

Assessing fidelity in Motivational Interviewing interventions; an overview

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Objective: Motivational Interviewing (MI), a counselling approach designed to promote positive change with our clients, is based on four processes: engaging with the patient, focusing on a target behaviour, evoking perspectives from the patient and planning for change. The most important component of MI is the MI ‘spirit’. MI spirit is concerned with enhancing client-centred collaboration, evoking from the client, compassion, as well as acknowledging client autonomy. Despite evidence of MI efficacy and increasing use of MI in a range of oral health settings, little attention has been paid to documenting the integrity of MI delivery (fidelity). In the second of four manuscripts regarding challenges in testing fidelity in MI oral health interventions, this paper aims to define fidelity, its importance, and how to assess the fidelity of MI interventions. **Methods:** A thorough description of the internationally recognised and research based Motivational Interviewing Treatment Integrity (MITI) code, specifically developed to test MI fidelity, will be provided. Attention will be given to the global ratings of ‘empathy/understanding’ and ‘evocation’, as well as behaviour counts for ‘MI adherent’, ‘MI non-adherent’, ‘closed and open questions’ and ‘simple and complex reflections’. **Results:** The psychometric properties of the MITI codes have been consistently shown to be robust, with inter-rater reliability demonstrated across a range of disciplines and population groups. Demonstrating fidelity is at the heart of efficacy research to improve oral health. Thus, planning the fidelity assessment component of oral health research involving motivation interviewing is crucial. **Conclusions:** There is an opportunity for communication among oral health researchers with an interest in MI to explore pathways through which fidelity assessment in MI-based interventions may be facilitated.

Key words: Motivational Interviewing, fidelity

INTRODUCTION

Although the first article on Motivational Interviewing (MI) was focused on addiction and recently published in 1983, the adoption of MI has been phenomenal across many target behaviours and disciplines including dentistry. MI has been especially effective for people who evidence low motivation to change (Witkiewitz et al., 2010) or are wavering about making a behavioural health change such as improving oral health care. In the last century, the aetiology and prevention of dental caries and gum disease became well understood. Yet, even though it is well documented that brushing, flossing and fluoride treatments prevent oral disease, many people continue to have poor oral health outcomes. Thus, there is a natural fit of MI in dentistry to aid oral health providers in facilitating positive oral health behaviours in their clients.

Dental professional interest in MI

Recently, there has been a sharp increase in oral health research that implements MI. A range of MI-based interventions have been conducted in the dental field, including in the prevention of early childhood dental caries (Ismail et al., 2011), periodontal disease (Brand et al., 2013), attending dental appointments (Skaret et al., 2003) and coping with dental pain (Szumita et al., 2010). Although overall the results have been promising, there is wide variation across studies in terms of evaluating

the extent to which MI was successfully implemented – also known as fidelity monitoring.

WHAT IS FIDELITY

When we think of the word fidelity, words that typically come to mind include loyalty, faithfulness, and strength of one’s convictions. In behavioural research, ‘fidelity’ implies one is loyal to one approach and does not stray to another. In the Motivational Interviewing (MI) context, there are essentially two components of treatment fidelity: (1) treatment integrity (internal validity) which refers to the degree to which treatment is delivered as intended, including adherence and competence (Gresham et al., 1993) and; (2) treatment differentiation; being able to reliably distinguish between critical dimensions among two or more treatments (Hogue et al., 2008). Treatment integrity requires that the treatment is well specified, so one can then determine whether it was delivered and would be recognised by other experts as the intended treatment. Treatment differentiation, on the other hand, depends upon the experimental treatment differing in predicted ways from control conditions or treatment-as-usual. The MI literature is replete with examples of treatment integrity (D’Amico et al., 2012) and has been reliably differentiated from minimal/placebo, treatment-as-usual and other active treatment conditions such as cognitive-based therapy (Morgenstern et al., 2007).

Why does fidelity matter?

Borrelli (2011) stated that treatment fidelity serves to increase scientific confidence that the changes in the dependent variable (outcome of interest) are due to manipulations of the independent variable. Measures of fidelity are also an increasing requirement of funding agencies as it helps to differentiate between Type I error (false positive; a relationship exists when it really doesn't, meaning treatments may be recommended when they are ineffective) and Type II error (false negative; a relationship does not exist when it really does, meaning the most effective treatment is not being disseminated) (Porta, 2008).

Is fidelity difficult?

Evidence suggests that, in the MI context, it is difficult to acquire appropriate skills of treatment, with one MI training session being generally insufficient (Miller *et al.*, 2004). There is evidence that providers may not accurately report what they are doing (Miller and Mount, 2001, Miller *et al.*, 2004), with provider reports of their own MI proficiency differing, sometimes markedly, from those obtained through objective MI fidelity assessments. Drift is the most common tendency following training, defined as movement away from the target behaviour (Robbins *et al.*, 2012). To prevent drift, generally more training, supervision and feedback is required, including, ideally, a break from clients until the appropriate MI criterion is reached again (Moyers *et al.*, 2010).

MI DEFINITION

At its heart, MI is considered to be a collaborative, goal-oriented method of communication with particular attention to the language of change (Miller and Rollnick, 2013). The language of change refers to client statements supporting change such as the client's desire to change, ability to make a successful change and reasons to make the change (Amrhein, *et al.* 2003). Rather than trying to persuade a person to change, MI is intended to strengthen personal motivation for, and commitment to, a change goal by drawing out and exploring an individual's own arguments for change (Miller and Rollnick, 1991). These are the key premises upon which a standard, introductory two-day training in MI are based.

MI Spirit

The spirit of MI must be present for a provider's consultation to be coded as consistent with MI. The spirit of MI is centred on four domains: partnership, acceptance, compassion and evocation (Miller and Rollnick, 2013). Partnership refers to the provider and client working together on oral health goals rather than a provider having his or her own agenda and not including the client. Acceptance is a new term in the most recent edition of the MI book (Miller and Rollnick, 2013) and encompasses: absolute worth, autonomy, affirmation and accurate empathy. An MI provider will be acknowledging each client's absolute worth as a person, will explicitly state that the client is free to make choices, affirms the client, and works to accurately understand the client's perspectives. Compassion is also new though does not reflect a change in MI as much as a way to clarify the spirit

of MI. Finally, evocation is at the heart of MI and means providers draw perspectives about oral health from the client rather than trying to insert a lot of information and advice without the client's permission. The spirit of MI has been captured by three of the MI fidelity global scales described below: Evocation, Empathy and Collaboration.

Ways to assess fidelity

The most important component in regards to MI fidelity assessment is that reliable and valid scales are used. Five fidelity instruments are briefly described below:

1. Motivational Interviewing Skill Code (MISC) (Miller and Mount, 2001)

Miller and Mount (2001) developed the MISC in 2001 in a bid to assess specific domains of counsellor/practitioner and client functioning within MI sessions. The MISC uses three separate techniques for reviewing provider competence in the use of MI, each gathered in a separate review or 'pass' of the session tape. First, global assessments are made of MI-relevant practitioner and client characteristics using a seven-point Likert scale. For the practitioner, six global characteristics are measured: acceptance, egalitarianism, empathy, genuineness, warmth and overall MI spirit. For the client, four global characteristics are measured: affect, cooperation, disclosure and engagement. Two characteristics of the interaction between the practitioner and client are also assessed with global scores: benefit and collaboration.

In a second coding pass, specific behaviours are counted during MI sessions. For practitioners, 27 behaviours are coded, including both those specific to MI (asking permission before giving advice) and those common to many different types of therapy (asking questions, reflections). Four types of client speech are counted, reflecting the importance of client language in MI sessions. Frequency counts of client speech about the possibility of changing (change talk) as well as reluctance to change (sustain talk) are made, as well as occasions where the client simply followed the provider's requests for information (follow/neutral) or asked questions of their own (ask). The third pass in the MISC measures the relative amount of time spent talking during the session by both the client and the provider with the goal of the client talking more than the practitioner. The most common use of the MISC has been to assess changes in provider competence before and after MI training (Moyers *et al.*, 2005). Recently the MISC was used to assess MI skill in physician's who had not received MI training revealing an even split of sessions where MI adherent and MI non-adherent behaviours occurred revealing a foundation of MI skills that can be built upon with MI training (Werner *et al.*, 2013).

2. Motivational Interviewing Treatment Integrity (MITI) scale (Moyers *et al.*, 2005)

The MITI scale is the most widely used measure for MI fidelity. The scale was originally derived from factor analysis of MI treatment sessions coded with the Motivational Interviewing Skills Code (MISC), which produced ten elements of MI practice. Correlation estimates indicated that the MITI captured 59% of the variability in the MISC. Three blind, independent coders

derived reliability estimates for the MITI. Intra-class coefficients ranged from 0.50 to 0.90. As a general rule, ICCs below 0.40 are poor, 0.40–0.59 are fair, 0.60–0.74 are good and 0.75 or above are excellent (Cicchetti, 1994). Comparison of MITI scores before and after MI workshops demonstrated good sensitivity for detecting improvement in clinical practice as result of training (Moyers *et al.*, 2005). The MITI has since been updated (Moyers *et al.*, 2010). Although MITI is more cost-effective than MISC, the instrument is unable to evaluate the actual provider-client process. The uses of MITI include: (1) evaluation of practitioner competence in clinical trials; (2) screening tool for hiring and; (3) evaluation of training effectiveness (Bricker and Tollison, 2011). The manual for the MITI manual includes specific anchors and examples of scoring to assist in training with a view to increasing the reliability of the use of the global scales. There are also transcripts available for raters to practise coding to determine how well they agree with those who are considered gold standard or criterion coders. The psychometric properties of the MITI codes have been consistently shown to be robust (Moyers *et al.*, 2005; Benett *et al.*, 2007), with inter-rater reliability demonstrated across a range of disciplines and population groups (Dewing *et al.*, in press; D'Amico *et al.*, 2012; Koken *et al.*, 2012). Recently a Swedish version of the MITI demonstrated construct and discriminant validity (Forsberg *et al.*, 2008).

3. Behaviour Change Counselling Index (BECCI) (Lane, 2002)

The BECCI was constructed in an effort to measure the skills involved in behaviour change counselling, an adaptation of MI for brief healthcare consultations (Lane *et al.*, 2005). There are 11 health consultation-related items, rated on a five-point Likert scale. The index was designed to help trainers evaluate skills acquired in training by examining recordings of consultations; consequently, BECCI contains items that concentrate mainly on practitioner behaviours.

4. Yale Adherence and Competency Scale (YACS) (Carroll *et al.*, 2000)

The YACS is a general system for rating practitioner adherence and competence in delivering behavioural treatments for substance use disorders. The system includes three scales measuring 'general' aspects of drug abuse treatment (assessment, general support, goals of treatment), as well as three scales measuring critical elements of three treatments that are frequently implemented as control or comparison treatments in clinical research in addiction (motivational enhancement therapy, twelve step facilitation and cognitive behavioural therapy). Validation of the YACS using data from a randomised clinical trial indicated that the scales have excellent reliability, factor structure, concurrent and discriminant validity. Correlations between adherence and competence scores within scales were in the moderate range, indicating independence (and thus non-redundancy) of these dimensions.

5. Independent Tape Rater Scale (ITRS) (Martino *et al.*, 2008)

The ITRS is a 39-item scale adapted from YACS to assess community programme therapists' adherence and competence in

implementing a manual-based adaptation of MI called motivational enhancement therapy (MET). The items are rated on a 7-point Likert scale, with lower ratings indicative of a general absence of behavioural examples and higher scores indicative of more extensive occurrence. Martino and colleagues reported that the item-level intra-class correlation coefficients compared favourably with those typically found in fidelity scales designed to measure therapist competence in substance abuse and mental health treatments. For example, around 80% of the MI consistent and inconsistent adherence and competence items were 0.75 or above. Similarly, reliability estimates for items measuring therapeutic strategies consistent with advanced MI practice (for example, drawing out pros, cons and ambivalence; heightening discrepancies; using strategies for evoking motivation for change) were 0.75 or above.

Monitoring Fidelity

The monitoring of fidelity may be challenging, as it requires the turning in of audio-recordings of real-life MI sessions between a practitioner and client. Only utterances from the practitioner are coded. Generally, fidelity is monitored through: (1) listening to practitioner audio-recordings of MI sessions; (2) coding until a specific criterion has been reached; (3) audio-recordings of MI sessions are checked randomly throughout intervention (or a variation of this, for example, weekly feedback of one tape in group format); (4) two independent coders code 20-minute segments of a random sample of recording (Ismail *et al.*, 2011).

MITI 3.1.1 Scale: Global Ratings and Behaviour Counts

An example of the MITI Scale 3.1.1 Global Ratings and Behaviour Counts is shown in *Figure 1*. It is intended that global scores capture the rater's overall impression of how well (or not so well) the interviewer meets the intent of the scale. Ideally the global scores should reflect the holistic evaluation of the interviewer, one that cannot necessarily be deconstructed into individual elements. Global scores are provided on a five-point Likert scale, with the coder assuming a beginning score of '3' and moving up or down from there. In the MITI 3.1.1, the 'MI spirit' global rating has been separated into three global ratings: 'evocation', 'collaboration' and 'autonomy/support'. These ratings are both related and influenced by each other. During analysis, the evocation, collaboration and autonomy/support scores are averaged together to yield an overall MI spirit global score. By contrast, it is intended that behaviour counts capture specific behaviours with no regard to how these behaviour counts fit into the rater's overall impression of the interviewer's use of MI. As such, behaviour counts are determined through a series of categorisation and decision rules.

Utterances in the MI fidelity assessment context

In the MITI manual, an utterance refers to a complete thought, with an utterance ending when one thought is completed. A new utterance begins when a new idea is spoken or when the client responds. One sentence may contain more than one utterance.

There are five primary behaviour codes in MITI assessments: 1) giving information; 2) MI adherent; 3) MI non-adherent; 4) questions (open and closed) and; 5) reflections (simple and

complex). Although not every utterance will receive a behaviour code, a single utterance does not receive more than one code. Furthermore, a string of utterances may each be coded differently. Thus, if a clinician asks a question, then reflects, and then confronts, the practitioner would receive three behavioural codes.

A volley refers to consecutive utterances by the practitioner. Each behaviour code can only be assigned once during a volley even if it occurs more than once.

Training criterion

Based on expert opinion, those with beginning MI proficiency should be obtaining an average of 3.5 on the global scores (max of 5), a 1:1 question to reflection ratio, 50% open-ended questions, 40% complex reflections and 90% MI-adherent statements (Moyers et al., 2007). Those with MI competency should be obtaining an average of 4.0 on the global scores, a 1:2 question to reflection ratio, 70% open ended questions, 50% complex reflections and 100% MI-adherent statements.

Learning to Code for MI fidelity

Learning how to code for MI fidelity involves a 2-3 day MI coder training (http://www.motivationalinterview.org/quick_links/mitraining.html). The workshops focus on fidelity monitoring and process coding of MI as delivered in research protocols. Extensive opportunity for coding practice is necessary. Coders are not trained to actually deliver MI, but rather to code tapes reliably. Clinical expertise is not required.

SUMMARY

Fidelity monitoring of research interventions such as MI are crucial in order to have confidence that treatment outcomes are due to that intervention. Without fidelity monitoring, research results are subject to either Type I or Type II errors, which impact whether we disseminate effective interventions. While there are several instruments to measure fidelity of MI, the psychometric properties of the MITI have been consistently shown to be robust, with inter-rater reliability demonstrated across a range of disciplines and population groups. Demonstrating fidelity is at the heart of efficacy research to improve many aspects of health, oral health included. Thus, planning the fidelity assessment component of oral health research involving motivation interviewing is achievable and vital.

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Figure 1. The MITI 3.1.1 Coding Sheet (Moyers *et al.*, 2010)

Motivational Interviewing Treatment Integrity Code (MITI)
Coding Sheet Revised June, 2007

Tape # _____ Coder: _____ Date: _____

Global Ratings

Evocation		1 <small>Low</small>	2	3	4	5 <small>High</small>
Collaboration		1 <small>Low</small>	2	3	4	5 <small>High</small>
Autonomy/ Support		1 <small>Low</small>	2	3	4	5 <small>High</small>
Direction		1 <small>Low</small>	2	3	4	5 <small>High</small>
Empathy		1 <small>Low</small>	2	3	4	5 <small>High</small>

Behavior Counts

Giving Information				
MI Adherent	Asking permission, affirm, emphasize control, support.			
MI Non-adherent	Advise, confront, direct.			
Question <small>(subclassify)</small>	Closed Question			
	Open Question			
Reflect <small>(subclassify)</small>	Simple			
	Complex			
	TOTAL REFLECTIONS:			

First sentence: _____

Last sentence: _____