After 30 years of dissemination, have we achieved sustained practice change in motivational interviewing?

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Aims: MI is the most successfully disseminated evidence-based practice in the Substance Use Disorder (SUD) treatment field. This systematic review considers two questions relevant to policy makers and service providers: 1) Does training in MI achieve sustained practice change in clinicians delivering SUD treatment? 2) Do clinicians achieve a level of competence after training in MI that impacts client outcomes?

Methods: A systematic review was conducted and reported in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement, examining training outcomes for MI in the SUD treatment sector, and for clinicians working in a SUD treatment role. We determined a training method to have resulted in sustained practice change when over 75% of participants met *beginning proficiency* in MI Spirit at a follow-up time-point.

Results: Of the 20 studies identified, 15 measured training at a follow-up time point using standard fidelity measures. The proportion of clinicians who reached *beginning proficiency* was either reported or calculated for 11 of these studies. Only two studies met our criterion of 75% of clinicians achieving *beginning proficiency* in MI Spirit after training. Of the 20 studies identified, two measured client substance use outcomes with mixed results.

Conclusions: A broad range of training studies failed to achieve sustained practice change in MI according to our criteria. It is unlikely 75% of clinicians can achieve *beginning proficiency* in MI Spirit after training unless competency is benchmarked, monitored and training is ongoing. The impact of training on client outcomes requires future examination.

Keywords: Motivational Interviewing, training, fidelity, competence, substance use, dissemination, implementation

1. Introduction

In the 30 years since Motivational Interviewing (MI) was first introduced, more than 80 randomised clinical trials have been published supporting its efficacy. Recent meta-analyses have provided evidence that MI is equivalent to or better than other treatments such as Cognitive Behavioural Therapy (CBT) or pharmacotherapy, and superior to placebo and non-treatment controls, for decreasing alcohol and drug use in adults (1-3) and adolescents (4). MI is a client-centred, directive counselling method that helps resolve ambivalence about change. It is underpinned by a series of principles that emphasise a collaborative therapeutic relationship in which the autonomy of a person is respected. The competent MI practitioner is a facilitator, rather than an expert, who elicits the client's intrinsic resources for change (5).

Miller et al (6) have argued that in spite of decades of evidence supporting the efficacy of many SUD treatments, they are rarely delivered in practice. MI appears to be the exception to the often-cited gap between research and practice. While the seduction of MI may have initially lay in its paradoxical paradigm, which moved practitioners away from coercive, confrontational and authoritarian approaches to addiction, the popularity of MI is inarguably as a result of the highly successful dissemination activities of its founders. In 2009, Miller and Rollnick estimated that the dissemination of MI through the MI Network of Trainers (MINT) alone, has resulted in delivery of MI to at least 15 million people (7). When we consider MI trainers and translations are in 38 languages, the countless workshops conducted around the world, and the undergraduate and post-graduate training programs for health practitioners, the reach of MI is truly notable.

As we enter the third decade of this immense dissemination effort, it is timely to take stock and seek answers to two key questions that are most relevant to policy

makers and service providers, but have yet to be addressed systematically in the literature. *First, can MI training achieve sustained practice change among clinicians? Second, what are the impacts of MI training on client outcomes?*

The empirical examination of training methods in MI through the work of Miller and colleagues (8, 9), has resulted in a unique literature about effective mechanisms for training of MI in community-based SUD treatment services that has yet to be replicated with other psychosocial treatments for SUD. Further, unlike many psychosocial SUD treatments, MI clinical procedures are well specified and defined (5), and adherence and competence can be quantified and measured through the use of treatment integrity and fidelity coding systems such as the Motivational Interviewing Skills Code (MISC) (10, 11), Motivational Interviewing Treatment Integrity scale (MITI) (10) and the Independent Tape Rater Scale (ITRS) (12).

This comprehensive evidence base tells us that, like other psychotherapies, mastering MI requires a "complex set of skills that are used flexibly, responding to moment to moment changes in what the client says" (7, p135). The complexity of MI may not simply lie in the acquisition of new skills or therapeutic practices (open ended questioning, summarising, reflective listening, affirmation), but in the suppression of previous practice behaviours (giving advice, directing, confronting, talking instead of listening) that are inconsistent with the spirit of MI. So what is the most effective training method for achieving competence in MI? In a randomised controlled trial of learning methods for MI, Miller et al found that practitioners who received feedback/ and or coaching retained more skills than those who attended a workshop alone (9). These findings are emulated in a systematic review of workshop training in addiction treatments, many of which were MI (13), and a systematic review of effectiveness of training workshops for psychosocial addictions treatments

(14). There was a uniformly positive effect of additional contact post-workshop in the form of supervision, feedback, coaching or consultation. The importance of ongoing training delivered within the workplace highlights the distinction between dissemination and implementation. The latter pertains to the sustainable uptake and adoption of evidence-based interventions. Hence opportunities for learning that are competency based and embedded in the workplace and learning outcomes that are linked to client needs, are integral to implementation (15). In summary, although this literature has informed us that ongoing supervision or coaching augments training outcomes, when compared to workshops alone, the question of whether this has an impact on client outcomes has not been examined to date. Nor has the question – what proportion of practitioners sustain these training outcomes and demonstrate long-term practice change in MI after the workshop, supervision and coaching period has ceased.

1.1 Objective

The primary objective of this review is to determine whether training in MI can achieve sustained practice change that will impact client outcomes.

2. Method

A systematic review was designed and reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement (16). We reviewed studies that explicitly examined training outcomes for MI in the SUD treatment sector, or clinicians working in a SUD treatment role. We were interested in the *proportion* of clinicians who met *beginning proficiency* in MI Spirit after the training period. We set the criterion level of MI at *beginning proficiency*

because this is the certification standard used to train clinicians in clinical trials for MI. We judged a study to have met our criteria when over 75% of clinicians undergoing training met this level of proficiency. This threshold was chosen because in order for managers and service providers to justify the investment in training programs, at minimum, the majority of participants would need to reach competence.

2.1 Eligibility criteria

Inclusion criteria: studies investigating the training and/or implementation of Motivational Interviewing (MI) or Motivational Enhancement Therapy (MET) in clinicians working in a SUD treatment role; English-language; peer-reviewed journal articles.

Exclusion criteria: review articles; surveys; studies of MI training in clinicians working in fields or roles not involving treatment of SUD.

2.2 Information sources

Studies were identified by searching electronic databases (Medline Complete, PsycARTICLES, PsycINFO, CINAHL, and all EBSCOhost) and scanning reference lists of articles. Articles were limited to peer-reviewed journal articles published between 1983 and December 2013 in the English language. Key search terms were: "motivational interviewing" or "motivational enhancement therapy" AND "substance abuse" or "substance use" or addiction or alcohol or drug* or substance or cannabis or opioid* or opiate* or amphetamine* or cocaine or benzo* or marijuana or polysubstance or heroin or methamphetamine* AND training or workshop or

implementation or adoption or "technology transfer" or "knowledge transfer" or translation.

2.3 Study selection

Two authors (KH and AS) independently screened the titles and abstracts of all publications obtained by the search strategy. In questionable cases, discrepancies were discussed with a third author (PS), reaching a consensus on all items. A total of 410 records were identified after the removal of duplicates. Ten relevant secondary sources were identified through reference list examination. Based on independent screening (KH and AS) the titles and abstracts, 347 were excluded (did not meet the eligibility criteria). Seventy-three full text articles were retrieved and reviewed. Fifty-three records were excluded (e.g. did not record MI skill as a training outcome or they were surveys of clinician's attitudes towards MI). Thus, a total of 20 studies were included in this review.

2.4 Data extraction

The following data was extracted: aim, sample size and participant characteristics, study design, description of the MI training delivered, and MI outcomes (percentage of clinicians who reached *beginning proficiency* for MI Spirit at follow-up, and client outcomes). Of the 20 articles identified, most (n = 17, 85%) involved staff voluntarily participating in the training. Where the percentage of clinicians reaching *beginning proficiency* at follow-up was not reported percentages were calculated using the formulae for Z-scores and Z-score for proportions, respectively. For example, the number of participants meeting beginning proficiency for MI spirit after training (measured by MITI 2.0), was calculated by using the Z-score formula, the reported means and standard deviations of participant proficiency,

and setting the mean score (μ) in the *Z*-score formula as the beginning proficiency score (5) of the MITI. The percentage of people scoring at or above this *Z*-score was determined using a standard normal distribution table.

3. Results

3.1 Synthesis of results

Can we achieve sustained practice change in MI?

Of the 20 studies identified in this systematic review, 15 collected training outcomes at follow-up time points using a standardised treatment integrity and fidelity coding system, allowing for assessment of sustained practice change. The length of time, post-workshop that follow-up was measured varied from 8 weeks to 2.5 years. Of these 15 studies, 8 (53%) used the MITI, 4 (27%) the MISC and 3 (20%) the ITRS to assess training outcomes. Of these articles, 11 reported either the proportion of clinicians who reached a proficiency level (n = 6), or provided sufficient information for this to be calculated (n = 5).

MITI as Training Outcome Measurement

Of the 8 studies using the MITI, two studies (22, 23) were excluded from further analysis due to insufficient data to be able to calculate proportions. Figure 1 illustrates the proportions of clinicians in each of the remaining 6 studies who reached *beginning proficiency* in MI global spirit as measured by the MITI (versions 2.0 and 3.0) at follow-up. The horizontal dashed line indicates the threshold set by the authors (75% of clinicians achieving *beginning proficiency*). With one exception (24, Figure 1), the threshold was not reached, irrespective of the training strategy or duration of

the follow-up period. Forsberg et al. (24) explored the acquisition of MI in only 3 counsellors over a 2.5-year period.

MISC as Training Outcome Measurement

While four studies used the MISC as an outcome measure, one study (8) was excluded as insufficient data was available to calculate the criteria. Figure 2 illustrates the proportions of clinicians in each study who reached *beginning proficiency* in MI Spirit, of which none reached criterion level. Miller et al. (9) randomised clinicians to five training conditions. The condition whereby participants had received workshop, feedback and coaching by the 4-month follow-up resulted in approximately 70% of the sample achieving *beginning proficiency*. This was the highest proportion of clinicians in any of the investigated studies using either the MITI or MISC (Figures 1 and 2).

INSERT FIGURE 1

INSERT FIGURE 2

ITRS as Training Outcome Measure

To achieve adequate performance of MI as measured by the ITRS, at least half of the MI-consistent scale items need to be rated average or above (4 or more) in terms of adherence and competence (e.g., 17, 18). Three studies in the current review used the ITRS as their training outcome measure (18, 25, 26) and one of these studies (26) reached our criteria. In this study at the 24-week follow-up point, 81% of participants, who receive a stepped training model where a skill building workshop and then competency-based individual supervision were offered if proficiency was not achieved after a web-based course, demonstrated the equivalent to clinical trial proficiency. A second study using the ITRS as a training outcome (25) involved randomly assigning participants to three training conditions. At 12- week follow-up, 59% of Expert-led, 53% of Train-the-Trainer, and 18% of self-study clinicians reached clinical trial proficiency. The third study, Carroll et al. (18) did not report adequate data to enable calculation of the proportion reaching *beginning proficiency* at follow-up.

What is the Impact of Training on Client Outcomes?

Of the 20 studies only three reported the impact of training on client outcomes. One study (8) did not measure substance use outcomes, but recorded client responses in session. They found no change from pre-, post-training or follow-up in terms of client responses in session. The remaining two studies measured client outcomes in terms of substance use. Carroll et al. (18) found no difference between the training group and the control condition (standard intake practice), in frequency of reported substance use. Martino and colleagues (19) found fundamental MI adherence and competence (r = .18 and .15 respectively, $p < .05$) and advanced MI adherence (r = .21, $p < .001$) were positively associated with

the percent of negative drug screens obtained during the 4-week treatment phase. There was a negative association between the percent of 'clean' drug screens and MI inconsistent adherence and competence (r =−.17 and −.19, $p < .05$). Days of reported abstinence from primary drug of concern were unrelated to MI adherence.

4. Discussion

4.1 Summary of findings

The results of this review are consistent with Miller and his colleagues' assertions that MI is simple, but not easy to learn. Of the 20 studies identified, 15 measured training at a follow-up time point using standard fidelity measures. The proportion of clinicians who reached beginning proficiency was either reported or could be calculated by applying *Z*-score transformations/formulae and proportions for 11 of these studies. Only two studies of the 11 met our criterion of 75% of clinicians achieving *beginning proficiency* in MI Spirit after training. They included Martino et al. (26) where 81% of participants who received a stepped model of training until competency was met, retained *beginning proficiency* at 24-week follow up, and Forsberg et al. (24) who reported 100% (3 participants) achieved *beginning proficiency* after 2.5 years of ongoing supervision. In both studies, training and supervision were ongoing, competency was monitored, and training continued until competency was met. Our findings are consistent with the broader literature on training methods for psychosocial treatments which informs us that regardless of the treatment, the adoption of skills is rarely maintained by practitioners without extended contact, through follow-up consultation or supervision (14). Further, effective practice change requires ongoing training be integrated into the workplace setting as part of

professional development (15). Indeed, consistent with a competency based learning approach (15) beginning proficiency in MI can only be achieved when competency is benchmarked and monitored, and training is ongoing until proficiency is achieved.

Only two studies reported the impact of training on client outcomes in terms of substance use. The first study found no difference between the training group and the control condition on client outcomes (18), while MI adherence and competence was positively related to the percent of negative drug screens obtained during the 4-week treatment phase in the second study (19). Why so few studies have tied training to client outcome is likely to be as result of the costs and resources required to implement such a complex design and difficulties in data collection and the measurement of fidelity. Many of the studies reviewed noted challenges in data collection, including low rates of clinicians submitting taped sessions for fidelity reviews. Not including client outcomes in a training evaluation design may also be a consequence of an implicit belief that acquiring proficiency in an evidence-based practice necessarily leads to better outcomes for the client.

4.2 The broader context of effective implementation

The results of this systematic review are not unique to the SUD treatment field or MI. The delay between the development of innovations and their adoption in routine practice has been the subject of commentary in the scientific literature in recent years (6, 29, 30). Widespread adherence to simple practices such as healthcare worker hand hygiene is difficult to achieve (35) in spite of compelling evidence for its importance in reducing healthcare related infections. It is therefore not surprising that the multitude of challenges associated with the implementation of evidence-based psychosocial treatments have been difficult to address. First, implementation of psychosocial treatments relate

to competence in and adherence to a complex range of behaviours, which for many treatments, are poorly defined. Second, personal attributes and attitudes of practitioners, supervisors and managers (e.g., professional growth, efficacy, influence, and adaptability) significantly influence implementation efforts (31, 32, 33). Finally, broader organisational climate factors (e.g., clarity of mission and goals, staff cohesion, communication, and openness to change) along with institutional resources (staffing levels, physical resources, training levels) are essential contributing factors in the successful adoption of sustained practice change (31). In spite of the prolific and sophisticated dissemination activities of Miller and his colleagues, it appears sustained practice change is very difficult to achieve without consideration of the broader organisational climate and individual attributes of participants. The majority of studies identified in the review (85%) involved participants who voluntarily undertook training in MI, therefore the impact of imposed versus voluntary training on practitioner proficiency is yet to be examined in the MI literature. There are further questions to be answered about both organisational commitment to implementation of MI and manager or supervisor roles in benchmarking competence and maintaining training until it is achieved.

There are limitations of the current review of the literature worth noting. Despite Miller's assertions that MI Spirit is the most integral part of the practice (5), alternative ways of measuring MI adherence, such as the summary scores or behavioural counts in the MISC or MITI, may be more amenable to the measurement of translation fidelity. The training studies that used the MISC as an outcome measure yielded better results in MI spirit. Arguably because the MISC is an exhaustive coding system that captures several additional dimensions to the MITI and ITRS, including client's readiness to change and commitment language. Such client behaviours are proposed as important in predicting outcomes.

4.3 The question of relative advantage

Of great importance to service providers is the question of what is the relative advantage of implementing a new treatment in terms of client outcomes, compared to the cost of training, supervision and ongoing monitoring (30). As the results of this review have highlighted, the investment is considerable in terms of resources, and the return on this investment may not be realised for many years. Olmstead, Carroll, Canning-Ball, and Martino (34) conducted an economic analysis to evaluate the relative cost-effectiveness of three strategies for teaching community-based clinicians MI (self-study, expert-led and train-the-trainer), drawing data from a randomised control trial of training methods (25). They found that although expert-led training was the most costly (total training cost, in US 2006 dollars for n = 17, was $28,020), it was also the most effective in terms of the number of clinicians reaching *beginning proficiency*. Consistent with the findings of this review, the percentage of clinicians reaching *beginning proficiency* in this condition was still low (33%). This study highlights the difficulty encountered by service managers, who have finite training budgets, in estimating the cost of staff training, supervision and monitoring to ensure the successful adoption of a treatment.

Miller draws similarities in learning MI to that of other complex skills such as playing a musical instrument or a sport. He states, "real skill and comfort in the method can only be achieved through disciplined practice with feedback and coaching from a knowledgeable guide" (7, p135). This assertion is supported by the findings of this systematic review, which suggest that for many practitioners, achieving proficiency in MI may take years, and that managers/supervisors have a key role in benchmarking and monitoring competence. The reviewed studies rarely

addressed whether training had an impact on client outcomes. The relative advantage of implementing a new treatment in terms of benefits to clients, compared to the cost of training, is yet to be examined. At the conclusion of the immense dissemination effort of MI a key question remains. Will implementation efforts of MI in the future be informed by the pragmatic considerations for service providers with restricted training budgets?

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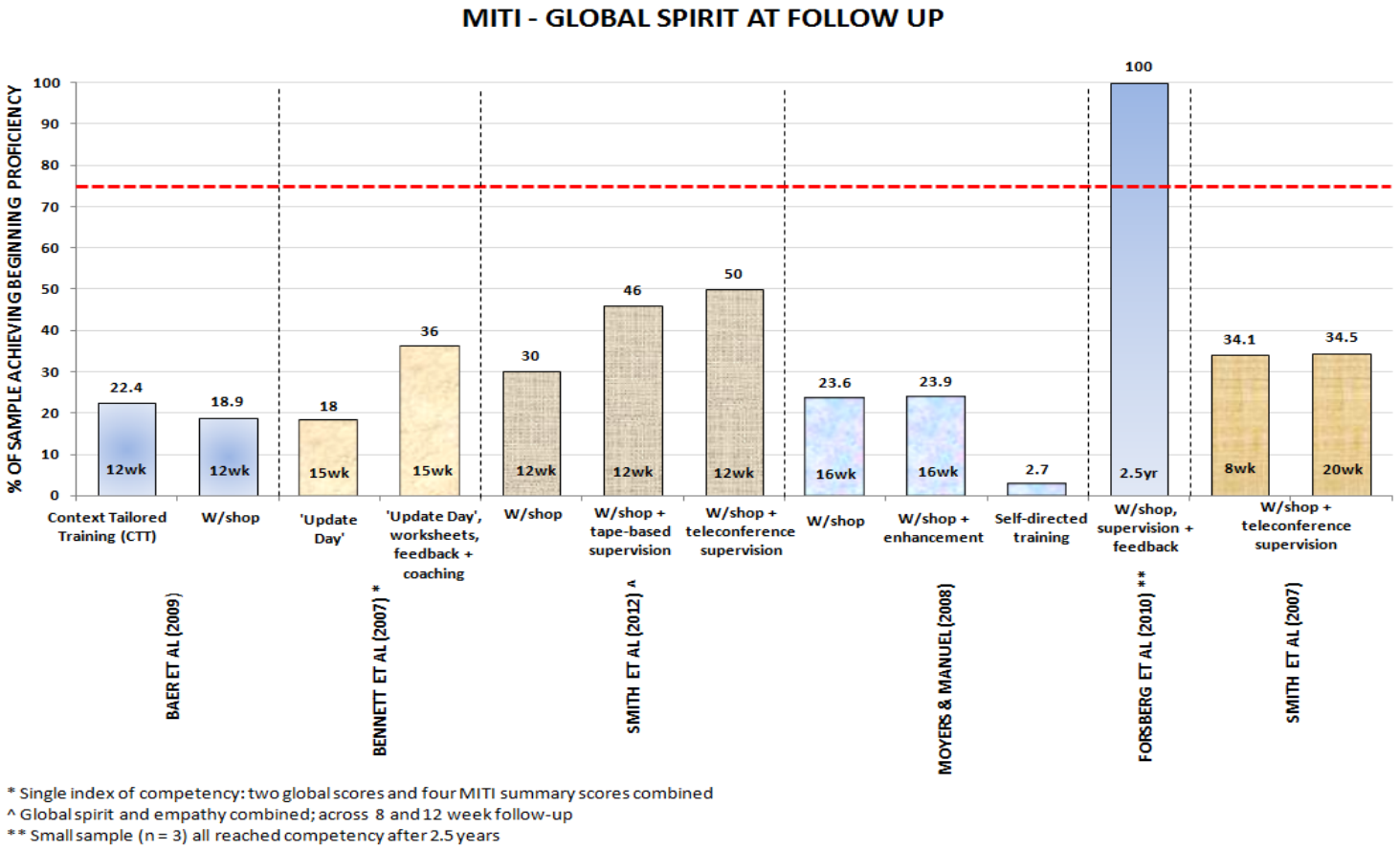
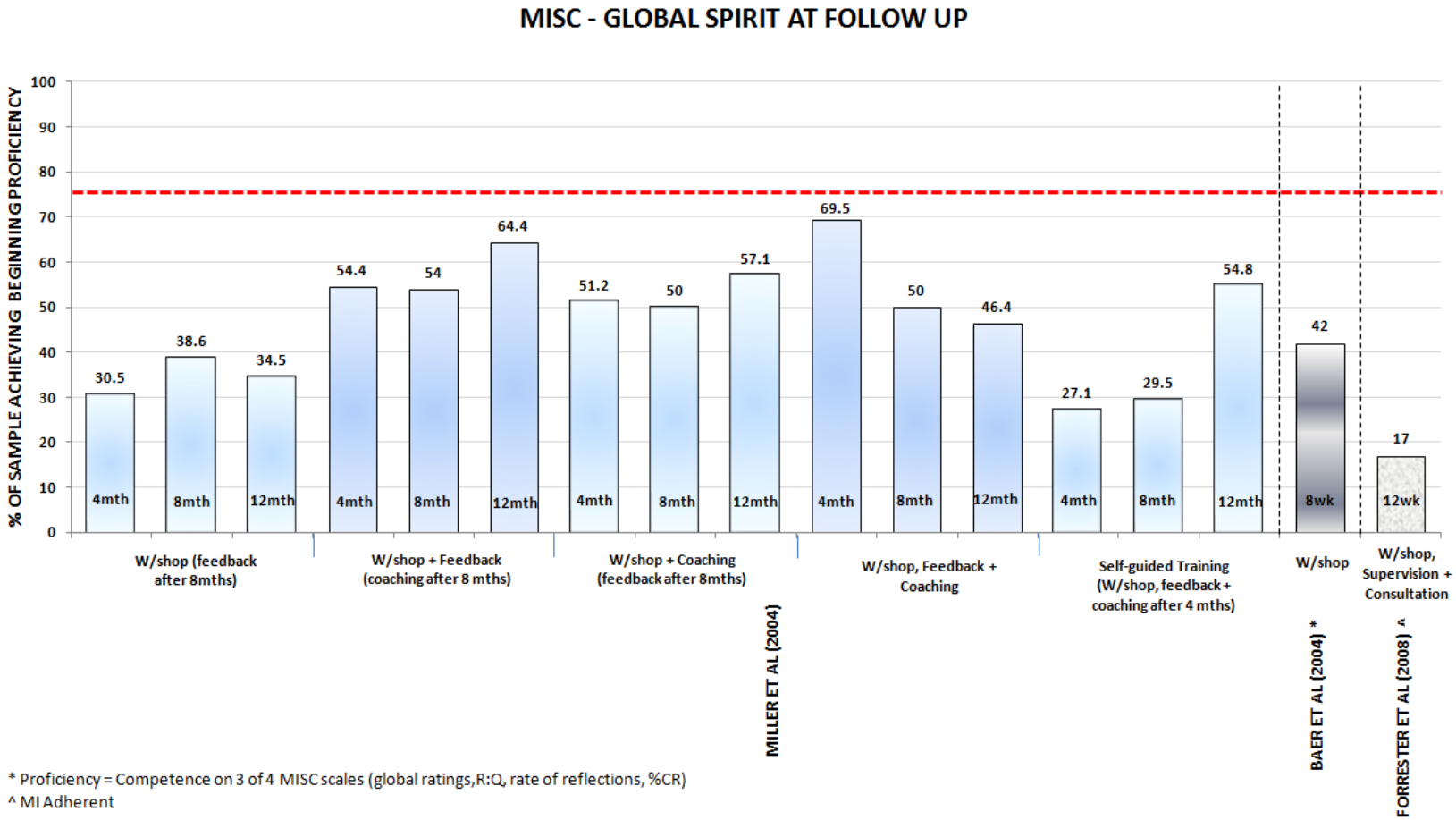


* Single index of competency: two global scores and four MITI summary scores combined
^ Global spirit and empathy combined; across 8 and 12 week follow-up
** Small sample (n = 3) all reached competency after 2.5 years

Note: Bennett, et al., 2007, *beginning proficiency* was based on a single combined index of global spirit, global empathy and four MITI summary scores. Smith et al (2012) reported a combined index of global spirit and empathy.

Figure 1. Percentage of participants achieving *beginning proficiency* on Global Spirit on the MITI at follow up.



* Proficiency = Competence on 3 of 4 MISC scales (global ratings, R:Q, rate of reflections, %CR)
^ MI Adherent

Figure 2. Percentage of participants achieving *beginning proficiency* on *Global Spirit* on the MISC at follow up.