evidence that client characteristics are associated with therapist fidelity.

TABLE 4 Rotated component matrix of IRT fidelity scale[1]

Item	Factor 1: technical	Factor 2: relational
Agenda setting	**0.818**	0.004
Goal-setting and goal follow-up	0.578	**0.571**
Review of home assignment	0.341	**0.451**
Use of IRT education materials	**0.712**	0.360
Motivational enhancement strategies	0.315	**0.821**
Educational strategies	**0.579**	0.572
Developing home assignment	**0.695**	0.351
Structuring the session and using time efficiently	**0.728**	0.378
Therapeutic relationship	0.033	**0.865**
Recovery/resiliency focus	0.395	**0.671**

Abbreviation used: IRT, individual resiliency training.

[1] Factor loadings of items under respective factor appear in bold.

TABLE 5 Bivariate correlations among overall fidelity/factor scores and client/clinician characteristics[1]

	Technical factor	Relational factor	Overall rating
Client characteristics (n = 101)			
PANSS total	0.05	−0.02	0.04
PANSS positive factor	−0.07	−0.12	−0.03
PANSS negative factor	0.12	0.05	0.06
PANSS disorganized/concrete factor	0.06	0.04	0.04
PANSS excited factor	0.08	−0.04	0.03
PANSS depressed factor	−0.03	−0.02	0.01
CDSS total	−0.11	−0.03	−0.08
DUP	−0.02	−0.09	−0.06
Clinician characteristics (n = 93)[2]			
Years of experience	−0.12	−0.02	−0.08
Years of education	0.15	0.37**	0.27*
Clinician characteristics (n = 33)[3]			
Years of experience	−0.13	−0.01	−0.15
Years of education	0.10	0.42*	0.28

Abbreviations used: CDSS, Calgary Depression Scale for Schizophrenia; PANSS, Positive and Negative Syndrome Scale.

[1] Data were missing for one client and 3 clinicians.

[2] Clinician data were entered into the analysis with each client for whom he/she provided treatment (eg, multiple times if a clinician saw multiple clients).

[3] Factor and overall rating scores were calculated for each clinician by averaging scores across clients so that each clinician had just 1 rating and therefore allowed for data to be entered into the analysis once.

*P < .05, **P < .01.

4 | DISCUSSION

The aims of the present study were to examine the factor structure of the IRT fidelity scale and to explore the relations between the resulting factors and the characteristics of both clinicians and clients. Results demonstrated an acceptable fit for a 2-factor solution. Both factors were conceptually interpretable in that the first factor was comprised of items based on explicit use of treatment manual concepts and materials (technical factor), while items of the second factor focused on the interpersonal, non-specific aspects of the therapy (relational factor). These findings are consistent with previous research that suggests fidelity of individual therapy comprises 2 elements: adherence and competence (Startup, Jackson, & Pearce, 2002). Waltz, Addis, Koerner, and Jacobson (1993) described therapist adherence as the degree to which the therapist used the specific approaches outlined in the treatment manual and avoided use of other approaches. Alternately, they described therapist competence as the skill level put forth by the therapist in conducting the prescribed intervention, and responding to relevant contextual variables in an appropriate manner (Waltz et al., 1993). Both elements were identified as distinct, yet vital for successful tests of treatment integrity.

The resulting factors of the IRT fidelity scale might theoretically align with the concept that treatment fidelity for a first-episode population is comprised of adherence, which is captured in the technical factor and competence, captured in the relational factor. Therefore, results suggest that the IRT fidelity scale not only comprises important elements of fidelity for individual therapy more generally, but also supports previous work in identifying central components of such treatment for first-episode individuals.

The significant correlations between both factors and the overall quality item provide support for the interconnectivity of the adherence and competence aspects of fidelity. These results buttress the IRT fidelity scale as a unified measure of therapist fidelity to the IRT treatment. Further, the 2 factors were significantly inter-correlated. This is consistent with previous research showing an overlap between adherence to and competence of cognitive therapies (Barber et al., 2006; McGlinchey & Dobson, 2003). Identifying these distinct, yet, interconnected technical and relational aspects of the IRT fidelity scale can be utilized in the training of IRT clinicians, and can also inform future research on, and development of, fidelity scales for individual therapy geared towards persons with PEP.

A second aim of the study was to examine the relationship between fidelity and baseline client and clinician characteristics. Client characteristics were not correlated with factor scores or overall fidelity ratings, suggesting that clinician implementation of the IRT treatment was not significantly associated with client's baseline symptoms. These findings are consistent with those found in a sample with prodromal symptoms (Marvin et al., 2016), and inconsistent with those found in a chronic population (Carlson & Weisman de Mamani, 2010) suggesting that the symptom presentation of the current first episode group may be more closely aligned with that of a prodromal population than that of a chronic population.

Clinician years of education, but not experience, were significantly correlated with the relational factor score and the overall quality score of the IRT fidelity scale when using the larger sample size. Although the relationship between years of education and the overall quality score was no longer significant when scores were averaged across clients for each clinician, the magnitude of the correlation was virtually the same across the smaller and larger samples. The significant positive relationship between clinician years of education and fidelity ratings is consistent with some previous research in this area (Campbell et al., 2013). The relational factor involves competence-related elements that require more responsiveness and skill on the part of the clinician while the technical factor required adherence-related behaviour that is more explicitly prescribed in the treatment manual (Rollinson et al., 2008). This differential relationship is supported by previous research that found higher education to significantly predict competence, but not adherence (Fals-Stewart & Birchler, 2002).

Results should be interpreted with caution, as many of the analyses were correlational and exploratory. Additionally, the sample size (n = 102) of the current study is relatively small in terms of what is generally recommended for an EFA of these conditions (Fabrigar et al., 1999), though recommendations set forth by prior research vary dramatically. Further, the sample involved nested data (clients nested within therapists) and thus, results may conflate client and therapist effects of fidelity. However, given that this was an initial exploratory study of the IRT fidelity scale, standard EFA was utilized rather than multilevel modelling. The correlational analyses did not include a correction for multiple comparisons and analyzed clinician variables in 2, perhaps less than ideal ways (eg, entering clinician data multiple times and using a small sample), which may have impacted the results. Finally, the range of client and clinician characteristics examined was limited and only fidelity ratings from standard sessions were utilized. Future work may consider examining a wider array of variables including client motivation and engagement as well as clinician demographics across individualized and standard sessions.

Despite these limitations, the findings of the current study provide insight into the underlying elements of the IRT treatment and fidelity as part of RAISE-ETP. This research is novel in that it focuses on the underlying elements of fidelity to manual-based individual therapy for a first-episode population. These findings support the IRT fidelity scale as a unified measure of clinician performance that involves 2 main dimensions: a technical factor and a relational factor. Resulting clinician competence and adherence to IRT treatment may be assessed independently from client symptoms; however, a positive relationship between clinician years of education and fidelity exists. These findings underscore the importance of clinician education level when tailoring training and supervision to ensure proper implementation of both technical and relationship components of IRT.

REFERENCES

Addington, J. (2007). The promise of early intervention. *Early Intervention in Psychiatry*, 1, 294–307.

Addington, D., Addington, J., Maticka-Tyndale, E., & Joyce, J. (2012). Development of a core set of performance measures for evaluating schizophrenia treatment. *Psychiatric Services*, 63(6), 584–591.

Alvarez-Jimenez, M., Wade, D., Cotton, S., Gee, D., Pearce, T., Crisp, K., ... Gleeson, J. F. (2008). Enhancing treatment fidelity in psychotherapy research: Novel approach to measure the components of cognitive behavioural therapy for relapse prevention in first-episode psychosis. *Australian and New Zealand Journal of Psychiatry*, 42(12), 1013–1020.

Barber, J. P., Gallop, R., Crits-Christoph, P., Frank, A., Thase, M. E., Weiss, R. D., ... Gibbons, M. B. C. (2006). The role of therapist adherence, therapist competence, and alliance in predicting outcome of individual drug counseling: Results from the National Institute Drug Abuse Collaborative Cocaine Treatment Study. *Psychotherapy Research*, 16(2), 229–240.

Baumann, B. L., Kolko, D. J., Collins, K., & Herschell, A. D. (2006). Understanding practitioners' characteristics and perspectives prior to the dissemination of an evidence-based intervention. *Child Abuse and Neglect*, 30(7), 771–787.

Bond, G. R., Campbell, K., Evans, L. J., Gervey, R., Pascaris, A., Tice, S., ... Revell, G. (2002). A scale to measure quality of supported employment for persons with severe mental illness. *Journal of Vocational Rehabilitation*, 17(4), 239–250.

Buchanan, R. W., Kreyenbuhl, J., Kelly, D. L., Noel, J. M., Boggs, D. L., Fischer, B. A., ... Keller, W., Schizophrenia Patient Outcomes Research Team (PORT). (2010). The 2009 schizophrenia PORT psychopharmacological treatment recommendations and summary statements. *Schizophrenia Bulletin*, 36(1), 71–93.

Campbell, B. K., Buti, A., Fussell, H. E., Srikanth, P., McCarty, D., & Guydish, J. R. (2013). Therapist predictors of treatment delivery fidelity in a community-based trial of 12-step facilitation. *The American Journal of Drug and Alcohol Abuse*, 39(5), 304–311.

Carlson, R., & Weisman de Mamani, A. (2010). Client characteristics and therapist competence and adherence to family therapy for schizophrenia. *Interamerican Journal of Psychology*, 44, 203–212.

Craig, T. K. J., Garety, P., Power, P., Rahaman, N., Colbert, S., Fornells-Ambrojo, M., & Dunn, G. (2004). The Lambeth Early Onset (LEO) Team: Randomised controlled trial of the effectiveness of specialised care for early psychosis. *British Medical Journal*, 329(7474), 1067.

Drake, R. E., Goldman, H. H., Leff, H., Stephen, L., Anthony, F., Mueser, K., ... William, C. (2001). Implementing evidence-based practices in routine mental health service settings. *Psychiatric Services*, 52(2), 179–182.

Fabrigar, L. R., Duane, W. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factory analysis in psychological research. *Psychological Methods*, 4(3), 272–299.

Fals-Stewart, W., & Birchler, G. R. (2002). Behavioral couples therapy with alcoholic men and their intimate partners: The comparative effectiveness of bachelor's- and master's-level counselors. *Behavior Therapy*, 33(1), 123–147.

Fenton, W. S., & Schooler, N. R. (2000). Evidence-based psychosocial treatment for schizophrenia. *Schizophrenia Bulletin*, 26(1), 1–3.

Harrington, E., Neffgen, M., Sasalu, P., Sehgel, T., & Woolley, J. (2013). Initial predictors of outcome in early intervention in psychosis servic. *Early Intervention in Psychiatry*, 7, 311–314.

Harvey, C., Killaspy, H., Martino, S., & Johnson, S. (2012). Implementation of assertive community treatment in Australia: Model fidelity, patient characteristics and staff experiences. *Community Mental Health Journal*, 48(5), 652–661.

Jørgensen, P., Nordentoft, M., Abel, M. B., Gouliaev, G., Jeppesen, P., & Kassow, P. (2000). Early detection and assertive community treatment of young psychotics: The OPUS study: Rationale and design of the trial. *Social Psychiatry and Psychiatric Epidemiology*, 35(7), 283–287.

Kane, J. M., Robinson, D. G., Schooler, N. R., Mueser, K. T., Penn, D. L., Rosenheck, R. A., ... Marcy, P. (2016). Comprehensive versus usual community care for first-episode psychosis: 2-Year outcomes from the NIMH RAISE Early Treatment Program. *American Journal of Psychiatry*, 173(4), 362–372.

Kane, J. M., Schooler, N. R., Marcy, P., Correll, C. U., Brunette, M. F., Mueser, K. T., ... Robinson, D. G. (2015). The RAISE Early Treatment Program for first-episode psychosis: Background, rationale, and study design. *Journal of Clinical Psychiatry*, 76(3), 240–246.

Kay, S. R., Fiszbein, A., & Opler, L. (1987). The positive and negative syndrome scale (PANSS) for schizophrenia. *Schizophrenia Bulletin*, 13, 261–276.

Lee, M. S., Ahn, S. R., Park, J. I., & Chung, Y. C. (2012). Development of an early psychosis intervention system in Korea: Focus on continuing care system for first-episode psychosis treatment in Seoul. *East Asian Archives of Psychiatry*, 22, 105–109.

Lieberman, J. A., Dixon, L. B., & Goldman, H. H. (2013). Early detection and intervention in schizophrenia: A new therapeutic model. *Journal of the American Medical Association*, 310(7), 689–690.

Mark, T. L., Coffey, R. M., Vandivort-Warren, R., Harwood, H. J., & King, E. C. (2005). U.S. spending for mental health and substance abuse treatment, 1991–2001. *Health Affairs*, 24, W5.

Marshall, M., Lewis, S., Lockwood, A., Drake, R., Jones, P., & Croudace, T. (2005). Association between duration of untreated psychosis and outcome in cohorts of first-episode patients. *Archives of General Psychiatry*, 62, 975–983.

Marvin, S. E., Miklowitz, D. J., O'Brien, M. P., & Cannon, T. D. (2016). Family-focused therapy for individuals at clinical high risk for psychosis: Treatment fidelity within a multisite randomized trial. *Early Intervention in Psychiatry*, 10(2), 137–143.

McGlinchey, J. B., & Dobson, K. S. (2003). Treatment integrity concerns in cognitive therapy for depression. *Journal of Cognitive Psychotherapy*, 17(4), 299–318.

McGorry, P. D., Edwards, J., Mihalopoulos, C., Harrigan, S. M., & Jackson, H. J. (1996). EPPIC: An evolving system of early detection and optimal management. *Schizophrenia Bulletin*, 22(2), 305–326.

McGuire, A. B., Kukla, M., Green, A., Gillbride, D., Mueser, K. T., & Salyers, M. P. (2014). Illness management recovery: A review of the literature. *Psychiatric Services*, 65(2), 171–179.

McHugo, G. J., Drake, R. E., Whitley, R., Bond, G. R., Campbell, K., Rapp, C. A., ... Finnerty, M. T. (2007). Fidelity outcomes in the national implementing evidence-based practices project. *Psychiatric Services*, 58(10), 1279–1284.

Mead, S. C., & Copeland, M. E. (2000). What recovery means to us: Consumer perspectives. *Community Mental Health Journal*, 36(3), 315–328.

Meyer, P. S., Gottlieb, J. D., Penn, D., Mueser, K., & Gingerich, S. (2015). Individual resiliency training: An early Intervention approach to enhance well-being in people with first-episode psychosis. *Psychiatric Annals*, 45(11), 554–560.

Mihalopoulos, C., Harris, M., Henry, L., Harrigan, S., & McGorry, P. (2009). Is early intervention in psychosis cost-effective over the long term. *Schizophrenia Bulletin*, 35(5), 909–918.

Miller, S. J., & Binder, J. L. (2002). The effects of manual-based training on treatment fidelity and outcome: A review of the literature on adult individual psychotherapy. *Psychotherapy Theory Research & Practice*, 39(2), 184–198.

Mueser, K. T., Corrigan, P. W., Hilton, D. W., Tanzman, B., Schaub, A., Gingerich, S., ... Herz, M. I. (2002). Illness management and recovery: A review of the research. *Psychiatric Services*, 53(10), 1272–1284.

Mueser, K. T., & McGurk, S. R. (2004). Schizophrenia. *The Lancet*, 363(9426), 2063–2072.

Mueser, K. T., Penn, D. L., Addington, J., Brunette, M. F., Gingerich, S., Glynn, S. M., ... Kane, J. M. (2015). The NAVIGATE program for first-episode psychosis: Rationale, overview, and description of psychosocial components. *Psychiatric Services*, 66(7), 680–690.

Norman, R. G., Lewis, S. W., & Marshall, M. (2005). Duration of untreated psychosis and its relationship to clinical outcome. *British Journal of Psychiatry*, 187(48), s19–s23.

Perepletchikova, F., Treat, T. A., & Kazdin, A. E. (2007). Treatment integrity in psychotherapy research: Analysis of the studies and examination of the associated factor. *Journal of Consulting and Clinical Psychology*, 75, 829–841.

Petersen, L., Jeppesen, P., Thorup, A., Abel, M., Øhlenschlæger, J., Christensen, T. Ø., ... Nordentoft, M. (2005). A randomised multicentre trial of integrated versus standard treatment for patients with a first episode of psychotic illness. *British Medical Journal*, 331(7517), 602.

Petrakis, M., Hamilton, B., Penno, S., Selvendra, A., Laxton, S., Doidge, G., ... Castle, D. (2011). Fidelity to clinical guidelines using a care pathway in the treatment of first episode psychosis. *Journal of Evaluation in Clinical Practice*, 17(4), 722–728.

Rollinson, R., Smith, B., Steel, C., Jolley, S., Onwumere, J., Gartley, P. A., ... Fowler, D. (2008). Measuring adherence in CBT for psychosis: A psychometric analysis of an adherence scale. *Behavioural and Cognitive Psychotherapy*, 26, 163–178.

Shean, G. D. (2009). Evidence-based psychosocial practices and recovery from schizophrenia. *Psychiatry*, 72(4), 307–320.

Srihari, V. H., Tek, C., & Kucukgoncu, S. (2015). First-episode services for psychotic disorders in the US public sector: A pragmatic randomized controlled trial. *Psychiatric Services*, 66(7), 705–712.

Startup, M., Jackson, M., & Pearce, E. (2002). Assessing therapist adherence to cognitive-behaviour therapy for psychosis. *Behavioural and Cognitive Psychotherapy*, 30, 329–339.

Sullivan, P. F. (2012). Puzzling over schizophrenia: Schizophrenia as a pathway disease. *Nature Medicine*, 18(2), 210–211.

Uzenoff, S. R., Penn, D. L., Graham, K. A., Saade, S., Smith, B. B., & Perkins, D. O. (2012). Evaluation of a multi-element treatment center for early psychosis in the United States. *Social Psychiatry and Psychiatric Epidemiology*, 47, 1607–1615.

Villeneuve, K., Potvin, S., Lesage, A., & Nicole, L. (2010). Meta-analysis of rates of drop-out from psychosocial treatment among persons with schizophrenia spectrum disorder. *Schizophrenia Research*, 121, 266–270.

Walder, D. J., Faraone, S. V., Glatt, S. J., Tsuang, M. T., & Seidman, L. J. (2014). Genetic liability, prenatal health, stress and family environment: Risk factors in the Harvard Adolescent Family High Risk for Schizophrenia Study. *Schizophrenia Research*, 157(1–3), 142–148.

Wallwork, R. S., Fortgang, R., Hashimoto, R., Weinberger, D. R., & Dickinson, D. (2012). Searching for a consensus five-factor model of the positive and negative syndrome scale for schizophrenia. *Schizophrenia Research*, 137, 246–250.

Waltz, J., Addis, M. E., Koerner, K., & Jacobson, N. S. (1993). Testing the integrity of a psychotherapy protocol: Assessment of adherence and competence. *Journal of Consulting and Clinical Psychology*, 61(4), 620–630.

APPENDIX

Below are the general guidelines and items of the IRT Fidelity Scale. (Note: items 7-Positive Reinforcement and Shaping, 8-Cognitive Restructuring and 9-Skills Training Strategies, tend to be module-specific and therefore do not receive a rating for most standard sessions.)

IRT Fidelity Scale

Fidelity ratings are based on observation of an IRT session or listening to an audiotape of a session.

Clinician: ___   Site:____
Date of Session:___   Module & Topic:____
Date of Rating:___   Name of Rater:___
Client ID:___   **Overall Session #:___**

General Guidelines for Scale

1	2	3	4	5	NA
Unsatisfactory or not Observed	Needs Improvement	Satisfactory	Very Good	Excellent	Not Applicable

__1. Agenda Setting:
- Set specific agenda at the beginning of session
- Elicit other issues form client for agenda (e.g., "Is there anything specific/any particular issue you would like to talk about today?")
- Agree on order of agenda items
- Implement specific agenda

Comments:
STRENGTHS:
AREAS FOR IMPROVEMENT:

__2. Goal-setting and Goal Follow-up
- Explore client's desired areas of change or possible goals
- Help client set a personally meaningful goal
- Help client break down goal into smaller sub-goals and steps
- Reinforce steps taken towards goal
- Problem-solve obstacles to steps, including need for other skills/supports

Comments:
STRENGTHS:
AREAS FOR IMPROVEMENT:

__3. Review of Home Assignment
- Review prior home assignment
- Reinforce any efforts to complete home assignment
- Identify and problem solve obstacles to completing home assignment
- Complete Home Assignment in session with client if needed

Comments:
STRENGTHS:
AREAS FOR IMPROVEMENT:

__4. Use of IRT Educational Materials
- Utilize handouts and worksheets to guide the session
- Answer and elicits questions
- Stay focused on topic

Comments:
STRENGTHS:
AREAS FOR IMPROVEMENT:

__5. Motivational Enhancement Strategies
- Connect material and session to client's goals
- Promote hope and positive expectations
- Explore pros and cons of change
- Reinforce "change" talk
- Reframe experiences in positive light

Comments:
STRENGTHS:
AREAS FOR IMPROVEMENT:

__6. Educational Strategies
- Provide information
- Elicit client's experience related to presented material
- Adapt language to client's preferences
- Break down information into manageable chunks
- Provide interim summaries
- Ask questions to check for understanding

Comments:
STRENGTHS:
AREAS FOR IMPROVEMENT:

__7. Positive Reinforcement and Shaping

- Praise successive approximations (small steps) towards completion of home assignments, progress towards goals, and learning of skills
- Give positive, specific feedback about learning information or skills
- Celebrate completion of modules
- Reinforce on-topic comments and ignore off-topic comments

Comments:
STRENGTHS:
AREAS FOR IMPROVEMENT:

__8. Cognitive Restructuring

- Explain relationship between thoughts and feelings
- Teach commons style of thinking to help client catch and change inaccurate thinking related to upsetting feelings
- Teach clients how to identify thoughts relating to upsetting feelings
- Discuss nature of "evidence"
- Teach clients how to evaluate supporting and/or not supporting upsetting thoughts and beliefs
- Help client identify more accurate thoughts or beliefs when one is not supported by evidence
- In "Dealing with Negative Feelings Module," teach the 5 steps of Cognitive Restructuring to examine accuracy of thoughts/beliefs underlying upsetting feelings: 1) identify troubling situation, 2) identify upsetting feeling, 3) identify upsetting thought underlying the feeling, 4) examine evidence for and against the thought, 4) take actions (if evidence does not support the thought, develop a more accurate thought; if evidence does support the thought, make an action plan to address situation

Comments:
STRENGTHS:
AREAS FOR IMPROVEMENT:

__9. Skills Training Strategies

- Establish/elicit rationale for skill
- Discuss steps of skill
- Model (demonstrate) the skill
- Help client practice the skill in one or more role plays (or other exercise such as deep breathing)

- Provide feedback, starting with positive
- Help client develop plan to practice skill outside the session, including anticipation of obstacles and problem-solving around those obstacles

Comments:
STRENGTHS:
AREAS FOR IMPROVEMENT:

__10. Developing Home Assignment
- Help client develop specific home assignment to practice or review material covered in session or take steps towards personal goal
- Help client identify specific days, times, and places for completing the assignment
- Identify and problem solve potential obstacles
- Practice assignment in session if indicated
- Enlist help of significant others if indicated

Comments:
STRENGTHS:
AREAS FOR IMPROVEMENT:

__11. Structuring the Session and Using Time Efficiently
- Follow standard structure for IRT session (informal socializing, identification of major problems, set agenda, follow up on goals, review previous session, discuss past home assignment, teach new material, summarize progress in current session, develop home assignment collaboratively)
- Cover the content of the session at a pace that's comfortable for the client
- Tactfully limit peripheral or unrelated discussion

Comments:
STRENGTHS:
AREAS FOR IMPROVEMENT:

__12. Therapeutic Relationship
- Covey warmth and empathy
- Express understanding and compassion about unpleasant experiences
- Show flexibility in responding to client's concerns

Comments:
STRENGTHS:
AREAS FOR IMPROVEMENT:

__13. Recovery/Resiliency Focus
- Express hope and optimism for the future
- Support or enhance client's self-efficacy

- Use of recovery and resiliency language when appropriate
- Help client take an active role in shared decision-making
- Expression of confidence client can make progress towards recovery goals
- Help client identify and build own resiliency skills

Comments:
STRENGTHS:
AREAS FOR IMPROVEMENT:

__14. Overall Quality of Session
- Materials taught effectively using combination of motivational, educational and cognitive behavioral strategies
- Flexible and responsive to emergent needs, issues, or unexpected challenges
- Reduces client distress as needed

Comments:
STRENGTHS:
AREAS FOR IMPROVEMENT: