

Regular article

Training in motivational interviewing: A systematic review

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Abstract

Motivational interviewing (MI), an evidence-based counseling approach, has received much recognition from a wide variety of health care professionals. Because of the rising interest in MI, there is increasing demand for training in this counseling approach. The MI training community has answered this call and as a result placed much emphasis on studying the MI training process. The purpose of this article is to provide a systematic review of the published research on MI training. Our goal is to provide a consolidated account of MI trainings outlining the populations receiving training, methods used, and training outcomes. We also identify which aspects of the (W. R. Miller & T. B. Moyers, 2006) eight stages of learning MI each study addressed. Recommendations for advancing the MI training research are highlighted. © 2009 Elsevier Inc. All rights reserved.

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1. Introduction

Motivational interviewing (MI) is a directive, client-centered approach for eliciting behavior change by assisting clients in exploring and resolving ambivalence (Miller & Rollnick, 2002). MI achieves its therapeutic goals through both factors that are common across psychotherapies and those that are specific to MI. Common factors include Rogerian skills like acceptance, expressing empathy, and being nonjudgmental. Factors specific to MI, often referred to as the “spirit of MI,” include collaboration, evocation, and autonomy (Miller & Rollnick, 2002). First, behavior change is best brought about in a collaborative manner. The counselor interacts with the client in a partner-like fashion. Both the client and the counselor perceive each other as equals. There is a level of highly valued egalitarianism between the two (Moyers, Miller, & Hendrickson, 2005). Second, MI values an evocative relationship between the client and the counselor. Therefore, educating or advice

giving are not seen as the most conducive forms of interaction due to their tendency to increase resistance (Rollnick & Miller, 1995; Miller & Rollnick, 2002). Instead, positive reasons or beliefs for change are elicited or drawn from within the client. Finally, the philosophy of MI holds that a counselor must respect the autonomy of his or her client. Thus, the ability and the decision to bring about change are entirely under the client’s control.

Beyond the spirit of MI, this counseling approach is unique in that an emphasis is placed on both principles such as rolling with resistance, developing discrepancy between client values and behaviors, and supporting client self-efficacy about changing and strategies such as exploring client ambivalence and eliciting and reinforcing client change talk (Miller & Rollnick, 2002). These principles and strategies can be thought to occur within two phases. Phase 1 of MI emphasizes using common counseling factors and specific MI ingredients to build client motivation for change (Miller & Rollnick, 2002). The Phase 2 of MI, strengthening commitment and action for change, includes Phase 1 strategies (e.g., common counseling factors) but also includes a focus on developing a client-specific change plan and building a client’s commitment to acting on that plan (Arkowitz & Miller, 2008).

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MI has been studied extensively and shows promise as an efficacious intervention in a variety of settings and with a variety of substance use disorders such as alcohol, cocaine, and marijuana (Burke, Arkowitz, & Menchola, 2003; Hettema, Steele, & Miller, 2005). Beyond substance abuse treatment, MI has demonstrated its ability for enhancing involvement in HIV testing (Foley, Duran, & Morris, 2005), decreasing risky sexual behaviors (Belcher et al., 1998), fostering medication compliance (Hayward, Chan, & Kemp, 1995), enhancing readiness to change with eating disorders (Dunn, Neighbors, & Larimer, 2006), and facilitating healthy eating behaviors (Resnicow, Jackson, & Wang, 2001). Further, MI has been shown to be an efficacious approach to enhancing client engagement and adherence in treatment (Carroll, Ball, & Nich, 2006; Zweben & Zuckoff, 2002). One valuable aspect of MI is the emphasis that has been placed on training clinicians from various backgrounds to use this approach.

Because of this applicability to a broad spectrum of professionals, training in MI has undergone several developments (Adams & Madson, 2006). First, in 1995, the Motivational Interviewing Network of Trainers (MINT) held its first meeting (Moyers, 2004). MINT is a group of individuals with specialized training in how to educate others in MI. More recently, Miller and Moyers (2006) have outlined a process (discussed below) through which trainees' may progress in their development of MI ability. Most notable of the developments related to the emphasis on MI training is the empirical examination of the training process and transfer of MI into practice. For example, several observational measures have been developed to facilitate monitoring, feedback, and research on MI skills (e.g., Lane et al., 2005; Madson & Campbell, 2006; Madson, Campbell, Barrett, Brondino, & Melchert, 2005; Moyers, Martin, Manuel, Hendrickson, & Miller, 2005). In addition, since the late 1990s, there has been a variety of research that has focused on MI training. Given these developments and the increasing call for MI training, it would be valuable to examine the current research to provide a complete synthesis of current MI training practices and outcomes.

Given these developments, the purpose of this article is to expand on previous work on MI training by providing a current review of MI training research that has been developed and described independently elsewhere. Previously, there has been no consolidated evaluation of this research. Therefore, our review will specifically outline the populations to which the MI trainings have been targeted, the foci of trainings (aspects of MI being trained based on authors' descriptions), training methods, length, and outcomes. In addition, we will discuss the extent to which studies integrated experiential/practice opportunities, if feedback was provided to participants, and whether objective feedback measures were used. Finally, we examine the extent to which trainings outlined fit with Miller and Moyers' stages of learning MI. This review summarizes what has been accomplished thus far in the study of MI training while providing information that can assist re-

searchers, educators, and clinical supervisors in developing and evaluating MI training.

1.1. Learning MI

Learning MI is not a simple process. In fact, Miller and Moyers (2006) identified eight particular stages for becoming competent in MI, beginning with understanding its philosophy and culminating in the integration of MI with other theoretical approaches. One begins their progression in learning MI by first becoming familiar with its underlying philosophy (Miller & Moyers, 2006). This philosophy is composed of three major tenets: collaboration, evocation, and autonomy (Miller & Rollnick, 2002). Miller and Moyers (2006) indicate that one should be, at the very least, open to learning about the philosophy of MI through their ongoing interactions with clients. The second stage in learning MI involves acquiring basic client-centered counseling skills (Miller & Moyers, 2006). Thus, counselors are encouraged to be proficient in their ability to use open questions, affirm the client's responses, apply accurate reflections, and provide summaries when necessary (Miller & Rollnick, 2002). The third stage of learning MI, and where it deviates from pure client-centered counseling, involves recognizing and reinforcing change talk (Miller & Moyers, 2006). MI is based upon a conscious directive toward change (Hettema et al., 2005). Thus, counselors must be able to identify when a client verbalizes the reasons, needs, desires, and benefits of change (Miller & Rollnick, 2002). Miller and Moyers (2006) indicate that it is not enough to be able to recognize change talk, but that a counselor must be able to elicit such statements from their clients. Therefore, in the fourth stage of the model, counselors are encouraged to ask about, reflect, and emphasize statements concerning change to prevent the client from feeling stuck (Miller & Rollnick, 2002). Counselors are encouraged to be mindful of how and when they elicit change talk from their clients (Miller and Moyers, 2006). By being aware of how they are interacting with clients, counselors are able to roll with resistance. Counselors that avoid confrontations and arguments with a client are successfully navigating Miller and Moyers' (2006) fifth stage of learning MI. In this stage, individuals are encouraged to view resistive behavior not as pathological or defensive but as a natural component of the change process (Miller & Rollnick, 2002). If addressed effectively (e.g., through using reflections) a client's resistance can become an asset in developing behavior change (Arkowitz & Miller, 2008).

Although earlier stages in Miller and Moyers (2006) model appear to reflect a trainees need to develop proficiency in Phase 1 of MI, latter stages appear to address the Phase 2. Thus, once a client has expressed an adequate amount of change talk and resistance has been properly addressed, both the counselor and the client may be asking "What's next?" (Miller & Moyers, 2006). At this point in training, the sixth stage in learning MI, it is important for one

to be able to transition into the next phase of behavior change by beginning to develop a plan (Miller & Rollnick, 2002). In the seventh stage of learning, MI counselors are able to help a client develop their commitment to their change plan (Miller & Moyers, 2006). Thus, rather than simply expressing “I can” or “I would like” to change, clients are encouraged to verbalize more affirmative statements regarding change, such as “I will” (Miller & Moyers, 2006). MI has demonstrated synergistic effects when used with other forms of treatment (Miller & Rollnick, 2002). Thus, in the final stage of learning MI, counselors are able to integrate it effectively with other interventions (Miller & Moyers, 2006). At this point, it is critical for counselors to be able

to identify whether their client would benefit from an MI approach or from another form of therapy (Miller & Moyers, 2006). For instance, if a client is fully prepared to take action, then using MI may stifle their desire to change (Miller & Rollnick, 2002).

Although this model provides a logical process for learning MI, it still requires empirical validation (Miller & Moyers, 2006). As MI’s popularity continues to grow, there will be a need to further assess this model and its relevance for assisting in the training and implementation of MI (Miller & Moyers, 2006). Nonetheless, the eight stages of learning MI model provide a reasonable structure to use when reviewing MI training. Thus, this article will also provide an

Table 1

MI training studies reviewed with regard to fit with eight stages of learning MI model, sample size, population trained, length of training, type of training, and outcomes measured

Reference	Stage(s) of model addressed	<i>n</i>	Population trained	Length of training	Type of training	Outcomes measured
Arthur (1999)	2	212	Nurses	5 weeks	Course	KN, SCIRS, SP
Baer et al. (2004)	1, 2, 3, 5	22	MH	14 hours	WS	HRQ, SP, RP
Bennett, Roberts, Vaughan, Gibbins, and Rouse (2007)	1, 2, 3, 5	40	MH, SA			MITI, SP
Brown and Oriel (1998)	2	21	Medical students	14 hours	Course	SP
Brug et al. (2007)	1, 2, 3	37	Dietitians	2 days	WS	MITI, MISC
Burke, Da Silva, Vaughan, and Knight (2005)	1, 2, 3, 5	6	School personnel	12 hours	WS	
Byrne, Watson, Butler, and Accoroni (2006)	1, 2, 3, 5	10	Nurses	Half-day	WS	KN, CON
Carroll et al. (2006)	1, 2, 3, 5	38	MH, SA	>16 hours	WS, SU	RP
Chossis et al. (2007)	2		MD	2 half-day	WS	
Doherty, Hall, James, Roberts, and Simpson (2000)	2	13	Dietitian, nurses, MD	1 hour/month	WS, SU	KN, RP
Handmaker, Hester, and Delaney (1999)	1, 2	31	MD, nurses	20 minutes	Video	SP
Hartzler, Baer, Dunn, Rosengren, and Wells (2007)	1, 2, 3, 5	23	MH	15 hours	WS	SP, MITI, MISC
Lane, Hood, and Rollnick (2008)	1, 2, 3, 5	70	Health care professionals	4 days	WS	SP, BECCI
Lane et al. (2003)	2, 5	6	Nurses	2 hours	WS, video	SP, BECCI
Martino (2007)	2	45	Medical students	2 hours	Course	HRQ, KN, CON, IU
Miller et al. (2004)	1, 2, 3, 5	140	SA, MD, nurses, MH, social workers	2 days	WS, FB, CO, self-taught	HRQ, MISC
Miller and Mount (2001)	1, 2, 3, 5	22	Probation officers	15 hours	WS	HRQ, SK, SP, MISC
Mounsey et al. (2006)	1, 2, 3, 5	93	Medical students		Course	MITI, SP
Poirier et al. (2004)	1, 2, 3, 4, 5	42	Medical students	10 hours	Course	CON, KN
Rubak, Sandbake, Lauritzen, Borch-Johnsen, and Christensen (2006)	1, 2, 3, 5	76	MD	2 days	WS	IU
Rubel, Sobell, and Miller (2000)	2	44	SA	12 hours	WS	KN, UAS, HRQ
Saitz et al. (2000)	2	87	MD, nurses, MH, social workers	Half-day	WS	SP, IU, CON
Schoener, Madeja, Henderson, Ondersma, and Janisse (2006)	1, 2, 3, 5	10	MH	2 days	WS	MISC
Shafer, Rhode, and Chong (2004)	1, 2, 3, 5	30	SA	15 hours	WS	KN, SUSAS, HRQ, MISC, RC
Smith et al. (2007)	1, 2, 3, 5	12	SA	2 days	WS, SU	MITI
Thijs (2007)	2		MD, MH			
Velasquez et al. (2000)	1, 2, 3, 5	73	Nurses, case workers	6 hours–2 days	WS	KN

Note. CO = coaching; CON = confidence; FB = feedback; HRQ = Helpful Response Questionnaire; IU = intention to use; KN = knowledge; MD = doctors; MH = mental health; MISC = Motivational Interviewing Skill Code; MITI = Motivational Interviewing Treatment Integrity Scale; RP = real patient; RC = readiness to change; SCIRS = Simulated Client Interview Rating Scale; SA = substance abuse; SK = skills; SP = simulated patient; SU = supervision; SUSAS = Short Understanding of Substance Abuse Scale; UAS = Understanding Alcoholism Scale; WS = workshop.

estimation of which stage(s) of learning MI the training addressed. These estimations will be based on the authors' training descriptions.

1.2. Procedure

To identify articles for inclusion in this review, we conducted a literature search using the psycINFO, psycARTICLES, Academic Search Premier, and Medline databases. Database search terms used included MI, motivational enhancement therapy, training, education, and workshop. A thorough review of the bibliography page on the MI Web site (<http://motivationalinterview.org/library/biblio.html>) was also conducted to identify additional articles. This process resulted in 32 articles identified. Studies for this review were included if they directly stated that the training included MI or upon review trained participants, indirectly, in skills important to MI. One study, Hecht et al. (2005), provided a description of several MI training efforts but did not provide information on results; thus, it was not included for review. This decision process resulted in 27 studies for inclusion in this review from medicine, general health care (e.g., nutrition, exercise), substance abuse, and general mental health. Each author reviewed the included articles independently to determine which of Miller and Moyers' (2006) eight stages were addressed based on training descriptions in each article. In our review, we included some decisional rules for determining if a training addressed a particular stage. If the authors mention that the training addressed principles of MI, we decided that this would include Stages 1, 2, 3, and 5. These four stages (spirit of MI; open questions, affirmations, reflection, and summaries [OARS]; recognizing and reinforcing change talk; and rolling with resistance) based on Miller and Moyers' description seem to incorporate the four principles of MI more directly than the other four stages. We determined that a training addressed Stages 4, 6, 7, and 8 only if direct reference to activities relating to these stages were mentioned (e.g., eliciting change talk or developing a change plan). Finally, if the authors only referred to MI techniques, we determined the training only addressed Stage 2. The first author also reviewed the content of each article to determine the (a) profession of participants, (b) length of trainings in terms of hours, (c) training methods used, (c) aspects of MI covered (e.g., spirit, principles, OARS, specific skills—decisional balance, scaling), and (d) outcomes. This analysis was then reviewed by the other authors for accuracy and completeness. Table 1 presents some of these results.

2. MI training review results

2.1. Participant's profession

The wide popularity of MI training is highlighted by the variety of professions from which trainees have participated in MI training based on published articles. Most of the

studies included in this review centered on training medical professionals exclusively or as part of a more diverse group. Of the 27 studies reviewed, eight included physicians, and 4 additional studies were exclusively targeting medical students. Similarly, 10 studies trained nurses including nurse practitioners and midwives. Of the 27 studies, 3 trained dietitians and other medical professionals such as medical assistants and case workers. Interestingly, of the 27 studies reviewed, only 2 focused on general mental health professionals who provide psychotherapy (social workers, counselors, psychologists) exclusively, with 4 focusing exclusively on substance use professionals (counselors, social workers, addictionologists, psychologists) and 3 combining mental health and substance use professionals. One study focused on training probation officers. Most of the studies ($n = 22$) described training of individuals with advanced degrees, whereas 5 studies explicitly described training individuals with bachelor degrees. Finally, unlike the medical profession, no published studies were found on training mental health graduate students (psychology, counseling, social work) in MI. Arkowitz and Miller (2008) refer to a practicum training sequence for clinical psychology graduate students, but we found no empirical study concerning this training effort.

2.2. Length of training

There was wide variability in the length of training programs among the 28 studies. Seven of the studies were less intensive and involved less than 8 hours of training. Most of the trainings (16) varied from 9 to 16 hours of training. One study was more involved and included more than 24 hours of training. This study, as well as some of the other more involved trainings, included follow-up/booster sessions that included ongoing contact with the trainer as a coach/supervisor.

2.3. Training methods

The most often used methods for training were through didactic instruction of the material and experiential exercises (22 studies each). Identified experiential exercises included role plays ($n = 13$) using a standard patient ($n = 5$) and other unspecified experiential activities. Related training activities included group exercises ($n = 6$) and group discussion ($n = 5$). Some form of observation was directly described in 3 of these studies, with 2 discussing the inclusion of an observational measure as part of the training. Similarly, 6 studies discussed some form of ongoing coaching/supervision. Some form of trainee feedback was discussed in 6 of the studies. Feedback included instructor or peer feedback. Modeling activities were described in 16 studies as either watching videos ($n = 10$) or live demonstrations ($n = 6$). Finally, several studies described use of related readings ($n = 6$), handouts ($n = 4$), or outside content homework ($n = 1$). With some small variability, it appears as though a common

approach among most MI trainings is to combine didactic instruction and experiential activities to provide a more inclusive training program.

2.4. Training outcomes

Overall, the training results reported were favorable. Several studies reported increases in participant confidence in using MI ($n = 4$), MI knowledge ($n = 6$), interest in learning more about MI ($n = 3$), intention to use MI ($n = 6$), and actual integration into one's practice ($n = 2$) based on trainee self-report. Only one study reported no change related to self-confidence in MI. Several studies examined outcomes more objectively with favorable results. Using either the Motivational Interviewing Treatment Integrity Scale (Moyers, Martin, et al., 2005) or the Motivational Interviewing Skill Code (Miller, 2000), nine studies reported improvements in MI-related skills (e.g., reflections, open questions). Two studies (Lane, Hood, & Rollnick, 2008; Lane, Johnson, Rollnick, Edwards, & Lyons, 2003) demonstrated improvements in MI skills following a 2-day workshop as measured by the Behavior Change Counseling Index (BECCI; Lane et al., 2005). Only one study reported no significant difference relating to MI skill using an objective measure (Mounsey, Bovbjerg, White, & Gaze-wood, 2006). Four studies reported increases in the Helpful Responses Questionnaire (Miller, Hedrick, & Orlofsky, 1991). In addition to the outcome criteria mentioned above, seven studies reported that the participants found value in the training, and two studies reported that participants found the role-plays especially helpful. Unfortunately, only a few of these studies examined the effect of training on client outcomes. Miller and Mount (2001) found no significant differences between MI-trained and non-trained clinicians on client questions/requests for information, change statements, resistance statements, and neutral statements. However, Miller, Yahne, Moyers, Martinez, and Pirritano (2004), in evaluating a more in-depth training process, found significantly more change talk and less resistance in clients of MI-trained counselors and that this change was sustained at 4 months for counselors who received follow-up and coaching. More recently, Chossis et al. (2007) found no difference between MI- and non-MI-trained residents relating to a clients' reported number of drinks consumed and mean number of drinks per week. Yet, Brug et al. (2007) found patients of MI-trained dietitians had significantly lower saturated fat intake at posttreatment. Clearly, to advance training further, future studies need to examine the outcome of MI trainings with clients.

2.5. Relation to eight stages

One purpose of this article is to provide an estimation of the extent to which each training study reviewed addressed the eight stages of learning MI. Although we recognize that there is some uncertainty whether these tasks must be

accomplished sequentially, the stages provide a reasonable guide for developing training goals and tasks. Thus, we outlined which aspects of the eight stages were addressed by each study based on the training description in each article. We are not suggesting that these trainings developed these competencies, but that they simply addressed a particular stage of learning MI. As seen in Table 1, every study included in this review addressed Stage 2, whereas most of the studies addressed Stages 1, 3, and 5. However, few studies appeared to address stages related to Phase 2 aspects of MI (strengthening commitment, developing a change plan) and integrating MI with other approaches. This finding suggests that most of the MI trainings studies to date focus primarily on Phase 1 of MI and have yet to focus on aspects of Phase 2. However, these findings need to be interpreted with caution because space limitations may have limited the authors' descriptions of MI trainings.

3. Evaluation of MI training studies

Our review of the 28 articles published from 1999 to 2007 highlighted several strengths and limitations as well as areas for improvement in future studies. Based on our review, it appears as though the trainings readily exposed trainees from a variety of backgrounds to both the general principles and other aspects of the first phase of MI (e.g., relationship building, rolling with resistance, and recognizing change talk). Similarly, an array of training techniques was used to help trainees gain experience applying MI. Finally, most trainings demonstrated positive outcomes relating to the development of MI knowledge, attitudes, basic skills, self-efficacy, interest in MI, and willingness to use MI. The sheer number of published studies in such a short length of time is also a strength because it indicates an attention to the empirical evaluation of training methods within the MI community.

A variety of limitations of these studies, however, call for caution in evaluating their findings. One major concern that must be considered is the use of a workshop format used in most of these studies. As seen in Table 1, only four studies described some form of workshop and supervision, and only one (Miller et al., 2004) described ongoing coaching. Walters, Matson, Baer, and Ziedonis (2005) highlight that the workshop format helps trainees improve in knowledge, attitudes, and confidence yet rarely facilitate maintenance of skill acquisition over time. In this context, future MI training studies must implement and evaluate additional training strategies such as coaching and coaching using objective feedback measures (Miller, Sorensen, Selzer, & Brigham, 2006). Another concern in evaluating these studies is the variability with which the trainings were described in these studies. From a scientific perspective, minimal description makes replication difficult, whereas from a practical perspective, such description limits the implementation of potentially effective training methods. Although we recognize that restricted publication space hinders the presentation

of training details, we encourage future studies to attempt to be more descriptive.

Furthermore, although the results of many of these studies are positive, one must be careful in interpreting the findings concerning trainee change over time due to the measures that were used in assessing these variables. Based on our review, there appears to be a lack of standard MI knowledge, attitude, and self-confidence measures that have been evaluated psychometrically. Without such validated measures, we cannot be confident in the results found in these studies (Heppner, Wampold, & Kivlighan, 2008). Similarly, these studies, which were primarily focused on a pre–post training design, demonstrate a need to assess skill acquisition over time (e.g., 3-month, 6-month follow-up) using psychometrically validated measures (Madson & Campbell, 2006). Finally, a few of these studies examined the impact of MI training on client outcomes. A major factor in success of any technology transfer effort is to enhance client services and outcomes (Stirman, Crits-Christoph, & DeRubeis, 2004). Thus, it will behoove researchers to study such outcomes within the context of MI training. Despite their limitations, the studies reviewed here provide the foundation needed to move the investigation of MI training forward.

4. Discussion

Our goal for this article was to provide a systematic review of the published articles relating to MI training to facilitate further research in this area. The review provided a wealth of quality information about MI training. In addition to providing important information about the current state of MI training, this review also raised several questions and recommendations that may be important to address in future MI training studies beyond the methodological issues mentioned above. These questions and recommendations fall into three categories: (a) general versus specific MI training, (b) training formats, and (c) transfer of MI from training into practice. This review also raised questions and recommendations relating to the eight-stage model outlined by Miller and Moyers (2006).

4.1. General and specific MI training

It appears based on our review that most of the articles covered in this article tended to focus on more general or introductory MI training. We found that all trainings reviewed described providing information relating to Phase 1 of MI (building motivation for change), whereas none of them described training activities related to Phase 2 (strengthening commitment). We recognize that although Phase 2 activities were not discussed, this does not mean that they did not occur. Authors may have chosen to omit this information from their articles for the sake of brevity. However, the omission of Phase 2 training was a consistent theme across our review. Thus, this finding raises questions

to be considered, such as (a) Does Phase 2 training require more training time? (b) Are different formats such as coaching—as described by Miller et al. (2004)—needed to provide Phase 2 training? and (c) What are MI trainers' beliefs about providing the full spectrum of MI training (e.g., Phase 1 and 2) or emphasizing specific focused trainings (e.g., spirit and principles, OARS, etc.). Finally, do MI trainers believe that trainees must develop a solid foundation in Phase 1 knowledge and skill prior to learning Phase 2 information and skills? By addressing these questions, the literature on MI training would certainly be advanced. Further, to understand the full spectrum of learning MI, future studies should examine the processes involved in developing competency within both phases of MI.

Similarly, with the exception of the identification of MI skills—OARS—the articles reviewed provided little information about training in specific MI strategies. Given this finding, questions arise about what specific strategies beyond OARS trainees are being exposed to. For example, are trainees being exposed to strategies such as agenda setting, elicit–provide–elicit, examining the pros and cons, and assessing readiness and confidence (Rollnick, Miller, & Butler, 2008)? Trainers may have different opinions about introducing or focusing on particular strategies. Some trainers may believe that one must understand the spirit and principles of MI prior to learning strategies, whereas other trainers may believe that if one learns the strategies, the principles and spirit of MI will follow. Similarly, a specific focus on theory or strategies may vary depending on the training audience. For instance, health care trainings may place more emphasis on strategies, whereas mental health trainings may focus more on theory. Thus, future research should attempt to examine the prevalence of and differences between trainings in specific strategies versus trainings focused upon theory.

One potential lens through which to explore questions about specific versus general MI training is to examine it within the context of counselor development models. Counselor developmental models, such as the integrated developmental model (IDM; Stoltenberg & McNeill, 1997) provide a theoretical foundation in relation to how one develops counseling skill. Specifically, the IDM provides a context to examine training issues such as focusing on skills versus theory, trainee anxiety, self-efficacy, as well as how to match supervisor interventions to trainee needs.

4.2. Training formats

Our review of published MI studies has also highlighted valuable information about how trainings are structured. Most of the trainings, with a few exceptions (e.g., Miller et al., 2004), described a seminar/workshop format. Consistently, these descriptions included presentation of didactic information and experiential exercises. It seems apparent that the use of multiple training methods is valued within the MI training community. Although there seemed to be consis-

tency with regards to training methods, more variability was found among the length of training. More specifically, Martino, Haeseler, Belitsky, Pantaloni, and Fortin (2007) suggested that MI training can be effective in short durations, whereas Miller et al. (2004) found the most efficacious training for integration of MI into practice is one that is longer in duration and integrates training, observation, feedback, and coaching. Thus, it will be important for future MI training research to examine what aspects of MI can be appropriately taught and learned in what time periods (e.g., what can be accomplished in an hour talk). In fact, this is one area in which Miller and Moyers' (2006) eight stages of learning MI may be beneficial in guiding research. For instance, researchers and trainers could use the eight stages framework to examine what aspects might be best delivered in a certain timeframe (e.g., overview of spirit and basic OARS in an hour). Finding answers to these types of questions will not only help inform the design of trainings but also further empirical investigation of the eight stages model.

Beyond what topics can best be covered in a specific amount of time, it will behoove MI training researchers to examine different training formats and populations. This review demonstrated that MI trainings have been provided to a variety of professionals from the mental and other allied health care fields. In addition, our review found studies that focused on the training of medical students. Clearly, an interest in learning MI has expanded to many professions. Although this growth is exciting, it also requires one to understand the different methods for providing the trainings. More specifically, most trainings reviewed here described a seminar format as the main focus of training. Miller et al. (2004) and Hecht et al. (2005) emphasized more comprehensive programs for training professionals. These developments have greatly expanded our knowledge of training in traditional and intensive formats. They also lay the foundation for additional study of training formats. For example, no study we reviewed examined training of graduate students in mental health or MI training as a regular component of a classroom environment. Graduate training in mental health fields such as psychology and social work is where future professionals are exposed to various counseling approaches and learn the necessary counseling skills. It is also through graduate education where trainees develop their theoretical approach to counseling (Halbur & Vess Halbur, 2006) and develop an identity as a mental health professional. These tasks are accomplished through a variety of training activities including instruction, activities, and the provision of clinical services (Lee, 2007). Given these facts, graduate mental health training programs appear to be fertile ground on which to explore various approaches to training future professionals in MI. Research in this area could (a) shed light on the similarities and differences of training students versus professionals, (b) outline how to best integrate MI training into specific classes (e.g., counseling skills or

alcohol and drug treatment), (c) help identify an optimal sequence for developing MI competence (e.g., 8 stages), (d) examine the efficacy of MI training in a practicum format, and (e) study optimal methods to train participants how to integrate MI with other interventions.

4.3. Transfer of MI training

Our review also highlighted the need for further investigation of the optimal methods of transferring MI training into practice. The MI training community appears to be very invested in learning how to best provide effective training as evidenced by the number of published training studies, the development of potential frameworks for increasing competent practice (Miller & Moyers, 2006), and the organization of training focused groups such as the MINT. Further, the development of multiple MI-related observational measures (Lane et al., 2005; Madson et al., 2005; Madson & Campbell, 2006; Moyers, Martin, et al., 2005) suggest that those involved in MI training are focused on facilitating effective transfer of MI from training to practice. This review highlights some additional areas for investigation in relation to the transfer of MI from training to practice. Trainee self-confidence is an important factor relating to one probability of engaging in a behavior (Bandura, 1997) and is an important concept in MI (Miller & Rollnick, 2002). In other words, an individual is more likely to engage in a behavior if they are confident in their abilities to perform the behavior. Some of the studies reviewed in this article examined the impact of the training on trainee self-confidence. However, it would be important for future studies to examine self-efficacy as a factor relating to trainee integration of MI into practice and what factors or training methods enhance or reduce self-efficacy. This factor may be especially important for professionals for whom using MI would require changes to their current clinical behavior (e.g., physicians, dietitians). However, to assess constructs like self-efficacy, the development of reliable and valid measures is also warranted. Although some of the studies reviewed addressed such constructs, the measures used appeared for the most part to be designed specifically for that study. Thus, another area of future research includes the construction and psychometric evaluation of measures aimed at assessing important training constructs such as self-efficacy, intention to use MI, and MI attitude and knowledge. In addition, because client perspective is important in MI, it will be important to develop measures to ascertain client observation of a clinician's MI skills. Such feedback can be valuable in providing additional information about MI skill development. Development of such measures will help provide consistent and accurate evaluation of these constructs.

As well as "training factors" and "trainee factors," another influence in the transfer of skills from training to clinical practice is the working environment (Baldwin & Ford, 1988; Simpson, 2002). The risk with any kind of skills related training is that trainees need to "use it or lose it," and if there is little support for MI within the workplace, there may be

little incentive to “use it.” For example, the findings from one notable study by Heaven, Clegg, and Maguire (2006) demonstrated that although it appeared that communication skills were enhanced immediately after training, without supervision, there was little effect on actual clinical practice. This suggests that without some degree of support and coaching in the workplace following training, the transfer of MI skills could potentially be more limited (Miller et al., 2006).

Beyond the areas for future research mentioned above, our review of the MI training literature reiterated Miller and Moyers' (2006) emphasis on the importance for researchers to empirically investigate the eight stages of learning MI. One major issue relating to this model that became apparent from the results of this review is whether this framework is best conceptualized as a linear stage model (where stages must be satisfied before moving on) or a set of guidelines for developing trainings centered on improving MI competency. The results of this review indicate that there are certainly discrepancies in which stages of the model are being addressed. Future studies will want to explore how the omission of particular stages impacts the outcome of a trainee's learning of MI. Researchers may also want to explore what factors influence the exclusion of particular stages. For example, is it essential to have learned the spirit of MI before learning the skills or can an individual develop a better understanding of the spirit through actually implementing some of the skills in practice? Similarly, it appears important to examine how trainers are using this framework to design training activities and how these activities are adjusted based on constraints (e.g., length of time, environment, population, format). Better reporting of MI training studies and explicit references to the stages addressed by a particular training program could provide further evidence for the eight stages model while assisting in its development. At this time, the eight stages model provides a logical framework for both researchers and trainers alike. However, as indicated by both the results of this review and Miller and Moyers (2006), further empirical assessment remains to be done before a clear understanding of this model can be achieved.

In sum, our goal for this project was to synthesize and systematically review the current literature relating to MI training. We were delighted to find a wealth of published training articles within the last 10 years in addition to the increase in studies during the past 5 years. To us, this suggests that the MI training community is seriously focused on providing effective training. Our review highlighted who is being trained, in what formats, and the related outcomes. In addition, the review raised many questions we deem important to answer to move the MI training literature forward. Our hope in providing these suggestions was to encourage MI trainers and researchers to engage in answering these questions, which we believe will enhance the quality and effectiveness of MI training programs.

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