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Effects of Motivational Interviewing Fidelity on Substance Use Treatment Engagement in Primary Care

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Abstract

Objective—Primary care (PC) may be an opportune setting to engage patients with opioid and alcohol use disorders (OAUDs) in treatment. We examined whether motivational interviewing (MI) fidelity was associated with engagement in primary care-based OAUD treatment in an integrated behavioral health setting.

Methods—We coded 42 first session therapy recordings and examined whether therapist MI global ratings and behavior counts were associated with patient engagement, defined as the patient receiving one shot of extended-release injectable naltrexone or any combination of at least two additional behavioral therapy, sublingual buprenorphine/naloxone prescriptions, or OAUD-related medical visits within 30 days of their initial behavioral therapy visit.

Results—Autonomy/support global ratings were higher in the non-engaged group (OR=0.28, 95%CI: 0.09–0.93; p=.037). No other MI fidelity ratings were significantly associated with engagement.

Conclusion—We did not find positive associations between MI fidelity and engagement in primary care-based OAUD treatment. More research with larger samples is needed to examine how providing autonomy/support to patients who are not ready to change may affect engagement.

Practice Implications—Training providers to strategically use MI to reinforce change as opposed to the status quo is needed. This may be especially important in primary care where patients may not be specifically seeking help for their OAUDs.

Keywords

motivational interviewing; fidelity; MITI; opioid use disorders; primary care

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1. Introduction

Opioid and alcohol use disorders (OAUDs) contribute to high rates of morbidity and mortality in the US (Degenhardt et al., 2011; Roerecke & Rehm, 2013; Ronan & Herzig, 2016; Substance Abuse and Mental Health Services Administration, undated). Evidence-based treatments are available to treat OAUDs (Department of Veteran Affairs, 2015; Jonas et al., 2014; Kaner et al., 2007; Schackman, Leff, Polsky, Moore, & Fiellin, 2012; Smedslund et al., 2011), yet few individuals receive them. Of adults with substance use disorders, 95% do not perceive a need for treatment, and among those who do perceive a need but do not obtain treatment, reasons include problems with treatment acceptability and patient motivation (Substance Abuse and Mental Health Services Administration, 2014). These barriers make it difficult to engage individuals with OAUD in treatment.

Motivational interviewing (MI) is theorized to help engage individuals contemplating behavior change. MI is a collaborative and nonjudgmental conversation style, and focuses on strengthening the patient's own motivation and commitment to change (Miller & Rollnick, 2012; Rollnick, Miller, Butler, & Aloia, 2008). The first phase is dedicated specifically to engagement (establishing a helpful relationship, understanding barriers and reasons to change), and the subsequent phases are focusing (identifying change area, and setting an agenda), evocation (eliciting the patient's motivation to change and building their self-efficacy), and planning (developing a commitment to change and formulating an action plan). MI has been shown to help those not yet contemplating behavior change as well as engage those already in treatment (DiClemente & Velasquez, 2002); however, research on the latter has largely taken place in specialty treatment settings. In one multi-site effectiveness trial, participants receiving specialty care who were assigned to MI had significantly better retention in treatment through the 28-day follow-up than those assigned to a standard intervention (Carroll et al., 2006).

Less is known; however, about how MI may influence treatment engagement in primary care settings. Primary care is an opportune setting to evaluate engagement in OAUD treatment because most individuals (82%) in the general population visit primary care at least once a year (Blackwell, Lucas, & Clarke, 2014) and the focus of the visit is on physical health. More importantly, primary care is a unique setting where patients may be seeking help for a medical issue and not specifically for their OAUD use compared to those who receive treatment in specialty care settings. As such, patients in primary care may be less ready to change their OAUD use, and may benefit from interventions that utilize MI to resolve their ambivalence (Rollnick et al., 2008).

Large-scale efforts have been dedicated to training primary care staff in MI (Cucciare et al., 2012; Midboe, Cucciare, Trafton, Ketroser, & Chardos, 2011), and several studies highlight MI's effectiveness in improving health and substance use behaviors in medical settings (Britt, Hudson, & Blampied, 2004; Lindhe Söderlund, Madson, Rubak, & Nilsen, 2011; Lundahl et al., 2013). A recent study of patients with substance use disorders showed that MI was associated with lower odds of subsequent addiction treatment utilization (Kim et al., 2017), but did not specifically examine the mechanism for how MI may affect engagement. Evaluating how MI is delivered, or its fidelity, is important because therapists' fidelity to MI

is directly associated with client behaviors in-session (e.g., client's change talk or speech in favor of change, *I should quit drinking*). For example, high fidelity to MI is associated with change talk (Magill et al., 2014). While there is mixed evidence on the effects of change talk on client outcomes (Magill et al., 2014), several studies have shown that client change talk is positively associated with improvements in their substance use outcomes (Bertholet, Faouzi, Gmel, Gaume, & Daeppen, 2010; D'Amico et al., 2014; Moyers, Martin, Houck, Christopher, & Tonigan, 2009; Osilla et al., 2015; Walker, Roffman, Stephens, Wakana, & Berghuis, 2006). In contrast, low MI fidelity is often associated with more sustain talk or speech in favor of not changing (e.g., *I don't think I need to change*) and worse outcomes (Apodaca & Longabaugh, 2009; Magill et al., 2014). Few studies have examined how MI works in primary care (Copeland, McNamara, Kelson, & Simpson, 2015) and whether MI influences proximal outcomes such as treatment engagement, which may affect longer term outcomes such as OAUD use. This paper addresses this gap by examining behavioral health therapists' MI fidelity in a primary care setting and how this may influence subsequent engagement in OAUD treatment.

We define treatment engagement as receiving a prescription for alcohol pharmacotherapy or at least two additional OAUD-related medical, opioid pharmacotherapy, or behavioral therapy visits within 30 days of an initial visit. This measure of treatment engagement is associated with improved distal outcomes such as mortality, employment and criminal justice involvement (Dunigan et al., 2014; Garnick et al., 2014; Harris, Humphreys, Bowe, Tiet, & Finney, 2010; Paddock et al., 2017). Understanding how MI fidelity may be associated with engagement in subsequent treatment has important practical implications for training providers in how to use MI when working with individuals with OAUD.

2. Methods

2.1 Study Overview

This study was conducted as part of a larger randomized clinical trial [blinded for review], which compared the effectiveness of a Collaborative Care (CC) intervention [blinded for review] to usual primary care (UC) for participants with OAUD. The primary goal of the CC intervention was to increase patient utilization of two evidence-based OAUD treatments: a six-session brief psychotherapy treatment based on MI and cognitive behavioral therapy approaches [blinded for review] and/or medication-assisted treatment, with either sublingual buprenorphine/naloxone for opioid use disorders or extended-release injectable naltrexone for alcohol use disorders [blinded for review].

Patients entering primary care were screened by a medical assistant for opioid or alcohol misuse. Individuals who screened positive and met additional eligibility criteria for opioid and/or alcohol abuse or dependence were randomized to CC or UC. Patients assigned to CC received care coordination by one of two paraprofessional care coordinators who met with the patient to assess motivation for treatment, schedule an initial assessment, contact patients with missed appointments, and track outcomes (e.g., urinalysis results). Patients completed baseline and six-month follow-up surveys, and their visits to primary care were tracked through administrative data during the six-month study period [blinded for review].

2.2 Current Study

We examined how MI fidelity during the patient's first behavioral therapy session with a CC therapist was associated with engagement in subsequent OAUD treatment. All patients had access to behavioral therapy or medication-assisted treatment, and patients were free to choose whether to engage in treatment. A total of 42 first session recordings were coded using the Motivational Interviewing Integrity scale (MITI 3.1) (Moyers, Martin, Manuel, Miller, & Ernst, 2010). These were individual behavioral therapy sessions with a therapist and patient from the CC arm of the study. We then examined how therapist MI fidelity was associated with patient engagement in behavioral therapy, medication-assisted treatment, and/or OAUD-related medical care within 30-days of baseline. We limited analyses to patients in the CC arm of the study because CC therapists received additional training and supervision in MI.

2.3 Setting and Participants

We collaborated with two primary care clinics from a multi-site Federally Qualified Health Center (FQHC) in Los Angeles that serves a low-income population. FQHCs are widespread with over 10,400 community health centers within the United States providing care to over 26 million people (Health Resources & Services Administration, 2017). Additionally, community health centers such as FQHCs are considered pioneers in efforts to integrate care, and thus may provide a useful model for other primary care systems (Parks, Pollack, Bartels, & Mauer, 2005; Proser & Cox, 2004; Takach, Purington, & Osius, 2010). The clinics have integrated primary care and behavioral health services on-site. Participants were 42 patients assigned to CC that initiated at least one behavioral therapy session. Participants were 69.1% male, 40.5% Hispanic, and an average age of 46.2 (SD=9.4) years old. Thirty-three participants reported their drug of choice as alcohol only, two participants reported heroin, and seven participants reported prescription opioids, with or without a comorbid alcohol use disorder. Participants received an average of 6.1 (SD=3.8) behavioral therapy sessions.

2.4 Measures

Participants completed baseline demographic characteristics including age, gender, ethnicity, living status (e.g., homeless), drug of choice/problem substance, consequences of drug or alcohol use (Short Inventory of Problems-Alcohol and Drugs: (Alterman, Cacciola, Ivey, Habing, & Lynch, 2009; Blanchard, Morgenstern, Morgan, Lobouvie, & Bux, 2003), range 0–15), and whether they received substance use treatment in the past year.

2.4.1 MITI—The Motivational Interviewing Treatment Integrity (MITI 3.1) (Moyers et al., 2010) is a single-pass system derived from the Motivational Interviewing Skills Code (MISC; (Miller, Moyers, Ernst, & Amrhein, 2003). The MITI codes therapist speech on five global ratings on a 5-point scale. These ratings include evocation (eliciting client's reasons for change), collaboration (encouraging power sharing and interaction), autonomy/support (accepting client's own control and choice), direction (leading the session), and empathy [understanding the client's point of view; (Moyers et al., 2010)]. There are also seven behavior counts that are frequency tallies [information giving, MI adherent and non-adherent

statements, closed and open questions, and simple and complex reflections; (Moyers et al., 2010)]. The MITI has been used extensively to measure MI fidelity in numerous trials and used to evaluate the mechanism for how MI is associated with outcomes (Apodaca & Longabaugh, 2009; Moyers et al., 2007; Moyers et al., 2009; Pirlott, Kisbu-Sakarya, DeFrancesco, Elliot, & MacKinnon, 2012; Vader, Walters, Prabhu, Houck, & Field, 2010). Previous work examining intraclass correlations (ICCs) on the MITI tend to range from 0.38 to 0.52 on the global ratings and 0.47 to 0.94 on the behavior counts (Moyers, Martin, Manuel, Hendrickson, & Miller, 2005).

2.4.2 Engagement—Engagement was derived using administrative data that were cross-referenced with chart review data and behavioral therapy audio recordings to ensure accuracy. Per specifications of the Healthcare Effectiveness Data and Information Set (HEDIS) engagement performance indicator (National Quality Measures Clearinghouse, 2014, 2015), engagement is defined as a patient receiving one shot of long-acting injectable naltrexone or any combination of at least two additional behavioral therapy, sublingual buprenorphine/naloxone, or OAUD-related medical visits within 30 days of their initial behavioral therapy visit.

2.5 Brief Psychotherapy Treatment

Behavioral therapy consisted of six sessions [blinded for review]. The treatment was adapted for primary care and OAUD use from several evidence-based therapies (D'Amico, Osilla, & Hunter, 2010; Hepner, Miranda, et al., 2011a, 2011b; Hepner, Muñoz, et al., 2011a, 2011b; Osilla, D'Amico, Diaz-Fuentes, Lara, & Watkins, 2012; Osilla, Zellmer, Larimer, Neighbors, & Marlatt, 2008). The goal of treatment was to reduce or stop OAUD use. The treatment used a motivational enhancement/cognitive behavioral therapy approach to build motivation to initiate change in use of OAUD and maintain recovery. Session 1 used motivational enhancement principles (Miller, Zweben, DiClemente, & Rychtarik, 1999), such as structured personalized feedback and the pros and cons to drinking and using, to strengthen the individual’s motivation and commitment to change. Sessions 2 through 6, to be used once clients expressed some commitment to change, focused on learning cognitive behavioral therapy skills, such as identifying triggers and improving communication.

2.5.1 Therapist training—A total of five behavioral health therapists already employed at the on-site behavioral health clinics delivered behavioral therapy in the CC arm of the study. They had counseling or social work degrees, but none to minimal experience with MI and treating OAUD. Therapists randomized to the CC arm received two days of training and weekly supervision by a clinical psychologist who was a trainer associated with the Motivational Interviewing Network of Trainers. The first part of the training was focused on the MI approach and was similar to a standard MI training (Madson, Loignon, & Lane, 2009), which included a full day focused on foundational elements of MI and the spirit or counseling style that underlies its techniques. It consisted of a mix of didactic presentation, demonstration, and several practice sessions with role-playing exercises geared toward people with little or no exposure to MI. The second day of the training was focused on the content for each of the six behavioral therapy sessions and was more didactic consisting of discussion about alcohol use disorders and various relapse prevention strategies. A mix of

exercises and role-plays were also included to ensure participants could apply and practice the content they were learning. This training also discussed scenarios including what to do when clients presented to session under the influence or reported experiencing withdrawal symptoms (e.g., tremors). After the training, counselors continued their role-plays with their supervisor to enhance their skills and confidence. About two to three role-plays were conducted before counselors conducted the therapy sessions with a patient. Once a therapist started with a patient, clinical supervision occurred weekly.

Supervision with CC therapists had multiple goals, including building MI fidelity, but also coaching therapists who had minimal experience treating OAUD and were working with patients who presented with several co-occurring problems (e.g., homelessness, mental health, relationship problems). Supervision took place by phone within a week of each session. The supervisor listened to the session recording prior to supervision. During supervision, the therapist first discussed their impressions of the session and brought up any questions or concerns. The supervisor then collaboratively discussed the session's strengths and weaknesses, and specific statements the therapist spoke that were consistent and inconsistent with MI. In some cases, parts of the recording were played for discussion. Each supervision session also included a detailed discussion of the next session, such as things to look out for and potential concerns clients may want to address.

2.6 MI Coding

All therapists digitally-recorded their behavioral therapy sessions and uploaded recordings to a secure website. Two independent raters received over 40 hours of MITI training (D'Amico et al., 2014; Osilla et al., 2015). Raters coded a random 20-minute segment of each recording, and met weekly to discuss discrepancies. Each recording was coded by both raters.

2.7 Analyses

We used Intraclass correlations (ICC) to calculate inter-rater reliability on MITI global ratings and behavior counts using the Shrout-Fleiss reliability method (Shrout & Fleiss, 1979). We compared demographic characteristics for engaged and non-engaged participants using chi-square tests to compare dichotomous/categorical variables and t-tests for continuous variables. We examined the probability of engagement using multivariable logistic regression models; each MITI global rating and behavior count variable was entered into the model individually along with homelessness, alcohol use, and clinic enrollment site as covariates, as these characteristics were associated with receiving any OAUD treatment in the full SUMMIT study ($p<0.20$).

3. Results

3.1 Inter-rater reliability

Two raters each coded 42 recordings. The ICCs were consistent with previous studies using the MITI (Moyers et al., 2005). The global ratings ranged from 0.38 (autonomy/support) to 0.52 (empathy). ICCs for behavior counts were higher, between 0.71 (closed questions) to

0.94 (open-ended questions) with the exception of MI non-adherent, which had an ICC of 0.48.

3.2 MI Fidelity and Engagement

Twenty-eight participants engaged in OAUD treatment, and fourteen did not. There were no statistically significant differences in demographic characteristics by engagement (Table 1). Table 2 displays multivariate analyses associated with treatment engagement, after controlling for homelessness, alcohol use, and clinic enrollment site. We found only one statistical difference across all global and behavior counts: Autonomy/support ratings were higher in the non-engaged group (3.86 vs. 3.43) and were associated with not being engaged in any subsequent primary care visits (OR=0.28, 95%CI: 0.09–0.93; p=.037).

4. Discussion and Conclusion

4.1 Discussion

The current study examined whether MI fidelity was associated with engagement in OAUD treatment in primary care. Counter to our hypothesis, MI fidelity was not positively associated with patient engagement in primary care based OAUD treatment. Overall, patients who engaged and those who did not engage had therapists with similar scores on MI fidelity. Only higher autonomy/support ratings were significantly associated with the engagement outcome, and it was in the opposite direction: higher ratings were associated with no treatment engagement.

Higher autonomy/support ratings are typically given when therapists highlight a patient's own control and choice (e.g., *It's up to you whether or not to change*). Therapists therefore emphasize a client's personal control whether it is for changing a behavior (e.g. *You've really made some important changes in your life.*) or not changing a behavior [e.g. *Yes, you're right. No one can force you stop drinking* (Moyers et al., 2010)]. As MI training continues to spread across primary care settings, clinical training efforts should strategically reinforce patient change talk and ways to respond to sustain talk that may increase positive behavior change (e.g., *It's hard to imagine life without drinking right now, and yet family is important to you and drinking has caused relationship problems*).

There may be several other reasons we may not have seen positive effects of MI fidelity on treatment engagement. First, our sample was small and there may have been insufficient power to detect significant differences. Future work in primary care with larger samples is needed and may also include therapists with varying MI proficiency to increase MITI score variability. Second, treatment engagement could have been related to other reasons such as patient's abstinence, client observations or experience in session, or changes that may have been facilitated after their first session. Finally, some work has shown that manualized protocols using MI have smaller effects than treatment as usual (Lundahl, Kunz, Brownell, Tollefson, & Burke, 2010), perhaps due to the strictness of following the protocol; however, recent work with more flexible MI manualized protocols has shown behavior change (e.g., Carroll et al., 2006; D'Amico, Hunter, Miles, Ewing, & Osilla, 2013; D'Amico, Miles, Stern, & Meredith, 2008). Several other limitations should be noted, including the lower proportion

of higher MITI scores and our analysis of only first session recordings. The average global ratings for therapists averaged around 3.6 (SD=0.57), indicating that they reached beginning MI proficiency, but not advanced MI competency (which is considered to be an average of 4) (Moyers et al., 2005; Moyers et al., 2010). It is possible that not having a greater proportion of recordings with higher MITI scores made it difficult to detect whether MI "at its best" was associated with engagement. Finally, our findings should also be interpreted with caution because there is less than a 1-point difference on autonomy/support ratings between the groups, which may not be clinically meaningful.

This study adds to the literature examining mechanisms for how MI functions in primary care integrated behavioral health settings and provides support for continued research in this area. Of note, 67% of our sample did engage in subsequent OAUD treatment suggesting that "something" about the initial behavioral therapy meeting was helpful for most patients. Future research should consider evaluating the client's experience after the first session to better understand factors during the session that may affection retention. For example, some work has shown that clients' perceptions of their session were associated with the bond they felt with their therapist and their engagement in the session (Madson, Villarosa, Schumacher, & Mohn, 2016). In addition to examining MI fidelity with larger samples, studies could assess how other factors of the initial meeting may be associated with engagement (e.g., therapist, care coordination, session content).

4.2 Conclusion

Understanding how to engage primary care patients with OAUD in subsequent treatment is important. MI is currently utilized extensively in primary care to improve health and substance use-related outcomes; however, there is a need to better understand how MI is being delivered in these settings, what proximal outcomes are influenced, the level of training that is necessary, and whether more effort is needed to guide therapists in the strategic use of the approach. This is particularly important for patients that may be coming into primary care who are not ready to change and patients that may have co-occurring problems.

4.3 Practice Implications

The primary care setting offers a unique opportunity to treat patients with OAUD. Studies have begun to address the individual session process (Magill et al., 2016) and the specific factors during an MI session that may contribute to behavior change (Magill, Kiluk, McCrady, Tonigan, & Longabaugh, 2015). Better understanding of how MI can be used to increase client engagement in subsequent treatment is an area that needs further study.

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Highlights

- Higher autonomy/support ratings were associated with not being engaged in treatment
- No associations between MI fidelity and treatment engagement in our small sample
- Training providers to strategically use MI to reinforce change talk is important

Table 1

Sample Demographic Characteristics

	Total (N=42)		No Engagement (n=14)		Engagement (n=28)		
Characteristic	**N/Mean**	**%/SD**	**N/Mean**	**%/SD**	**N/Mean**	**%/SD**	**P-value[1]**
Age (Mean, SD)	46.22	9.36	48.57	9.74	45.19	9.31	0.50
Male	29	69.05	11	78.57	18	64.29	0.48
Hispanic	17	40.48	6	42.86	11	39.29	0.70
Homeless	8	19.05	2	14.29	6	21.43	0.33
Severity of AOD (SIP-AD) (Mean, SD)	9.70	4.51	9.57	3.87	9.75	4.88	0.83
Drug of Choice							
Alcohol only	33	78.57	13	92.86	20	71.43	0.97
Any Heroin	2	4.76	0	0.00	2	7.14	0.97
Prescription Opioids	7	16.67	1	7.14	6	21.43	--
Received SUD treatment in past 12 months	3	7.14	0	0.00	3	10.71	0.97

[1]. Two-sample t-test for age, SIP-AD; chi-square for all other variables

Note: SIP-AD = Short Inventory of Problems – Alcohol and Drug Version; SUD = substance use disorder

Table 2

MITI Global Rating and Behavior Count Scores by Engagement

	Total (N=42)				No Engagement (n=14)				Engagement (n=28)				Model results[1]			
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max	OR	95% CI		P-value
GLOBAL RATINGS																
Evocation	3.50	0.67	2.00	5.00	3.57	0.51	3.00	4.00	3.46	0.74	2.00	5.00	0.56	0.17	1.87	0.35
Collaboration	3.57	0.67	2.00	5.00	3.71	0.61	3.00	5.00	3.50	0.69	2.00	5.00	0.44	0.12	1.56	0.20
Autonomy/Support	3.57	0.70	2.00	5.00	3.86	0.53	3.00	5.00	3.43	0.74	2.00	5.00	0.28	0.09	0.93	0.04
Direction	4.07	0.81	2.00	5.00	4.00	0.88	2.00	5.00	4.11	0.79	2.00	5.00	0.78	0.31	2.00	0.61
Global Empathy score	3.67	0.79	2.00	5.00	3.71	0.73	3.00	5.00	3.64	0.83	2.00	5.00	0.54	0.19	1.54	0.25
BEHAVIOR COUNTS																
Giving Information	6.12	4.84	0.00	27.00	8.36	6.28	0.00	27.00	5.00	3.57	0.00	13.00	0.83	0.68	1.02	0.07
MI Adherent	6.62	4.52	0.00	20.00	7.93	5.78	1.00	20.00	5.96	3.69	0.00	17.00	0.85	0.70	1.03	0.09
MI-Nonadherent	1.07	1.39	0.00	5.00	0.79	1.25	0.00	4.00	1.21	1.45	0.00	5.00	1.22	0.72	2.07	0.46
Closed Questions	15.74	7.41	3.00	34.00	16.79	7.41	6.00	29.00	15.21	7.49	3.00	34.00	0.96	0.87	1.06	0.39
Open Questions	9.21	6.40	1.00	29.00	10.64	4.73	2.00	17.00	8.50	7.05	1.00	29.00	0.95	0.85	1.05	0.30
Simple Reflections	8.10	5.81	0.00	19.00	6.71	4.81	0.00	19.00	8.79	6.21	0.00	19.00	1.06	0.93	1.21	0.37
Complex Reflections	7.83	5.81	0.00	26.00	7.36	4.43	1.00	14.00	8.07	6.46	0.00	26.00	0.99	0.87	1.12	0.81

[1]. Multivariate logistic model controlling for homelessness, alcohol use and clinic enrollment site.