

Effects of motivational interviewing training on mental health therapist behavior

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Abstract

This study examined the effectiveness of training community mental health therapists in motivational interviewing (MI) adapted to treat clients with co-occurring disorders. Ten therapists with high caseloads of culturally diverse clients in two different community mental health settings fulfilled all study requirements. MI training consisted of a two-day didactic and experiential workshop followed by eight biweekly small group supervision (coaching) sessions. Using an interrupted time series design, 156 randomly selected therapy sessions involving 28 clients were coded for assessment of therapist fidelity to MI at multiple points in time, both pre- and post-training. Employing hierarchical linear modeling analysis, significant improvement in MI skill was observed after training on five of six key therapist ratings, and on the sole client rating (client change talk) that was examined. Importantly, the present study demonstrates training-related proficiency in motivational interviewing using: (a) a representative sample of mental health therapists from the community; (b) a protocol emphasizing adherence to a mental health treatment regimen as well as management of substance use behavior for clients with co-occurring disorders; (c) repeated random observations of therapy sessions; (d) measurement of training-related changes in clinician skills and self motivational statements by clients. Findings of this effectiveness study compared favorably with efficacy literature on MI training.

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1. Introduction

People with co-occurring mental health and substance use disorder (COD) manifest more severe psychiatric morbidity, poorer psycho-social adjustment and ability to manage their lives, lower compliance with clinical recommendations, greater utilization of social and health care services, and more frequent hospitalization compared to those with only one of the conditions. Because CODs are complex, it has been suggested that integrated treatment approaches would be most effective, and studies of such protocols have been encouraging (Hellerstein et al., 1995; Herman et al., 1997; Jerrell, 1996; Jerrell and Ridgely, 1995a, 1995b; Mueser et al., 1996). In addition, recent studies have found Motivational Interviewing (MI) promising for

COD populations (Bellack and Gearon, 1998; Carey et al., 2002; Caroll, 2004; Daley et al., 1998; Graeber et al., 2003; Martino et al., 2000, 2002; Swanson et al., 1999). Taken together, these reports offer persuasive evidence that integrated MI treatment can improve general functioning and increase abstinence rates of COD clients. However, dissemination of motivationally based integrated treatment for people with COD is daunting because few therapists today are prepared to deliver such care. Indeed, the ability of active practitioners to achieve proficiency in such therapy using a conventional model of continuing education is unknown at this time. The present effort is informed by the efficacy studies of Miller et al. (2004) and Baer et al. (2004). Miller et al. (2004) conducted a randomized trial comparing a conventional two-day workshop alone with the addition of feedback, coaching (supervision) and combinations thereof on MI-skills of their trainees. They noted that only those in the enhanced conditions (feedback and/or coaching) exceeded the 95% proficiency standard for MI-consistent behavior at four month follow-up.

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This finding underscores the value of supervision to achieve skill proficiency.

Baer et al. (2004) also evaluated the impact of a two-day MI workshop and retention of MI skills over two months by 22 local therapists; however, they employed “standardized patients” rather than real clients for skill assessment. They found that less than half of their trainees achieved and sustained the proficiency standards recommended by Miller (2000). Indeed, almost the same number came to the study with prior knowledge and/or training in MI as reflected in their high baseline skill levels. There was no ongoing supervision in this study and MI proficiency declined from post-workshop assessment to follow-up.

The purpose of the present study was to determine if practicing therapists at community mental health clinics could demonstrate proficiency in MI modified for clients with co-occurring disorders following a two-day workshop and regular supervision (coaching).

2. Methods

2.1. Participants

Fifteen therapists at three mental health clinics in urban and suburban middle class communities originally enrolled in this study along with 35 of their eligible clients. Of those 15 therapists and 35 clients, ultimately 10 therapists and 28 clients at two clinics completed all requirements of the study. Of the five therapists lost to the study, one terminated employment early on and four others were unable to enroll a sufficient number of eligible client-participants. Clients were included in the analysis only if they had at least one pre- and one post-session, and a minimum of four sessions overall. This requirement reduced the analytical data set from 28 clients to 17 clients. To determine if the clients who dropped out of treatment were similar to those who remained in treatment, we compared baseline data of the 17 clients who were included with the 18 clients who were not. Chi-square analyses were conducted on gender, race/ethnicity, age, marital status, diagnosis (mood disorder, thought disorder, and anxiety disorder) and substance abuse/dependence diagnosis (alcohol, cocaine, marijuana, and opiate). No differences were found between groups on any of these variables. In addition, *t*-tests comparing those included versus those who were excluded on age and years of education revealed no differences.

Clients were eligible to participate in the study if they were adults (aged 18–65 years) who met diagnostic criteria for current substance abuse and/or dependence plus another Axis I disorder as confirmed using the Structured Clinical Interview based on the DSM IV (SCID-IV). They were not considered for participation if they were experiencing major medical problems (e.g., carcinoma, cardiovascular disease) or cognitive impairment that would limit their involvement. Acutely psychotic, suicidal, or homicidal clients were not considered for participation either. A majority of the client-participants who completed the study ($N=17$) and were included in the analysis were female (70%). African-Americans accounted for 58.8% of this sample, 35.3% were Caucasian, and 5.6% were Hispanic.

Clients typically manifested two or more Axis I psychiatric diagnoses with 58.8% meeting criteria for a major mood disorder and 41.2% for thought disorder. Eighty-eight percent of the sample reported using alcohol, 47.1% cocaine, 17.6% opiates (primarily heroin), and 17.6% cannabis. Their mean age was 39.4 years, most were unemployed (88.2%), and they had completed 12.1 years of education on average, with a range of 10–14 years.

All therapists on staff at the cooperating CMH clinics were invited to participate in the study. Those who refused did so because they did not have any eligible clients or because their time was too limited. The therapists who enrolled and fulfilled all study requirements included 7 women and 3 men; 7 of the 10 were full time employees and three of them worked part time. Eight of the 10 therapists were Caucasian, while 2 were African-American. Seven had Master’s degrees in Social Work and one a Bachelor’s degree in the same field. One of the male therapists had a Master’s in Nursing, and another had a doctorate in Clinical Psychology. Experience in practice ranged from 1 to 34 years (mean = 15.4 years). None of the participating clinicians had speciality training in motivational interviewing or held certification for alcohol and drug abuse treatment. All of them reported large, diverse caseloads and numerous demands on their time.

2.2. Procedures

All research activities were reviewed and approved prior to implementation by the Institutional Review Board of Wayne State University. Clinician and client-participants were enrolled in this study following procedures to establish eligibility and ensure informed consent. When clinical intake staff suspected that a new client would meet inclusion criteria, the client was informed that they might be eligible to participate in a treatment study. A member of the research team contacted each client who indicated interest and scheduled an assessment appointment. If eligibility was confirmed, the client was asked to review the Informed Consent and HIPPA forms with a member of the research team. Thus, clients learned about the purposes and procedures of the study, as well as their rights to refuse to participate or withdraw from the study at any time without affecting their treatment.

An extensive structured assessment of clients confirmed their eligibility and characterized their baseline condition. A subset of the baseline assessment instruments was administered after each individual treatment session before and after therapist training. Clients were compensated (US\$ 25) for the baseline, and received a small gift certificate (US\$ 5) for completing each post-session questionnaire.

All individual sessions of participating therapists and clients were audiotape recorded, and randomly selected tapes were sent to the University of New Mexico for analysis of MI techniques using the Motivational Interviewing Skill Code (MISC; Moyers et al., 2003). The MISC was designed specifically to capture elements of the therapeutic process that are central to the MI model. In all, 156 tapes were submitted for analysis by trained raters as described by Baer et al. (2004). From the pool of 10

therapists, 75 pre-training sessions and 81 sessions in the post-training period were coded. Five to 29 taped sessions (mean = 16) were coded for each therapist.

Two of the authors (MJH and SJO), members of the Motivational Interviewing Network of Trainers, presented a two-day workshop in MI modified to address co-occurring disorders. The manualized training was comprised of four didactic and skill-building components: (a) introduction to MI in the context of co-occurring disorders, (b) detailed explication of MI, (c) modeling of specific MI skill elements, and (d) supervised practice of the intervention with prototypic COD clients. Afterward, MJH and SJO supervised (coached) the therapists every other week for 16 weeks. These small group sessions provided opportunities for therapists to self-evaluate and improve their skills by reviewing selected audiotapes of their therapy sessions.

2.3. Data analysis

More than 30 variables are derived from the Motivational Interviewing Skill Coding (MISC; Moyers et al., 2003) system. To reduce the likelihood of Type II error, we selected seven MI codes that were viewed as key indicators of MI fidelity and that exhibited high inter-rater reliability ($ICC > 0.70$) as outcome variables. They were Empathy, MI Spirit, Reflective Listening Statements, Open-Ended Questions, Closed-Ended Questions, Advising Without Permission and Client Change Talk. The first two variables represented global ratings while the others were behavior counts. Client Change Talk included statements from the client indicating a desire to change, concern regarding the current situation, a belief that his or her substance use is a problem, or optimism regarding the possibility of change. Initially, descriptive statistics were employed to assess the normality of each outcome variable within the pre- and post-intervention groups separately. When appropriate, extreme outlier values (mean \pm 3S.D.) were adjusted by winsorizing (Huber, 2002). Hierarchical linear modeling (HLM) was used to analyze the impact of training and to model the changes across time for each of the outcome variables (Bryk and Raudenbush, 1992). HLM analysis incorporates the hierarchy of repeated audiotape measurements nested within patients, who themselves are nested within clinicians. HLM is appropriate for this case where the number of repeated measurements is not the same for all participants. A Poisson model with a log link was used to analyze the data for outcomes that were positively skewed. Over-dispersion of the Level-1 variance was checked for these Poisson models and the amount of over-dispersion was included in the overall model as σ^2/L .

Key indicator MISC code data were analyzed with HLM using a three level model that most accurately and fully characterized the results. The Level-1 model represented changes across Time for each of the Individual Clients. This included any changes in trajectory as a function of Time as well as the impact of the Intervention. In the Level-2 model, coefficients from Level-1 (i.e., impact of the Intervention) were allowed to vary across Clients. Likewise, in the Level-3 model, the Level-2 coefficients were allowed to vary across Clinicians. Clinician

level covariates were included at this point, if appropriate. A hierarchical procedure was employed to assess impact of the Intervention (clinician training). After inclusion of the Intervention term, we modeled changes across Time and interactions of Time \times Intervention. Putative therapist level predictors included Years in Practice and Years at their current Agency. Individual variables were retained in the calculus if they were significant at $p \leq 0.10$. The criterion for significance of the entire model was $p \leq 0.05$.

3. Results

The global indices of therapist Empathy and MI Spirit demonstrated normal symmetrical distributions for both the pre- and post-intervention time periods. In contrast, values for certain specific MI skill variables, including therapist Reflective Listening Statements, Closed- and Open-Ended Questions, and Advising Without Permission, were skewed positively for both the pre- and post-intervention time periods. That is, performance of more clinicians fell below the mean than above it for these variables. Indeed, Advising Without Permission produced a score that was almost five standard deviations beyond the mean for this variable in the pre-intervention period. To reduce the influence of this extreme outlier in the HLM analysis, its value was recoded [winsorized] to a value just above the next highest value for this period. Client Change Talk was skewed positively as well, indicating that more clients fell below the mean than above the mean for this variable.

3.1. Hierarchical linear modeling (HLM) analyses

There was a significant change in MISC scores on six of the seven MI fidelity measures following training. All of these changes demonstrated improved performance as hypothesized. Indicators of therapist Empathy, MI Spirit, and Reflective Listening Statements increased following the training, while those for Closed-Ended Questions and Advising Without Permission declined. Client Change Talk, the singular MISC indicator of client impact, also increased following training. After controlling for impact of the Intervention per se, there were no significant changes across time and no significant Time \times Intervention interactions. Notably, one therapist level variable, longevity in current position or Years in Agency, was a significant predictor of change in open-ended questioning. We found that greater longevity or *more years in agency* was associated with a *smaller* increase in Open-Ended Questions following training.

Numerical results of the HLM analysis for all of these key variables are presented in Table 1. Interpretation of the HLM data is based on the following premises. When the outcome is normally distributed, the coefficient for the Intercept represents the mean value pre-training and the coefficient for the Intervention represents the change from pre to post-training. Thus, for Empathy the average value pre-training is 4.31 and following training the average value increased significantly by 0.61 to 4.92 ($t = 3.94$, $d.f. = 134$, $p \leq 0.001$). When a Poisson model is used to analyze the data, the coefficient for the Intercept is the natural log

Table 1
Hierarchical linear modeling analyses assessing the impact of the intervention for the seven key MISC codes

Outcome	Coefficient	Standard error	<i>t</i> -Ratio	Approximate d.f.	<i>p</i> -Value	Event rate ratio
Empathy						
Intercept ^a	4.31	0.19	22.77	9	≤0.001	
Intervention ^b	0.61	0.15	3.94	134	≤0.001	
MI Spirit						
Intercept ^a	3.37	0.15	22.00	9	≤0.001	
Intervention ^b	0.46	0.16	2.87	134	0.005	
Reflective Listening Statements ^c						
Intercept ^a	2.42	0.17	14.10	9	≤0.001	11.24
Intervention ^d	0.49	0.09	5.58	16	≤0.001	1.63
Closed-Ended Questions ^c						
Intercept ^a	2.95	0.12	24.13	9	≤0.001	19.07
Intervention ^d	−0.36	0.11	−3.20	14	0.006	0.70
Open-Ended Questions ^c						
Intercept ^a	2.24	0.19	11.57	9	≤0.001	9.37
Intervention ^d						
Intercept	0.30	0.16	1.89	16	0.077	1.36
Years in Agency	−0.03	0.01	−3.24	16	0.006	0.97
Advising Without Permission ^c						
Intercept ^a	0.42	0.24	1.79	9	0.107	1.53
Intervention ^b	−1.14	0.20	−5.61	134	≤0.001	0.32
Client Change Talk ^c						
Intercept ^a	0.57	0.27	2.06	9	0.069	1.76
Intervention ^b	0.88	0.21	4.15	134	≤0.001	2.40

^a Intercept is allowed to vary across clients.

^b Effect of Intervention is constant across clients.

^c Poisson model with a log link was used to model the data.

^d Effect of Intervention is allowed to vary across clients.

of the pre-training event rate ratio, which is the number of times the event occurred before training. Thus, for the outcome Reflective Listening Statements, the average number of pre-training statements per session is $\exp(2.42) = 11.24$. The coefficient for the Intervention is the natural log of the change in the event rate, which is the change from pre- to post-training. To derive the rate after the intervention, we multiply the pre-intervention event rate by the change in the event rate. Since the intervention is coded as 0 for pre- and 1 for post-intervention this is the same as taking the exponent of the sum of the two coefficients. For Reflective Listening Statements, the intervention increased the event rate significantly from 11.24 to 18.32 statements per session ($t = 5.58$, $d.f. = 16$, $p \leq 0.001$). Mean scores along with 95% confidence intervals for therapist Empathy, MI Spirit, Reflective Listening Statements, Closed-Ended Questions, Advising Without Permission, and Client Change Talk over both pre- and post-training periods are presented graphically in Fig. 1.

4. Discussion

Results of this study demonstrate that active community mental health clinicians with numerous demands on their time and caseloads of 80–100 severely mentally ill clients can improve MI-consistent behaviors and diminish MI-inconsistent ones fol-

lowing two days of training plus ongoing supervision. Importantly, the change in therapist proficiency on MI skills from the pre- to post-training period was accompanied by an increase in Client Change Talk, a key variable associated with commitment language and subsequent behavior change (Amrhein et al., 2003).

The sole unexpected finding was that the rate of Open-Ended Questions did not increase as predicted. There are many possible reasons for this outcome. However, we speculate that the heavy emphasis placed on reflective listening during training and supervision at the expense of attention to Open-Ended Questions may be responsible for the lack of change. Reflective listening was emphasized because pre-training assessment revealed low initial skill levels in this area and mastery of the skill presented a challenge for our therapists. More intensive training and continued practice on Open-Ended Questions during supervision very likely would enhance performance of this skill.

Our findings of an increase in MI-consistent responses are consonant with three previous studies in which the effects of MI training on clinician performance were examined using the MISC coding system (Baer et al., 2004; Miller et al., 2004; Miller and Mount, 2001). While Miller and Mount (2001) did not detect significant reductions in MI-inconsistent behaviors in their small study, both the present data and those of Miller et

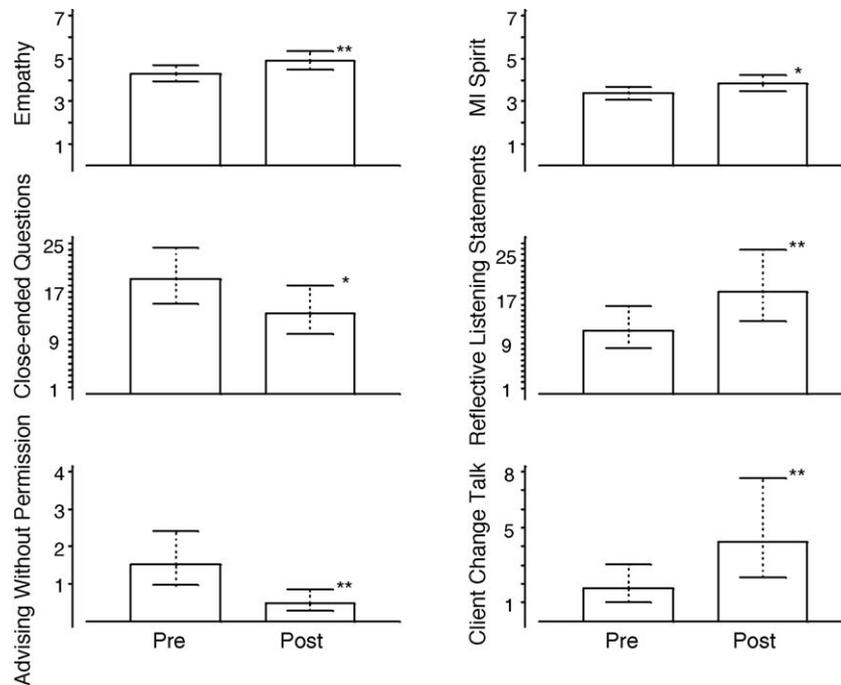


Fig. 1. Change in ratings of Empathy, MI Spirit, Reflective Listening Statements, Closed-Ended Questions, Advising Without Permission, and Client Change Talk from pre- to post-MBIT training periods. Note: * $p \leq 0.01$, ** $p \leq 0.001$.

al. (2004) do show that such behavior was reduced. A number of factors in the earlier study of Miller and Mount (2001) may explain this lack of agreement, including its small sample size, nature of trainees (probation counselors who were ordered to take the training), and the single workshop with no continuing supervision. Considering these findings along with the increased Client Change Talk observed here, one might speculate that reductions in MI-inconsistent behavior are necessary to promote Client Change Talk. This accords well with evidence that confrontation increases resistance, while empathic approaches facilitate change talk (see Miller et al., 1993).

Overall, therapists in the present study exhibited lower average MI proficiency at follow-up than those in the studies of Miller et al. (2004) and Baer et al. (2004). While the global ratings of Empathy and MI Spirit both increased significantly here, they fell short of the mean rating indicative of proficiency (at least 5 on a 7-point scale) proposed by Miller (2000). Several factors may explain these differences. First, in Miller et al. (2004), self-selecting trainees responded to a national solicitation and traveled at their own expense to New Mexico to participate in an efficacy study of MI training conducted by the originator of MI. In contrast, therapists who participated in the present effectiveness study were recruited from local agencies, ranged from highly motivated to tentatively willing, and were trained by two members of the Motivational Interviewing Network of Trainers.

Second, it appears that about one-third of the trainees in Miller et al. (2004) had prior experience with MI, a fact that may explain their relatively high baseline MISC scores. Similarly, about half of the participants in Baer et al. (2004) were clinicians with extensive knowledge and/or previous training in

MI as reflected in their high pre-training MISC scores. Therapists trained in the present study had no prior exposure to MI and were mental health specialists rather than substance abuse counselors. Further, they were asked to employ MI in a more complex integrated approach to mental health and substance use problems, not just substance abuse as in these other studies.

A final reason that therapist competence may not have improved as robustly in the present study as in Miller et al. (2004) may relate to the representativeness of therapy session samples. Therapists in the Miller et al. (2004) study were asked explicitly to self-select sessions that reflected their best performance. Therapists in the current study tape recorded every session with every study client, and we randomly selected tapes for coding from within this fully representative set of observations.

The interrupted time series design and analytic paradigm of hierarchical linear modeling employed here offer numerous advantages for interpretation of the findings. First, in an effectiveness study of this type, it is impossible to assign clinicians in the same setting randomly to different types of training without the contaminating influence of therapist communication during staff meetings and conferences. In the absence of a true experiment, this design allows for close observation of multiple data points on multiple clients and therapists during both pre- and post-training periods. Further, HLM has the capacity to adjust for missing data points inherent in collecting data over time with participants who do not always make their appointments. Limitations of this study include the absence of control clinicians who did not receive MI training, but were otherwise identical to those who were trained. Such a control group would have

accounted for other factors that could explain clinician and client change over time. Both therapist and client-participants represent a convenience sample, not a randomly selected sample. In addition, the sample size of both therapists and clients was relatively small, and so these findings may not be generalizable to other settings.

Post-study interviews with therapists illuminated the context in which training took place and the true challenges of an effectiveness study. The clinicians reported a level of anxiety about their participation that they had not previously expressed. They described feeling stressed at the time by huge caseloads of severely disturbed and multiply-diagnosed clients and, in some cases, feeling overwhelmed by the additional responsibility entailed in study participation. Systemic and structural challenges like this are endemic in community mental health service delivery today; their importance must be appreciated and incorporated into future studies and new program implementation. In the end, our therapists were pleased they had participated and expressed a great deal of satisfaction with the new tools of motivational interviewing. Indeed, in some cases they stated that this autonomy-supportive approach was empowering and liberating for them. Miller et al. (2004) conducted follow up interviews with their trainees and, among those who had left substance abuse treatment settings after the study, found that the autonomy enhancing style of MI had led them to re-examine their employment in authoritarian treatment systems. Indeed, during training in the current study, one therapist role-played her ambivalence of staying in a job with an authoritarian administration and then left that position after the study. Interestingly, our findings revealed that therapists who were employed in the same agencies for longer periods of time were less able to benefit from training on open-ended questions. It is possible, therefore, that such therapists will have difficulty learning MI and may require additional training to achieve proficiency.

Considering the present and previous MI training studies, it is clear that training can improve MI-specific clinical behavior, especially when implemented with an experiential workshop followed by supervision. However, overall gains in applied settings may be modest with this conventional approach. While the increase in Client Change Talk observed here is quite encouraging, it does not confirm that this will lead to meaningful changes in client outcomes. Nor does it establish that improvements in client outcome will be sufficient to justify the cost of training and supervision.

Because additional data were collected on the status of participating clients at baseline, and at three and six months after therapist training, our next step will be to explore the impact of motivational interviewing as implemented by our trainees on client behavior change, viz., drug and alcohol use, psychiatric symptoms and life function.

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