Evaluation of Online and In-Person Motivational Interviewing Training for Healthcare Providers

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Introduction: This study examines the outcomes of a 22-hr motivational interviewing (MI) course and compares online and in-person offerings of the course. It also evaluates clinicians' ability to accurately self-assess their MI skills. *Method:* 34 clinicians participated in this study and completed MI workshops either in-person or online. Use of MI in an acting patient encounter was recorded early in the training and again following the training. Recordings of these encounters were coded using the Motivational Interviewing Treatment Integrity (MITI) 3.1 coding system. After each acting patient encounter clinicians also self-evaluated their use of MI. *Results:* Participants showed statistically significant improvement in MI skills measured by the MITI. There were no meaningful differences between the MI skills acquired by the participants in the online group compared with those who completed training in-person. There was little correlation between participants' self-assessment of MI skills and objective assessment. *Discussion:* It is feasible to complete MI training through synchronous online workshops. Participant self-assessment of MI skill does not appear to be a useful approach for assessing MI skill. The acquisition of MI skills by health professionals is possible via the Internet. Learning should be assessed using objective measures rather than relying on self-report.

Keywords: motivational interviewing, self-assessment, Motivational Interviewing Treatment Integrity, Internet, online

Health care providers are increasingly tasked with assisting patients in modifying their health behaviors. There is increased awareness of the limitations of advice giving as a strategy for promoting patient self-management of unhealthy behaviors (Söderlund, Madson, Rubak,

& Nilsen, 2011). Many clinicians seek an evidence-based approach to counseling patients about behavior change that can be implemented as part of routine patient care (Green, Cifuentes, Glasgow, & Stange, 2008). This emphasis on facilitating patient self-management through a patient-centered approach to care is a hallmark of the Patient Centered Medical Home, a critical component of health care reform in the United States (Kessler et al., 2014). There is a need to develop replicable methods of disseminating evidence-based behavior change counseling skills to clinicians.

Motivational interviewing (MI) is a collaborative conversation style for strengthening a person's own motivation and commitment to change (Miller & Rollnick, 2012). A substantial body of evidence supports the use of MI to facilitate behavior change (Cushing, Jensen, Miller, & Leffingwell, 2014; Gayes & Steele, 2014; Hettema & Hendricks, 2010; Keeley et

al., 2014; Lundahl, Kunz, Brownell, Tollefson, & Burke, 2010; Rubak, Sandbaek, Lauritzen, & Christensen, 2005; Smedslund et al., 2011). Many clinicians are exposed to MI in brief workshops that are composed of didactic and experiential elements. However, research on training in MI suggests that the day-to-day practice of clinicians typically does not change substantially following this brief exposure to MI (Miller, Yahne, Moyers, Martinez, & Pirritano, 2004; Schwalbe, Oh, & Zweben, 2014). Sustained adoption of MI typically follows multiple training sessions, clinical supervision, and feedback from audio-recorded sessions with patients (Madson, Loignon, & Lane, 2009; Schwalbe et al., 2014).

There is a growing interest among administrators, educators and researchers in developing sustainable, replicable, and verifiable programs for developing competency in MI among health care professionals (Barwick, Bennett, Johnson, McGowan, & Moore, 2012). Unfortunately, many clinicians pay for and participate in trainings that leave them with relatively high confidence in their ability to use MI, but this training has been demonstrated to be insufficient to produce high levels of clinician skill (Miller et al., 2004; Schwalbe et al., 2014). In the absence of objective assessment of clinicians' skills, they rely on their self-assessment of their skill. If clinicians believe that they are using MI proficiently following training, this provides a disincentive to pursue opportunities to receive further training.

Knowledge of effective MI training programs has increased significantly in the past 10 years. Schwalbe et al. (2014) concluded from their review of 21 studies of MI training that three to four coaching sessions are needed to sustain MI skills among trainees. Time constraints and costs make the implementation of these approaches challenging. Furthermore, when health care professionals are to be trained, the training must be tailored to their practice environments (Madson et al., 2009).

MI training programs are needed that are grounded in evidence for effective MI trainings. The University of Massachusetts Medical School's Center for Integrated Primary Care has developed a 22-hr training course, The Certificate of Intensive Training in Motivational Interviewing course (CITMI). The CITMI course provides two opportunities for trainees to re-

ceive feedback based on objective assessment of their practice in addition to lectures and demonstrations. In the present study, an online version of the CITMI course has been compared with an in-person version of the same course.

Objective assessment of clinicians' MI skill can be completed using the Motivational Interviewing Treatment Integrity (MITI) code. The MITI coding system is a valid and reliable instrument for assessing use of MI (Moyers, Martin, Manuel, Hendrickson, & Miller, 2005). It can be used for quality assurance purposes and to ensure MI fidelity in controlled trials, when the reliability of coders can be guaranteed. It can also be used as a training and supervision tool for providing structured feedback to support learning (Barwick et al., 2012).

Study Aims

The aim of this study was to increase knowledge about how MI training should be designed in order to be effective, through evaluating the CITMI course.

The evaluative aim was twofold:

1. to compare improvement in MI skills of participants who completed the course online to those who completed the course in person, using the MITI; and
2. to compare the objective assessment of participants' MI skills using the MITI to their self-assessment of their MI skills using the Clinical Experience Questionnaire (CEQ).

Method

CITMI Course Description

Both the in-person and online groups of the CITMI course are 22 hr long, consisting of seven trainings over a period of 3–5 months. It comprises a combination of 20 hr of group workshops and 2 hr of individual experiences, with the content of the course grounded in the eight tasks of learning Motivational Interviewing described by Miller and Moyers (2006). The course is advertised broadly via the Internet, and internally to faculty and trainees at the University of Massachusetts Medical School. Interested individuals chose to enroll in either the in-person or online group of the course; they

were not randomized. Once enrolled in the course, they were offered enrollment in this study evaluating the course. Participants in the online group took part in synchronous, interactive, workshops via the Internet. Participants enrolled in the in-person group took part in workshops at the medical school. Each workshop was 4 hr in duration and spaced 3–5 weeks apart. Participants had all of their sessions either in person or online. Figure 1 illustrates the design of the course with the primary MI concepts addressed in each workshop.

Participants also received 2 hr of individual MI practice and feedback. The practice consisted of two acting patient encounters (APEs)—telephonic encounters with actors who were trained to simulate the role of a patient contemplating behavior change. Two roles were available to each participant - one in which the actor simulated a patient who was a smoker, and the other with hypertension. Participants were required to complete encounters with each of the patient roles and the order in which they completed them was randomized. The APEs were audio-recorded. The first APE took place after the first workshop, and the second took place after the final workshop (see Figure 1).

Following each of the APEs, each participant completed a self-evaluation of that encounter using the CEQ. Participants then received a 30-min individual feedback session with an MI trainer. The feedback was informed both by the participant's self-evaluation and the objective assessment of their APE done by an expert coder using the MITI instrument. The content of these sessions was determined collaboratively by the coach and the participant. Coaching sessions included opportunities for practice, discussion of the learner's weaknesses and strengths, and reinforcement of MI concepts. All of the faculty for the CITMI course, including the coach, were members of the Motivational Interviewing Network of Trainers (MINT).

Study Population

The CITMI class members enrolled in the study included the following: psychologists (4), clinical social workers (2), medical students (5), family medicine residents (5), nurse practitioners (5), primary Care/OBGYN physicians (3), research staff (4), and other health care providers and affiliates (6). All 34 participants completed all course requirements, 20 in-person and 14 online. This unfunded study was approved by the University of Massachusetts Medical School's Institutional Review Board.

Measures

MITI 3.1 Fidelity Instrument. The primary measure of participants' MI skill was an objective assessment of the extent to which they demonstrated MI skills in the APEs using the MITI 3.1 coding system. The first component of the MITI comprises five global variables, each rated on a five-point Likert scale, assessing different dimensions of MI: evocation, collaboration, autonomy/support, empathy, and direction. The second component consists of behavior counts for: giving information, MI adherent utterances, MI nonadherent utterances, closed-ended questions, open-ended questions, simple reflective statements, and complex reflective statements. Summary scores are then calculated of the variables 'MI spirit' (an average of the global variables evocation, collaboration and autonomy/support), the percent of all questions that were open-ended, the percent of all reflective statements that were complex reflective statements, the reflection-to-question ratio, and the percent of relevant behaviors that were MI adherent.
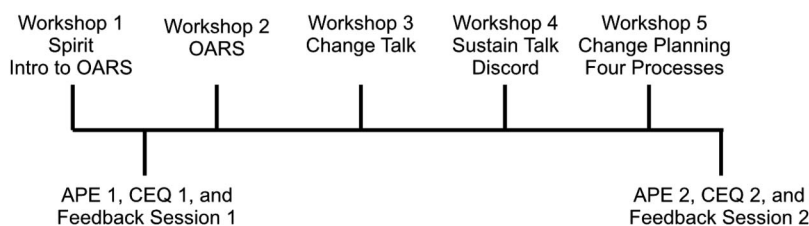

Figure 1. Training format for the in-person and online groups.

MITI coding. Audio-recorded encounters of participants' APEs were submitted to an expert coder for assessment. The coding was done by a coder working at the Motivational Interviewing Coding Laboratory (MICLab) at the Department of Clinical Neuroscience, Karolinska Institute. The coder was blind to whether the sample had been submitted by a participant in the in-person or online group. Midway through this study, in January of 2014, interrater reliability (IRR) of the coder used for this study was tested against MICLab's gold standard coder. The IRR assessment included a random sample of five sessions from this study and an additional 12 randomly selected clinical practice sessions submitted to the MICLab for coding. The IRR was calculated for each of the 13 MITI 3.1 variables, using intraclass correlations (ICC) in a two-way mixed model with absolute agreement. The ICC exceeded 0.80 in all variables except direction, where it was 0.64. An ICC between 0.60 and 0.74 is considered good, and an ICC between 0.75 and 1.0 is considered excellent.(Cicchetti, 1994)

CEQ. Participants' self-evaluation using the 13-item CEQ served as a secondary outcome. The CEQ was developed in 2012 by the MICLab at Karolinska Institute. The CEQ is intended to be completed by MI training participants who submit recorded encounters to be assessed for MI fidelity using the MITI 3.1. This questionnaire has been deemed to have face validity by a number of MI experts in respect of measuring MI in accordance with the MITI instrument.

The use of the CEQ in the CITMI course was intended as a real-world evaluation of its utility and acceptability in a training environment. The first five items on the CEQ individually correspond to each of the five global variables of the MITI. The next five items ask participants to estimate the proportion of the different behavior counts using a three-point scale. In the first of these items, participants estimate whether their work sample contains more MI adherent utterances than MI nonadherent utterances, the number of each type of utterance is roughly the same, or there are more MI nonadherent than MI adherent utterances. They are then asked to make the same estimates regarding the proportions of reflections compared with questions, closed compared with open questions, and simple compared with complex reflections. The final three CEQ items assess a participant's degree of certainty in his or her self-assessment, the number of days since recording the work sample, and whether the participant had listened to it before completing the CEQ.

Data Analysis

Data were analyzed using SPSS (Version 20). Frequencies and means of participants' MITI scores, and CEQ scores were calculated for each of the two groups. Given the small sample size and ordinal nature of the MITI responses, both nonparametric and parametric analyses were carried out. These analyses produced nearly identical statistical results. Parametric analyses are reported here for ease of interpretation. Correlation coefficients were calculated to assess association between participants' self-assessments using the CEQ and the objective assessment of their MI skill using the MITI.

Results

Table 1 reports the mean MITI global ratings, behavior counts, and summary scores for participants in both groups at Time 1, along with the results of independent samples t tests. There was a significant difference ($p < .05$) between

Table 1
Comparison of Time 1 MITI Scores for In-Person and Online Sections

MITI code	Mean in-person MITI	Mean online MITI	p
MI spirit	2.30	2.93	.05
Evocation	2.15	2.79	.05
Collaboration	2.25	3.14	.02
Autonomy	2.50	2.86	.31
Empathy	2.65	3.36	.04
Direction	4.60	4.57	.24
Giving information	8.85	10.07	.73
MI adherent	1.65	2.14	.87
MI nonadherent	4.95	2.29	.09
Closed questions	12.60	4.23	.60
Open questions	3.58	6.20	.27
Simple reflections	2.75	7.29	.04
Complex reflections	4.91	6.57	.11
Reflections/questions	0.63	1.02	.09
% open questions	0.41	0.37	.59
% complex reflections	0.44	0.46	.82
% MI adherent	0.38	0.36	.91

Note. MITI = Motivational Interviewing Treatment Integrity; MI = Motivational Interviewing.

the Time 1 performance of participants in the online and in-person groups on the global ratings of collaboration and empathy and on the behavior count of simple reflections. Participants in the online group had higher ratings for these two global variables, and used more simple reflections at baseline, compared with participants in the in-person group.

Table 2 reports participants' mean MITI global ratings, behavior counts, and summary scores at Time 1 and Time 2. Table 2 includes the reference values for Beginning Proficiency as defined in the MITI 3.1 manual. Scores for each variable are reported for the study population taken as a whole, and also for the in-person and online groups separately. The results of paired samples t tests are reported for each variable and subgroup comparisons. The means for all participants' improved significantly ($p <$ .05) in 7 of the MITI variables. The most significant improvements were seen in the global collaboration variable, the summary score of percent MI-adherent, and the behavior counts of closed ended questions and giving information. As reported in Table 2 there were also significant differences for two additional measures in the in-person group and three measures in the online group.

The results of Pearson Correlation tests comparing the MITI ratings of participants' APEs with their APE self-assessments are reported in Table 3. Results are reported separately for Time 1 and Time 2. At Time 1, all correlations are around zero or very low, with one exception. Except for the proportion of reflections to questions, participants were not able to accurately self-assess their skill. At Time 2, the picture of zero or low correlations remains but there were also two negative moderate correlations, one between participants' self-assessment and the objective assessment in the global collaboration variable and the other between participants' self-assessment of the proportion of complex reflections to all reflections and the objective assessment. The correlation of the proportion of reflections to questions was weaker and of borderline significance. At Time 2, participants were generally unable accurately to self-assess their skill in most of the variables.

Table 4 reports the mean change in participants' MITI and CEQ scores for both groups. The mean change in MITI scores was calculated by comparing the mean results of participants' first and second MITI and CEQ scores. The results of

independent samples t tests comparing participants' change in scores shows only a single significant difference identified on the MITI: percent open-ended questions. A significant difference was found on a single CEQ variable: ratio of reflections to questions and reflections.

Discussion

This evaluation measured the development of MI skills in participants who had undergone a 22-hr continuing education MI training either in-person or online. Participants significantly improved in some, but not all, MITI variables. Participants significantly improved in the global variables collaboration and MI spirit. Participants also demonstrated significant reductions on the MITI behavior counts of giving information, MI nonadherent statements, and closed-ended questions. These reductions in undesirable behavior counts are consistent with the improvements on the MI spirit summary score, as a reduction in these behaviors is likely to influence MI spirit positively. Participants had a statistically significant improvement on the MITI summary scores of percent open-ended questions and percent MI adherent statements. These changes are also consistent with an improvement in MI skills. It should be noted that participants' skills did not generally pass the MITI 3.1 manuals' Beginning Proficiency thresholds (see Table 2). As described in the MITI manual, these thresholds are derived from expert opinion rather than evidence from research. These thresholds are used frequently in evaluating MI skills. Together these findings suggest that MI skills take considerable time to learn, with 22 hr being sufficient for improvement in some, but not all aspects of MI measured by the MITI. More training is probably needed for participants to reach the suggested MITI Beginning Proficiency reference values (Bohman, Forsberg, Ghaderi, & Rasmussen, 2013). Also, it should be noted that this study does not investigate how the participant's acquisition of MI skills are disseminated into real world encounters with patients. One way to extend the MI training into real-world situations would be for clinicians to audio-record clinical encounters and have them assessed by expert MITI coders followed by feedback delivered by an MI coach.

Participants in the in-person and online groups did not differ significantly in their improvements in MI skills, though our sample size

Table 2
Comparison of Time 1 and Time 2 MITI Scores

MITI code	Reference value beginning proficiency	Mean MITI score		
		Time 1	Time 2	*p*
MI spirit	3.5			
All participants		2.60	2.98	.03*
Online group		2.93	3.24	.27
In-person group		2.30	2.80	.07
Evocation	—			
All participants		2.41	2.74	.13
Online group		2.79	2.86	.79
In-person group		2.15	2.65	.12
Collaboration	—			
All participants		2.62	3.15	.01*
Online group		3.14	3.57	.21
In-person group		2.25	2.85	.03*
Autonomy	—			
All participants		2.65	3.06	.05
Online group		2.86	3.29	.19
In-person group		2.50	2.90	.15
Empathy	—			
All participants		2.94	3.26	.12
Online group		3.36	3.64	.30
In-person group		2.65	3.00	.25
Direction	—			
All participants		4.59	4.91	.08
Online group		4.57	4.93	.36
In-person group		4.60	4.90	.08
Giving information	—			
All participants		9.35	5.94	.01*
Online group		10.07	3.93	.02*
In-person group		8.85	7.35	.28
MI adherent	—			
All participants		1.85	2.03	.62
Online group		2.14	1.93	.76
In-person group		1.65	2.10	.23
MI nonadherent	—			
All participants		3.82	1.76	.03*
Online group		2.21	1.29	.31
In-person group		4.95	2.10	.06
Closed questions	—			
All participants		11.50	7.74	.01*
Online group		9.93	6.29	.02*
In-person group		12.60	8.75	.07
Open questions	—			
All participants		7.00	6.82	.85
Online group		6.21	7.07	.64
In-person group		7.55	6.65	.34
Simple Reflections	—			
All participants		6.00	6.03	.95
Online group		7.29	6.93	.66
In-person group		5.10	5.40	.63
Complex Reflections	—			
All participants		5.71	6.56	.42
Online group		6.57	7.36	.54
In-person group		5.10	6.00	.57
			(*table continues*)	

Table 2 (*continued*)

MITI code	Reference value beginning proficiency	Mean MITI score		p
		Time 1	Time 2	
Reflections/questions	1.00			
All participants		.79	.99	.17
Online group		1.02	1.16	.51
In-person group		.63	.86	.24
% open questions	.50			
All participants		.39	.48	.01*
Online group		.37	.55	.01*
In-person group		.41	.43	.45
% complex reflections	.40			
All participants		.45	.51	.24
Online group		.46	.50	.50
In-person group		.44	.51	.35
% MI adherent	.90			
All participants		.37	.59	.01*
Online group		.36	.51	.30
In-person group		.38	.65	.01*

Note. MITI = Motivational Interviewing Treatment Integrity; MI = Motivational Interviewing.
* $p < .05$.

may have been too small to yield power to detect such differences. The MITI summary score of percent open-ended questions did improve more in the in-person group than in the online group. This difference was likely attributable to the significant decrease in the number of closed-ended questions asked by the in-person participants at Time 2 compared with Time 1. This single discrepancy between the changes in performance of the in-person and online groups of the course was not substantive enough to conclude that participants in the in-person group improved their skills more than those in the online group. It is also worth considering that this difference may be attributable to the many comparisons made in this study

Table 3
Correlation Between MITI and CEQ Scores at Time 1 and Time 2

MITI variable	Corresponding CEQ variable	Time 1		Time 2	
		Correlation	p	Correlation	p
Empathy	Demonstrated effort to understand client's perspective and feelings	.01	.94	.04	.85
Evocation	Demonstrated an effort to explore the client's thoughts and ideas about change	.08	.67	.25	.15
Collaboration	Demonstrated an awareness that the client possess knowledge used to achieve change	.04	.84	−.41	.02*
Autonomy	Demonstrated an effort to reinforce client's perception of control and ability to chose	−.24	.18	−.04	.84
Direction	Demonstrated an effort to maintain focus on behavior change	−.15	.41	.08	.65
MI adherent	Estimated # of MI adherent utterances	−.12	.52	.02	.91
MI nonadherent	Estimated # of MI nonadherent utterances	−.06	.72	−.12	.48
Reflections/questions	Proportions of reflections and questions	.52	.00*	.35	.05
% open questions	Proportions of open and closed questions	−.18	.30	.01	.98
% complex reflections	Proportions of complex and simple reflections	.03	.88	−.31	.07

Note. MITI = Motivational Interviewing Treatment Integrity; MI = Motivational Interviewing; CEQ = Clinical Experience Questionnaire.
* $p < .05$.

Table 4
T Test Comparing Mean Delta of MITI and CEQ Scores Between Online and In-Person Groups

MITI code	In-person		Online		p	
	MITI Δ	CEQ Δ	MITI Δ	CEQ Δ	MITI	CEQ
MI spirit	0.50	0	0.31		.63	
Evocation	0.50	0.15	0.07	−0.21	.32	.36
Collaboration	0.60	0.15	0.43	0.29	.68	.75
Autonomy/support	0.40	0.40	0.43	−0.36	.95	.16
Empathy	0.35	0.15	0.29	−0.14	.88	.36
Direction	0.30	0.20	0.36	0.07	.88	.74
Giving information	−1.50		−6.14		.07	
MI adherent	0.45	0.35	−0.21	−0.07	.36	.26
MI nonadherent	−2.85	−0.35	−0.93	−0.50	.30	.71
Closed questions	−3.85		−3.64		.94	
Open questions	−0.90		0.86		.39	
Simple reflections	0.030		−0.36		.51	
Complex reflections	0.90		0.79		.96	
Reflections/questions	0.23	0.45	0.15	−0.36	.77	.03*
% open questions	0.03		0.18	−0.29	.02*	.49
% complex reflections	0.07	−0.15	0.04	−0.07	.74	.75
% MI adherent	0.27		0.15		.43	

Note. MITI = Motivational Interviewing Treatment Integrity; MI = Motivational Interviewing; CEQ = Clinical Experience Questionnaire.
* $p < .05$.

rather than to true differences in the learning outcomes of the in-person and online groups of the course. Because the online training condition seemed to be as effective as in-person training, online MI training is a reasonable alternative for some learners. Online training is easily accessible and allows both participants and trainers to save time.

Participants were generally unable to self-assess their MI skills accurately at either Time 1 or Time 2. Participants' self-assessments were not significantly correlated with the objective assessment in most of the variables. The exceptions included the MITI global collaboration variable, at Time 2, which was significant for a moderate negative correlation. This is important, because it means that the feedback participants give themselves on their performance may make it harder for them to learn. This finding underscores the need for feedback based on an objective assessment of performance. The other exception was the ratio of reflections to questions at Time 1, in which there was a significant moderate, positive correlation between participants' self-assessment and the objective assessment. This finding suggests that participants may have been able to assess the propor-

tion of reflections to questions with reasonable accuracy. These findings are noteworthy as they suggest that clinicians are poor at self-assessing nearly all MI skills measured by the MITI. It is in line with evidence of self-assessments of skill being unreliable or inaccurate in many fields (Brosan, Reynolds, & Moore, 2008; Dunning, 2006), including psychotherapy (Chevron & Rounsaville, 1983). More research is needed into the relation between clinicians' self-assessments and objective assessments of their MI skill, and their role in the learning of MI.

This evaluation has a number of limitations. Participants were not randomized to the two groups. This limits the conclusions that can be drawn about the relative improvements or lack thereof in the two groups. Another limitation of the evaluation is that the Time 1 measurements were not baseline assessments. The APEs completed at Time 1 occurred between the first and second workshops. This is an intentional element of the course designed to engage participants before assessing their MI skills. While collecting Time 1 data prior to the first workshop might increase the ability to detect changes in clinician performance, it would require participants to participate in an eval-

uation of MI skills before receiving training in MI. Future studies should also investigate participant's skills months after the end of the training. The small number of participants in this evaluation limits our ability to detect improvements in performance or in participants' ability to accurately self-evaluate as well as our ability to analyze differences in MI learning and self-assessment skills between categories of participants.

A key strength of this evaluation is its real-world setting. The outcomes of this training are relevant to MI trainings that occur outside research settings. An additional strength of this evaluation is the rigor of the MITI coding. An expert coder who had no direct contact with participants coded the recordings of the APEs and the quality of that coding was assured through interrater reliability assessments.

Conclusion

Health behavior change counseling skills are relevant to the work of a broad array of health care providers. MI is an efficacious approach to facilitating behavior change that can be learned with an investment in training. This evaluation provides evidence that MI skills can be acquired by clinicians completing continuing education training through live, interactive, online workshops. The improvement in these participants' skills is comparable to that of participants who completed the in-person training. Equally important is the finding that clinicians cannot accurately self-asses their MI skills and that MI training does not seems to improve that skill. This is a critical finding, which provides an argument for the inclusion of objective measurement of participants' skills in MI trainings, and for the reporting of fidelity in MI intervention studies. The results suggest that the maintenance of MI skills should be based on feedback to clinicians of their objectively assessed clinical practice instead of being based on their self-evaluation skills. In the future, it might help to include self-assessment in MI training and coaching in order to increase skill awareness.

Future evaluations of online MI trainings are needed. This course relied entirely on synchronous training. It would be useful to investigate whether asynchronous training could produce similar outcomes. Likewise, the relative value of hours spent in workshops, compared with hours spent in individual training in order to reach suggested reference values for beginning proficiency in MI, remains to be studied. Finally, there is a need to describe sustainable, scalable models for training health care professionals in MI using measures such as the MITI.

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