



The mindfulness-based relapse prevention adherence and competence scale: Development, interrater reliability, and validity

Neharika Chawla , Susan Collins , Sarah Bowen , Sharon Hsu , Joel Grow , Anne Douglass & G. Alan Marlatt


To cite this article: Neharika Chawla , Susan Collins , Sarah Bowen , Sharon Hsu , Joel Grow , Anne Douglass & G. Alan Marlatt (2010) The mindfulness-based relapse prevention adherence and competence scale: Development, interrater reliability, and validity, *Psychotherapy Research*, 20:4, 388-397, DOI: [10.1080/10503300903544257](https://doi.org/10.1080/10503300903544257)

To link to this article: <http://dx.doi.org/10.1080/10503300903544257>



Published online: 04 Mar 2010.



[Submit your article to this journal](#) 



Article views: 635



[View related articles](#) 



Citing articles: 10 [View citing articles](#) 

The mindfulness-based relapse prevention adherence and competence scale: Development, interrater reliability, and validity

NEHARIKA CHAWLA¹, SUSAN COLLINS¹, SARAH BOWEN¹, SHARON HSU¹,
JOEL GROW¹, ANNE DOUGLASS², & G. ALAN MARLATT¹

¹Department of Psychology, University of Washington, Seattle & ²Fred Hutchinson Cancer Research Center, Seattle, Washington, USA

(Received 9 September 2009; revised 3 December 2009; accepted 7 December 2009)

Abstract

The present study describes the development of the Mindfulness-Based Relapse Prevention Adherence and Competence Scale (MBRP-AC), a measure of treatment integrity for mindfulness-based relapse prevention (MBRP). MBRP is a newly developed treatment integrating core aspects of relapse prevention with mindfulness practices. The MBRP-AC was developed in the context of a randomized controlled trial (RCT) of MBRP efficacy and consists of two sections: Adherence (adherence to individual components of MBRP and discussion of key concepts) and Competence (ratings of therapist style/approach and performance). Audio recordings from 44 randomly selected group treatment sessions (50%) were rated by independent raters for therapist adherence and competence in the RCT. Findings evinced high interrater reliability for all treatment adherence and competence ratings, and adequate internal consistency for Therapist Style/Approach and Therapist Performance summary scales. Ratings on the MBRP-AC suggested that therapists in the recent RCT adhered to protocol, discussed key concepts in each session, and demonstrated the intended style and competence in treatment delivery. Finally, overall ratings on the Adherence section were positively related to changes in mindfulness over the course of the treatment.

Keywords: relapse prevention; mindfulness; adherence; competence; treatment integrity; substance abuse; cognitive-behavior therapy; integrative treatment models; process research

Mindfulness-based interventions train individuals to practice formal meditation techniques to increase attention to present-moment experiences, including thoughts and emotional states, while relating to these experiences in an accepting and nonjudgmental manner. These interventions have been described with increasing frequency in the empirical literature and are being applied to a variety of populations and problem areas (e.g., Bowen et al., 2006, 2009; Kabat-Zinn, 1982; Kabat-Zinn et al., 1992; Kristeller & Hallett, 1999; Teasdale et al., 2000).

Two mindfulness-based interventions that have garnered significant empirical support are mindfulness-based stress reduction (MBSR; Kabat-Zinn, 1990) and mindfulness-based cognitive therapy for depression (MBCT; Segal, Williams, & Teasdale, 2002; Teasdale, Segal, & Williams, 1995). These 8-week group treatments combine cognitive and/or behavioral techniques with mindfulness exercises to help participants better cope with stress and depressive symptoms, respectively.

Mindfulness-based relapse prevention (MBRP) is a recently developed after-care treatment for adults with substance use disorders (Bowen, Chawla, & Marlatt, in press; Witkiewitz, Marlatt, & Walker, 2005). Although the structure of MBRP is based largely on MBSR and MBCT, MBRP provides an innovative application of mindfulness to the treatment of substance use disorders. Specifically, MBRP integrates mindfulness practice and aspects of relapse prevention (Daley & Marlatt, 2006; Marlatt & Gordon, 1985), a cognitive-behavioral treatment that aims to prevent relapse to substance use. The program teaches mindfulness exercises and skills to interrupt the habitual reactive behaviors associated with high-risk situations, triggers, and cravings for substance use.

Findings from the initial randomized controlled trial (RCT) on which the current study is based suggested that MBRP participants significantly reduced substance use and craving during the 4 months following treatment compared with a

treatment-as-usual control (TAU) group (Bowen et al., 2009). Further, compared with TAU participants, those receiving MBRP showed a trend toward increases in acceptance of current experience such as thoughts and feelings, without evaluation, as measured by the Acceptance and Action Questionnaire (Hayes et al., 2004), and ability to act with awareness, as measured by the Five Factor Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). Additionally, high participant satisfaction and treatment compliance support the feasibility of the MBRP program. These results offer promising preliminary evidence for MBRP as an efficacious and feasible after-care treatment and provide support for the use of mindfulness meditation for treating substance use disorders.

Treatment Integrity: Manual Adherence and Therapist Competence

As described by Waltz, Addis, Koerner, and Jacobson (1993), adherence refers to the extent to which interventions and approaches that are prescribed by a treatment manual are delivered and those that are proscribed are avoided. Competence, on the other hand, refers to the skill with which therapists deliver the treatment (Waltz et al., 1993). Assessment of these treatment integrity indicators is essential to ensuring the internal and external validity of treatment study findings (Bellg et al., 2004). In the absence of such indicators, significant treatment outcomes may not be attributed to an effective treatment, and nonsignificant findings may result from an ineffective treatment or be attributed to a lack of treatment integrity rather than to the effectiveness of the treatment itself (Barber, Foltz, Crits-Christoph, & Chittams, 2004). Thus, treatment integrity assessment helps detect and explain differential adherence and/or competence in treatment delivery (Waltz et al., 1993), which reduces unexplained variability and determines the extent to which the treatment itself accounts for outcomes (Bellg et al., 2004). Further, assessment of treatment integrity facilitates cross-site comparisons and evaluation of treatment discriminability (Bellg et al., 2004; Waltz et al., 1993). Finally, the information provided by these measures may contribute to further development and refinement of the treatment (Waltz et al., 1993).

The concept of treatment integrity, which may be incorporated within the broader framework of treatment fidelity (the strategies used to monitor and increase the reliability and validity of behavioral interventions), has expanded significantly over the last 20 years (Borrelli et al., 2005). This framework,

which includes several additional components (e.g., treatment differentiation, treatment receipt, and treatment enactment), has led to the development of a comprehensive set of guidelines for establishing treatment fidelity in behavior change research (Borrelli et al., 2005). This has been coupled with the development and validation of several established measures of therapist adherence and competence (e.g., Cognitive Therapy Scale [Young & Beck, 1980]; Yale Adherence and Competence Scale [Carroll et al., 2000]; Motivational Interviewing Treatment Integrity Code [Moyers, Martin, Manuel, Miller, & Ernst, 2003]). Despite these advances, the overall reporting of treatment integrity practices continues to be scant and inconsistent (Borrelli et al., 2005; Moncher & Prinz, 1991; Lichstein, Riedel, & Grieve, 1994). This is particularly apparent in the field of mindfulness-based interventions.

Mindfulness-based Interventions and Treatment Integrity

Despite their popularity and data supporting their efficacy, most studies of mindfulness-based interventions have not assessed therapist adherence or competence. Although several studies on mindfulness-based interventions indicate that therapists were experienced in the delivery of the treatment, procedures for therapist training are often not discussed (Baer, 2003). Further, therapist experience and training do not necessarily indicate that a treatment was delivered as intended. One review of mindfulness-based treatments reported that no studies to date have included information on measures of adherence and competence (Baer, 2003). To the best of our knowledge, there is only one published measure of treatment integrity for mindfulness-based interventions (see Segal et al., 2002). Although this scale is a promising measure of adherence to an MBCT protocol, it does not assess the competence with which the treatment was delivered. The dearth of treatment integrity tools for mindfulness-based interventions, and therapist competence in particular, highlights the need for further measures in this area.

The complexities involved in the development of treatment integrity measures may account for the paucity of treatment integrity assessment in the context of mindfulness-based treatments. As is true for assessing any treatment, it is expensive to hire and train expert raters and time consuming to rate individual treatment sessions. There are also several challenges unique to mindfulness-based interventions that may further complicate the assessment of therapist adherence and competence. Mindfulness is a multifaceted construct that is difficult to describe

and quantify (Ivanovski & Malhi, 2007). Although most definitions include components such as self-regulation of attention, awareness of present-moment experience, and an attitude of openness and nonjudgment (e.g., Bishop et al., 2004; Kabat-Zinn, 1990; Segal et al., 2002), definitions have varied, as have the procedures involved in training individuals to practice mindfulness. This ambiguity has made it challenging to operationalize and quantify the techniques and processes used in these treatments. Additionally, many of the study interventions reported in the literature were delivered by their original developers (e.g., MBSR; Kabat-Zinn, 1990), and it is only recently that procedures for training other health care providers have been developed. Moreover, there is no agreed-upon standard for the background, training, and supervision required of facilitators of mindfulness-based interventions. For instance, some interventions require that therapists have a formal, daily mindfulness practice, which is assumed to be reflected in their therapeutic approach (Kabat-Zinn, 2003). However, this embodiment of mindfulness on the part of the therapist and the qualities with which it is associated (e.g., authenticity, nonjudgment, being in the present moment) may be difficult to measure with accuracy (Dimidjian & Linehan, 2003). These issues have presented great challenges to the clarification necessary for the measurement of competence and adherence.

Current Study

The aim of the current study was to develop a reliable and valid quantitative measure of therapist adherence and competence in delivering MBRP and to assess the extent to which therapists in an initial trial adhered to protocol, discussed key concepts, and demonstrated competence in treatment delivery. In this study, we describe the development of the Mindfulness-Based Relapse Prevention Adherence and Competence Scale (MBRP-AC), assess its interrater reliability and validity, and use it to assess therapist adherence and competence in the context of an MBRP RCT.

Method

Sample.

Participants. The sample included 93 individuals who were recruited after completion of either inpatient or intensive outpatient substance abuse programs at a nonprofit treatment agency. Participants comprised a subset of those who had volunteered to take part in the larger parent RCT ($N = 168$) comparing the efficacy of MBRP and TAU (for details, see Bowen et al., in press) and consented to complete all

study procedures. The 33 women (35.48%) and 60 men (64.52%) were a mean age of 40.84 years ($SD = 1.07$). The majority identified as Caucasian (63.44% $n = 59$), followed by African American (22.58% $n = 21$), Hispanic/Latino/a (6.45% $n = 6$), multiracial (1.08% $n = 1$), Native American (9.68% $n = 9$), and Asian/Pacific Islander (4.31% $n = 4$). Sixty-seven (71.6%) had at least a high school diploma; 38 (41.3%) were unemployed; and 31 (32.9%) received public assistance. The majority ($n = 58$ [62.3%]) reported annual earnings of less than \$4,999.

Therapists. The MBRP groups were facilitated by 10 therapists (nine female; two ethnic minority) with master's degrees in either psychology or social work and a wide range of clinical experience. Six were currently in a doctoral training program in clinical psychology, and one was in a doctoral program in social work. Three were master's-level clinicians in private practice in the community. All therapists had experience in delivery of cognitive-behavioral interventions, six had previous experience with mindfulness-based interventions, and four had 4 or more years of regular personal mindfulness meditation practice, including attendance at intensive mindfulness meditation retreats. Therapists participated in a 2-day intensive training workshop, several weeks of additional training, and weekly supervision throughout the course of the group therapy. Supervisors were four psychologists and one psychiatrist in private practice or university-based mentoring/administrative positions. These individuals had extensive personal experience with mindfulness meditation and cognitive-behavioral group psychotherapy and in conducting mindfulness-based interventions, including MBSR and MBCT.

MBRP Treatment. MBRP (Bowen et al., in press; Witkiewitz et al., 2005) is an 8-week group-based intervention that involves 2-hr weekly sessions. Each session is facilitated by two therapists in a small-group format (6–10 participants) and comprises meditation practices and related relapse prevention discussions and exercises. Identification of high-risk situations for relapse is a core component of MBRP. Participants are trained to recognize early warning signs for relapse and to increase awareness of substance-related cues that have previously been associated with substance use. Mindfulness practices are intended to increase awareness of these cues and provide a means of monitoring internal reactions, thus enabling participants to make more skillful choices. Specific goals of MBRP include increasing awareness of individual substance use triggers, shifting the relationship and response to discomfort or distress, and interrupting habitual behavioral

reactions to substance use cues, thereby reducing the likelihood of relapse. Sessions typically begin with a 20- to 30-min guided meditation (e.g., “body scan,” or sitting meditation) and involve a variety of experiential exercises (e.g., “urge surfing,” or practicing nonjudgmental acceptance and observation of urges rather than suppression, the use of mindfulness techniques in high-risk situations, and the use of “mini-meditations” or “breathing spaces” in challenging situations). Participants are assigned daily exercises and are provided with meditation audio recordings for practice between sessions.

Measures.

MBRP-AC. The MBRP-AC, which is completed by trained raters reviewing the recorded sessions, consists of two main sections: Adherence and Competence, each of which contains two subscales. The items of the MBRP-AC are presented in the Appendix.

The two subscales of the Adherence section are MBRP Treatment Components and Discussion of Key Concepts. Adherence to MBRP Treatment Components is assessed using a checklist of the major topics within each session of the MBRP treatment manual to determine whether therapists delivered each of the components. The Discussion of Key Concepts subscale assesses the extent to which therapists used the key concepts of MBRP in facilitating discussion of in-session exercises and in responding to questions and comments. The items for this subscale were initially modeled on the Mindfulness-Based Cognitive Therapy Adherence Scale (Segal et al., 2002), but were modified to represent the behaviors and processes described in the MBRP treatment manual and reflected in session audiotapes. These items were revised based on feedback from experienced providers of mindfulness-based interventions. These included one of the developers of MBCT and two experienced providers of MBCT and MBSR, each of whom have more than 5 years of experience in delivering these interventions and extensive experience with mindfulness practice. This subscale consists of four items, each of which is rated using behavioral counts, or a tally of instances of each behavior.

The Competence section of the MBRP-AC contains two subscales: Therapist Style/Approach and Overall Therapist Performance. The Therapist Style/Approach subscale was developed based on the processes described in the MBRP manual and direct observation and review of MBRP session audiotapes, and was revised based on expert feedback from the individuals described previously. Items are both indicators of general therapist competence (e.g., therapists’ ability to elicit and respond to feedback

by asking open questions, accurate empathy/validation) as well as mindfulness therapist competence (e.g., clarifying expectations and misconceptions about mindfulness meditation). The subscale consists of four items, each of which is measured on a 5-point scale (1 = *low ability*, 5 = *high ability*).

The Overall Therapist Performance subscale is designed to capture raters’ global impressions of the session, such as therapists’ ability to work as a team and keep the session on topic. It consists of four items that are rated on a 5-point scale (1 = *not satisfactory*, 5 = *excellent*).

Therapeutic alliance. Therapeutic alliance was assessed using a 12-item version of the Working Alliance Inventory (WAI-S; Horvath & Greenberg, 1989; Tracey & Kokotovic, 1989) that patients completed as part of the larger RCT following participation in the 8-week intervention. It is a self-report measure of the quality of the therapeutic relationship. Items are rated on a 7-point Likert scale, ranging from 1 (*never*) to 7 (*always*; e.g., “I am confident in the therapist’s ability to help me,” “The therapist and I are working toward mutually agreed upon goals”). The WAI-S has demonstrated good internal consistency and stability (Tracey & Kokotovic, 1989; $\alpha = .91$ in the present study). It has also demonstrated concurrent and predictive validity via strong associations with other inventories designed to measure similar traits (e.g., empathy) and correlations with a variety of client- and therapist-rated psychotherapy outcomes (Horvath & Greenberg, 1989; Horvath & Symonds, 1991). Further, the WAI-S has been used in several group psychotherapy research studies (e.g., Johnson, Burlingame, Olsen, Davies, & Gleave, 2005; McEvoy & Perini, 2009; Woody & Adessky, 2002), and has demonstrated associations with other measures of the therapeutic relationship, including empathy and group cohesion (Johnson et al., 2005).

Mindfulness. Mindfulness was assessed using the FFMQ (Baer et al., 2006), which was completed by all participants in the parent RCT at baseline and posttreatment. It consists of 39 items assessing the degree to which individuals notice or attend to a variety of internal and external phenomena, engage with full awareness of current experience, allow and accept current experience without evaluation, and notice internal phenomena, such as thoughts and feelings, without reacting. Items are rated on a 5-point Likert scale (1 = *never or very rarely true*, 5 = *very often or always true*). The FFMQ has demonstrated good internal consistency ($\alpha = .75-.91$ for the different subscales) and expected relationships with a variety of other constructs, including emotional intelligence, self-compassion, dissociation, and thought suppression (Baer et al., 2006).

Scores on the FFMQ were also found to be correlated with meditation practice and psychological well-being among a sample of long-term meditators (Baer et al., 2008) and with time spent engaging in meditation exercises and psychological functioning among individuals who participated in an 8-week mindfulness intervention (Carmody & Baer, 2007).

Rater Selection and Training. Raters were two doctorate-level clinical psychology students, two master's-level counseling/clinical psychology students, and one bachelor's-level former psychology student. Procedures for rater training were similar to those used to train MBRP therapists: Raters first attended or viewed video recordings of an intensive 2-day workshop that included a detailed review of the treatment manual as well as the background of MBRP. Raters then coded at least 10 practice sessions, which were evaluated with respect to expert consensus until their ratings achieved acceptable reliability. The 10 practice sessions were selected from a pilot MBRP group and were not included in the analyses.

Rater Guidelines. A detailed manual was developed to train raters and establish a consistent and reliable approach to performing ratings. The manual describes general guidelines such as instructing raters to take notes, to keep a running tally of therapist behaviors while listening to each session, and to make overall ratings after listening to the entire session. The manual also provides detailed descriptions of each item, example behaviors that correspond to each item, guidelines for distinguishing between related items, and instructions on making lower versus higher ratings.

Procedure. Audio recordings of 44 group treatment sessions were assessed. Four of the eight sessions (50%) were randomly selected from each of 12 treatment cohorts (one cohort was excluded because of equipment failure). Each session was rated by two independent raters, who were randomly assigned. All the raters met for periodic calibration meetings to prevent rater drift.

Data Analysis Plan. We carefully considered a data plan that would account for the natural clustering that occurs when treatment is delivered to participants in group sessions (Donner & Klar, 2000), which is a commonly recommended way to account for intraclass correlations. First, the number of clusters in the current study was too small to adequately conduct hierarchical or mixed modeling ($N = 12$ treatment cohorts; Klar & Donner, 2001).

Second, the goal of the study was to assess the preliminary feasibility and validity of a new adherence and competence coding system as observed for therapist teams in their intervention delivery and not, for example, to test individuals' substance use trajectories. For these reasons, we chose to conduct all analyses using treatment cohort as the main unit of analysis. To control for clustering and the fact that the four group sessions selected from each cohort for coding would be randomly chosen, we used total possible counts as the denominator to account for varying group session content and group summary statistics (proportions and means) to account for participants' substance use outcomes following the intervention.

Results

Interrater Reliability and Internal Consistency. Reliability analyses compared the ratings made by the first and second raters for all MBRP-AC subscales. Because the goal of this analysis was to establish the feasibility of the use of this coding technique, intraclass correlation coefficients (ICCs) were used to test whether raters were able to consistently code the sessions. Average absolute agreement was established using two-way, mixed-model ICCs. Consistency analyses for both individual items and summary scores (i.e., for Therapist Style/Approach and Overall Therapist Performance) showed high levels of agreement between raters (see Table I for

Table I. Interrater Reliability: Mindfulness-Based Relapse Prevention Adherence and Competence Scale

Subscale/individual items	ICC
Adherence	
MBRP Treatment Components	.922
Discussion of Key Concepts	
Noticing/awareness of current experience	.616
Acceptance of current experience	.565
Acceptance versus aversion	.738
Acceptance and action	.683
Competence	
Therapist Style/Approach, global summary score	.811
Inquiry	.553
Attitude	.760
Use of key questions	.744
Expectations	.594
Overall Therapist Performance, summary score	.741
Overall quality of therapy	.622
Ability of therapists to work as a team	.639
Keep the session focused	.642
Quality of delivery of meditation exercises	.526

Note. MBRP, Mindfulness-based Relapse Prevention; ICC, intraclass correlation.

ICCs). Internal consistency for the Therapist Style/Approach ($\alpha = .86$) and the Overall Therapist Performance ($\alpha = .82$) subscales reached acceptable levels; thus, these summary scores may be used to represent global therapist style and competence.

Validity of the MBRP-AC. Validity of the MBRP-AC was tested using bivariate Spearman correlations to assess whether the Adherence and Competence sections were significantly correlated with participants' development of mindfulness over the course of the intervention (see Table II for bivariate correlations) and with participants' perceptions of therapeutic alliance following treatment. Given that a central focus of MBRP is to increase nonjudgmental awareness of phenomena as they are arising in the present moment, it was expected that adherence to the treatment components and consistency with the intended style of MBRP would be positively associated with participant mindfulness. Greater competence was expected to be associated with greater participant confidence in the treatment and the therapist and stronger perceptions of the therapeutic alliance. Contrary to this hypothesis, however, the WAI summary score was correlated with neither overall therapist style nor overall therapist competence as measured by the MBRP-AC. The posttest–baseline difference for the FFMQ summary score correlated positively with the total Adherence section score, which indicated that adherence to the MBRP manual was positively related to the development of mindfulness during the intervention.

Adherence and Competence in the Current RCT. To assess manual adherence, we used a Wilcoxon signed-ranks test to confirm whether therapists delivered 100% of the MBRP treatment components

listed on the Adherence subscale. Averaged across groups and sessions, the delivery of MBRP components in the current RCT did not reach the “ideal” 100% delivery of all MBRP Treatment Components, $z(N=11) = -2.89$, $p < .004$. That said, adherence was still relatively high at 90% component delivery ($SD = 2\%$). Adherence as measured by the Discussion of Key Concepts reached 100%: Key concepts were discussed in all 11 groups ($M = 74.82$, $SD = 22.24$, range = 38–110).

Competence in the current RCT was also relatively high. The Therapist Style/Approach ratings reached a mean of 3.95 ($SD = 0.50$), and the Overall Therapist Performance subscale reached a mean of 3.92 ($SD = 0.42$). Considering that competence ratings for these scales ranged from 1 (*low*) to 5 (*high*), the scores indicated that the therapists in this study reached adequate levels of competence on both Therapist Style/Approach and Overall Therapist Performance.

Discussion

The primary aims of this study were to develop a reliable and valid measure of therapist adherence and competence in delivering a new mindfulness-based treatment for substance use disorders and to assess treatment integrity in the context of an initial clinical trial. Results demonstrated high interrater reliability for all treatment adherence and competence subscales of the MBRP-AC, which suggests that it is possible for students at various levels of psychology training to be trained to code MBRP sessions effectively and reliably. This finding is encouraging and may help reduce the high cost and time expenditure typically associated with expert-level ratings. Another positive finding was the high level of internal consistency for therapist style and competence ratings.

Concerning the validity of the MBRP-AC, the relationship between overall therapist adherence and changes in client mindfulness over the 8 weeks of the course suggests that close adherence to the MBRP protocol may facilitate increases in clients' levels of mindfulness. Given that most exercises and practices in MBRP are designed to increase mindful awareness (Bowen et al., in press), this association is not surprising. Indeed, it suggests that facilitation of these practices is contributing to a primary goal of the intervention. Somewhat surprising is the lack of association between therapist competence and participant mindfulness, because one might expect that therapist exploration of participant experiences, clarification of misconceptions, and modeling of a mindful approach would be associated with greater participant mindfulness. One explanation for

Table II. Bivariate Correlations between the FFMQ and MBRP-AC Adherence Subscales

FFMQ subscale	MBRP Treatment Components	Discussion of Key Concepts
Total	.36 ^a	-.040
Observe	.27	.002
Describe	.18	-.070
Act with Awareness	.18	-.080
Nonjudgmentality	.07	-.010
Nonreactivity	.13	.090

Note. FFMQ, Five Factor Mindfulness Questionnaire; MBRP-AC, Mindfulness-Based Relapse Prevention Adherence and Competence Scale.

^aCorrelation significant at $p < .05$. Additional modified Bonferroni corrections did not support these significant effects. The Bonferroni corrections were applied using the procedure described in Jaccard and Wan (1996). Corrected $\alpha = .05/(\text{number of tests} - \text{number of tests already corrected for})$.

this lack of association may be that introducing participants to mindfulness practices, as described in the treatment manual, may be sufficient to increase their level of mindfulness. Equally surprising is the lack of association between therapist competence and participant ratings of working alliance. However, it is possible that the current MBRP-AC Competence subscales are not adequately nuanced or do not fully reflect the key factors of competence necessary for optimal delivery of MBRP or those related to a positive therapeutic relationship. Future studies are necessary to determine whether these findings are limited to the current sample.

Once reliability and validity of the MBRP-AC were evaluated, we used this measure to assess the adherence and competence attained in the first RCT of MBRP. Although the MBRP therapists did not reach the hypothesized 100% adherence to the MBRP components, findings suggested relatively high levels of adherence for an initial feasibility and efficacy trial (90%). The Discussion of Key Concepts subscale of the Adherence section showed 100% adherence to the key concepts of MBRP, which were discussed in all groups and in all sessions. On a scale of 1 (*low*) to 5 (*high*), mean ratings of both subscales of the Competence section, Therapist Style/Approach subscale and the Overall Therapist Performance, were close to 4. Taken together, these descriptive findings suggest sufficient reliability and validity of the MBRP-AC to assess therapist treatment delivery. Further, ratings on the MBRP-AC indicate that therapists in the recent RCT adhered to protocol, discussed key concepts in each session, and demonstrated the style and overall competence intended in the treatment.

Despite these encouraging preliminary findings, there are also several limitations that deserve mention. First, the study did not assess treatment discriminability, or the extent to which the scale can distinguish between MBRP and other types of interventions with which it shares common elements (e.g., MBCT and relapse prevention). According to Waltz and colleagues (1993), a key element of measure adherence is the examination of unique and common components of different treatments. Thus, an important task for future research comparing MBRP with other treatments is to incorporate further components that will assess prescribed components for MBRP and other, related treatments to optimally assess treatment discriminability. A second limitation of the MBRP-AC is that it only assesses prescribed therapist behaviors and not those that are proscribed by the MBRP treatment manual. Although we asked raters to make a note of therapist behaviors that appeared contrary to the treatment, these were not quantified for the purposes of the current study. Thus, consistent

with the recommendations of Waltz et al. (1993), future research would benefit from an added focus on enumerating therapist behaviors that are inconsistent with or violate the treatment guidelines for MBRP. A final limitation is the use of naïve raters, who were not experienced providers of MBRP. Although these data suggest that it may be possible for students to be trained to code MBRP treatment sessions reliably, it is also possible that these individuals may be limited in their ability to make judgments about the appropriateness of interventions, while taking subtle contextual aspects into account. Thus, in keeping with the recommendations of Waltz and colleagues (1993), time and resource permitting, future studies would benefit from utilizing raters who are themselves skilled in the delivery of MBRP.

Overall, these limitations indicate a need to further refine and develop the current measure. However, given that MBRP is one of the first mindfulness-based interventions to address relapse related to substance use disorders, the development and assessment of the MBRP-AC is an important step to assessing and enhancing MBRP treatment integrity for future trials and clinical applications.

References

- Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science and Practice, 10*, 125–143.
- Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment, 13*, 27–45.
- Baer, R. A., Smith, G. T., Lykins, E., Button, D., Krietemeyer, J., Sauer, S., et al. (2008). Construct validity of the five facet mindfulness questionnaire in meditating and nonmeditating samples. *Assessment, 15*, 329–342.
- Barber, J. P., Foltz, C., Crits-Christoph, P., & Chittams, J. (2004). Therapists' adherence and competence and treatment discrimination in the NIDA Collaborative Cocaine Treatment Study. *Journal of Clinical Psychology, 60*, 29–42.
- Bell, A., Borrelli, B., Resnick, B., Hecht, J., Minicucci, D. S., & Ory, M. (2004). Enhancing treatment fidelity in health behavior change studies: Best practices and recommendations from the NIH Behavior Change Consortium. *Health Psychology, 23*, 443–451.
- Bishop, S. R., Lau, M., Shapiro, S., Carson, L., Anderson, N. D., Carmody, J., et al. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science and Practice, 11*, 230–241.
- Borrelli, B., Sepinwall, D., Ernst, D., Bell, A. J., Czajkowski, S., Breger, R., et al. (2005). A new tool to assess treatment fidelity and evaluation of treatment fidelity across 10 years of health behavior research. *Journal of Consulting and Clinical Psychology, 73*, 852–860.
- Bowen, S., Chawla, N., Collins, S. E., Witkiewitz, K., Hsu, S., Grow, J., et al. (2009). Mindfulness-based relapse prevention for substance-use disorders: A pilot efficacy trial. *Substance Abuse, 30*, 295–305.
- Bowen, S., Chawla, N., & Marlatt, G. A. (in press). Mindfulness-based relapse prevention for substance use disorders: A clinician's guide. New York: Guilford Press.

- Bowen, S., Witkiewitz, K., Dillworth, T. M., Chawla, N., Simpson, T., Ostafin, B., et al. (2006). Mindfulness meditation and substance use in an incarcerated population. *Psychology of Addictive Behaviors, 20*, 343–347.
- Carmody, J., & Baer, R. A. (2007). Relationships between mindfulness practice and levels of mindfulness, medical and psychological symptoms and well-being in a mindfulness-based stress reduction program. *Journal of Behavioral Medicine, 31*, 23–33.
- Carroll, K. M., Nich, C., Sifry, R. L., Nuro, K. F., Frankforter, T. L., Ball, S., et al. (2000). A general system for evaluating therapist adherence and competence in psychotherapy research in the addictions. *Drug and Alcohol Dependence, 57*, 225–238.
- Daley, D., & Marlatt, G. A. (2006). *Overcoming your drug or alcohol problem: Effective recovery strategies*. New York: Oxford University Press.
- Dimidjian, S., & Linehan, M. (2003). Defining an agenda for future research on the clinical application of mindfulness practice. *Clinical Psychology: Science and Practice, 10*, 166–171.
- Donner, A., & Klar, N. (2000). *Design and analysis of cluster randomization trials in health research*. London: Arnold.
- Hayes, S. C., Strosahl, K. D., Wilson, K. G., Bisset, R. T., Pistorello, J., Toarmino, D., et al. (2004). Measuring experiential avoidance: A preliminary test of a working model. *The Psychological Record, 54*, 553–578.
- Horvath, A., & Greenberg, L. (1989). Development and validation of the Working Alliance Inventory. *Journal of Counseling Psychology, 36*(2), 223–233.
- Horvath, A., & Symonds, B. D. (1991). Relation between working alliance and outcome in psychotherapy: A meta-analysis. *Journal of Counseling Psychology, 38*, 139–149.
- Ivanovski, B., & Malhi, G. (2007). The psychological and neurophysiological concomitants of mindfulness forms of meditation. *Acta Neuropsychiatrica, 19*, 76–91.
- Jaccard, J., & Wan, C. K. (1996). *LISREL approaches to interaction effects in multiple regression*. Thousand Oaks, CA: Sage Publications.
- Johnson, J. E., Burlingame, G. M., Olsen, J., Davies, D. R., & Gleave, R. L. (2005). Group climate, cohesion, alliance, and empathy in group psychotherapy: Multilevel structural equation models. *Journal of Counseling Psychology, 52*, 310–321.
- Kabat-Zinn, J. (1982). An outpatient program in behavioral medicine for chronic pain patients based on the practice of mindfulness meditation: Theoretical considerations and preliminary results. *General Hospital Psychiatry, 4*, 33–47.
- Kabat-Zinn, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness*. New York: Delacorte.
- Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology Science and Practice, 10*, 144–156.
- Kabat-Zinn, J., Massion, A., Kristeller, J., Peterson, L. G., Fletcher, K. E., Pbert, L., et al. (1992). Effectiveness of a meditation-based stress reduction intervention in the treatment of anxiety disorders. *American Journal of Psychiatry, 149*, 936–943.
- Klar, N., & Donner, A. (2001). Current and future challenges in the design and analysis of cluster randomization trials. *Statistics in Medicine, 20*, 3729–3740.
- Kristeller, J. L., & Hallett, C. B. (1999). An exploratory study of a meditation-based intervention for binge eating disorder. *Journal of Health Psychology, 4*, 357–363.
- Lichstein, K. L., Riedel, B. W., & Grieve, R. (1994). Fair tests of clinical trials: A treatment implementation model. *Advances in Behavior Research and Therapy, 16*, 1–29.
- Marlatt, G. A., & Gordon, J. R. (Eds.). (1985). *Relapse prevention: Maintenance strategies in the treatment of addictive behaviors*. New York: Guilford Press.
- McEvoy, P. M., & Perini, S. J. (2009). Cognitive behavioral group therapy for social phobia with or without attention training: A controlled trial. *Journal of Anxiety Disorders, 23*, 519–528.
- Moncher, F. J., & Prinz, F. J. (1991). Treatment fidelity in outcome studies. *Clinical Psychology Review, 11*, 247–266.
- Moyers, T. B., Martin, T., Manuel, J. K., Miller, W. R., & Ernst, D. (2003). *Revised global interviewing scales: Motivational Interviewing Treatment Integrity Code*. Retrieved January 12, 2010, from <http://casaa.unm.edu/download/miti3.pdf>.
- Segal, Z. V., Teasdale, J. D., Williams, J. M., & Gemar, M. C. (2002). The Mindfulness-Based Cognitive Therapy Adherence Scale: Inter-rater reliability, adherence to protocol and treatment distinctiveness. *Clinical Psychology and Psychotherapy, 9*, 131–138.
- Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). *Mindfulness-based cognitive therapy for depression. A new approach to preventing relapse*. New York: Guilford Press.
- Teasdale, J. D., Segal, Z., & Williams, J. M. G. (1995). How does cognitive therapy prevent depressive relapse and why should attentional control (mindfulness) training help? *Behavior Research and Therapy, 33*, 25–39.
- Teasdale, J. D., Segal, Z. V., Williams, J. M. G., Ridgeway, V. A., Soulsby, J. M., & Lau, M. A. (2000). Prevention of relapse/recurrence in major depression by mindfulness-based cognitive therapy. *Journal of Consulting and Clinical Psychology, 68*, 615–623.
- Tracey, T. J., & Kokotovic, A. M. (1989). Factor structure of the Working Alliance Inventory. *Psychological Assessment, 1*, 207–210.
- Young, J., & Beck, A. T. (1980). *Cognitive Therapy Scale: Rating manual*. Unpublished manuscript, University of Pennsylvania.
- Waltz, J., Addis, M., Koerner, K., & Jacobson, N. (1993). Testing the integrity of a psychotherapy protocol: Assessment of adherence and competence. *Journal of Consulting and Clinical Psychology, 61*, 620–630.
- Witkiewitz, K., Marlatt, G. A., & Walker, D. D. (2005). Mindfulness-based relapse prevention for alcohol use disorders. *Journal of Cognitive Psychotherapy, 19*(3), 211–228.
- Woody, S. R., & Adessky, R. S. (2002). Therapeutic alliance, group cohesion, and homework compliance during cognitive-behavioral group treatment of social phobia. *Behavior Therapy, 33*, 5–27.

Appendix

Mindfulness-Based Relapse Prevention Adherence and Competence Scale

Adherence: MBRP Treatment Components*	
Session One	Check if completed
1. Introductions	_____
2. Expectations for group and rules for confidentiality and privacy	_____
3. Discussion of group structure and format	_____
4. Raisin exercise/discussion of automatic pilot	_____
5. What is mindfulness?	_____
6. Body scan practice	_____
7. Home practice for the week	_____

Adherence: Discussion of Key Concepts

Please assess the extent to which therapists used each of the key concepts of MBRP in facilitating discussion of in-session exercises and in responding to questions and comments. Please count the number of instances of each behavior. Please focus on the skill of the therapist, taking into account how difficult the participant seems to be.

Key concept	Behavior counts
1. Noticing/awareness of current experience: <i>To what extent do therapists encourage noticing and being aware of present-moment experience?</i> This includes pointing out and validating client behaviors, if the client is already paying attention to his/her experience (e.g., “So you noticed the thought that...”; “So you noticed a judging thought”; “So you noticed your mind wandering”; “Seems like you were aware of the craving”), as well as encouraging client to pay attention to his/her experience (e.g., “What would happen if you just tried to notice that as a thought?”; “Could you pay attention to the sensation?”).	_____
2. Acceptance of current experience:	_____

To what extent do therapists encourage bringing curiosity and a nonjudgmental attitude to whatever arises in the present moment, regardless of whether it is pleasant, unpleasant, or neutral?

For example, paying attention to the experience of sleepiness, restlessness, peacefulness, calm, anger, an itch, etc., with curiosity and nonjudgment: “Can you just notice what the experience of anger is like?”; “What does an itch really feel like—Is it burning, is it hot, pulsing, throbbing?”

3. Acceptance versus aversion: _____

To what extent do therapists introduce the differences between relating to one’s experiences from a standpoint of acceptance as opposed to aversion?

For example, allowing and being with difficult emotional and physical states instead of trying to get rid of them, fight them, fix them, or manipulate one’s experience in some way: “Can you just stay with the itch for a moment and get to know it before scratching it, or immediately getting rid of it and having to make it go away?”

4. Acceptance and action: _____

To what extent do therapists discuss the importance of stepping out of auto-pilot (pausing, taking a breathing space, evaluating one’s choices etc.) as a means of engaging in mindful action (responding vs. reacting, making choices that are in one’s best interest), and/or to what extent do therapists describe the relationship between acceptance and skillful/mindful action?

Competence: Therapist Style/Approach

Inquiry	Therapists' ability to elicit and respond to both verbal and nonverbal feedback (this may be demonstrated through eliciting reactions to exercises, asking open questions, validating the clients' experience and summarizing/making reflections).	1 2 3 4 5 Low High
Attitude	Therapists' ability to model and embody the spirit of mindfulness (respond to participants in a way that is curious, focused in the present moment, and nonjudgmental/accepting of whatever participants bring up).	1 2 3 4 5 Low High
Use of key questions	The overall extent to which the therapists used key questions in eliciting discussion about exercises and home practice. (1) Highlighting the participant's raw experience in the moment: What did you experience in this exercise? What body sensations did you experience during the exercise? Making a distinction between thoughts, feelings, and body sensations. (2) Distinguishing from typical way of experiencing things: How is this different from how you usually experience things? (3) Relationship to purpose of program: How does it relate to relapse?	1 2 3 4 5 Low High
Clarifying expectations	The extent to which the therapist addresses and clarifies ideas and misconceptions about mindfulness meditation (e.g., "I'm not doing it right"; "I'm just in a different zone when I practice"; "This practice is great because it makes me feel so relaxed and blissful").	1 2 3 4 5 Low High

Competence: Overall Therapist Performance

1. How would you rate the overall quality of the therapy in this session?

1	2	3	4	5
Not Satisfactory	Mediocre	Satisfactory	Good	Excellent

2. How would you rate the ability of the therapists to work as a team?

1	2	3	4	5
Not Satisfactory	Mediocre	Satisfactory	Good	Excellent

3. How would you rate the ability of the therapists to keep the session focused and on topic?

1	2	3	4	5
Not Satisfactory	Mediocre	Satisfactory	Good	Excellent

4. Please rate the overall quality of delivery of the meditation exercises.

1	2	3	4	5
Not Satisfactory	Mediocre	Satisfactory	Good	Excellent

*These items vary based of the content of each of the eight sessions.