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Establishing Theoretical Stability and Treatment Integrity for Motivational Interviewing

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Background: There is increasing evidence claiming the effectiveness of motivational interviewing (MI) in promoting behavioural change. However, ongoing changes to MI theory and practice have implications for its transferability, accessibility and for the validity of previous findings. Lack of practice consistency may make its effectiveness difficult to evaluate. **Aims:** This paper explores the complexity of MI and issues in the development of evidence-based practice in delivery, before describing issues related to practitioner application. **Method:** Theoretical and practice developments over the last 30 years are reviewed under the headings *theory*, *practice* and *efficacy.* Specifically, developments across the three editions of the core MI texts are examined. **Results:** Findings from the literature suggest a lack of theoretical stability and practice integrity, with recent fundamental changes to the underpinning structure of MI. Issues relating to the transferability and acquisition of MI skills, consistency of delivery and mechanisms underlying change are discussed. **Conclusions:** The authors call for greater theoretical stability, more transparency over how developments are based on theoretical principles and empirical outcomes, and clearer guidance about how this informs practice development and delivery of MI.

Keywords: Evidence-based practice, motivational interviewing, practitioner, theory

Introduction

Psychological interventions are subject to rigorous scientific evaluation in order to demonstrate evidence of efficacy and effectiveness (Hagermoser Sanetti and Kratochwill, 2014; Kratochwill and Stoiber, 2002). Practitioners of psychological therapies are commonly required by regulatory bodies to base their practice upon an evidence base, which includes independent scientific evaluation (e.g. Health and Care Professions Council, 2012; National Association of School Psychologists, 2010). The premise for this 'evidence-based' practice is twofold: first, it is ethically appropriate that clients should be protected from harm, and should reasonably expect that the practitioner has justifiable grounds to believe that intervention will effect remediation or improvement; second, all stakeholders (e.g. client, employer, service delivery setting, regulator) may reasonably assume that the psychological intervention or therapy will be delivered in an optimally effective and efficient way (Anderson, 2006; Frederickson, 2002).

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Kratochwill and Stoiber (2002) highlight principal criteria for confirmatory evaluation of an intervention programme, including effect size, specificity of effect, consistency, and coherence of intervention–outcome relationships with explicit evaluation of programme theory (cf. Bickman, 1987). At the same time, the authors acknowledge that psychological therapists are not mere 'technicians' following intervention manuals and evaluation protocols, and so any framework for practice evaluation must be sufficiently flexible to take account of a variety of therapeutic modalities, practice delivery structures and settings (cf. Christensen et al., 2002). The Procedural and Coding Manual for Review of Evidence-Based Interventions, sponsored by the American Psychological Association Division 16 and the Society for the Study of School Psychology, has been shown to be a useful framework for evaluating interventions (Lewis-Snyder et al., 2002; Steele Shernoff et al., 2002). More recently, the concept of 'treatment integrity' has been utilized to encapsulate different ways in which different psychological intervention and therapies can be validly and consistently evaluated (Century and Cassata, 2014; Hagermoser Sanetti and Kratochwill, 2014). Such overarching frameworks and concepts challenge innovators, researchers and practitioners to account for the effectiveness of interventions to a set of broadly agreed standards. In this way, new interventions can move from exploratory phases to broader evaluations of a clearly specified 'core' intervention, and then in turn to context-specific evaluations of the specified core intervention (Frederickson, 2002; Salkovskis, 1995). The paper explores the evolution of theory and practice of motivational interviewing (MI), moving on to explore the relationship of this to the pursuit of evidence for its efficacy.

Theoretical and practice developments in MI

Background to MI

The background, history and development of MI are described by Miller and Rose (2009). Initially atheoretical, MI arose from within clinical practice and was formulated by Miller's interactions with a group of Norwegian psychologists working with clients with alcohol difficulties. Verbalizing the approaches used allowed development of a conceptual model of working, which thereafter became the basis for MI. Miller (1983) later published a reduced version of this – the first appearance of MI in academic literature.

Miller and Rose (2009) described how Miller continued to progress his thinking, developing a 'Drinker's Check-up' (DCU), which allowed MI to be combined with personal feedback from standardized measures of drinking behaviours (Miller and Sovereign, 1989). Miller then collaborated with Stephen Rollnick, a UK-based healthcare specialist, to publish the seminal text *Motivational Interviewing: Preparing People to Change Addictive Behaviour* (Miller and Rollnick, 1991). Subsequent versions of the core MI text were published (Miller and Rollnick, 2002; 2012a), each presenting new dimensions to this evolving field. Central to all three editions was the notion of exploring ambivalence and strengthening commitment to change behaviour. While Miller and Rollnick (1991) focused on change processes, the second edition provided a more coherent central framework of a 'spirit', and refined principles (Miller and Rollnick, 2002).

Miller and Rollnick (2012a) note in their preface to the third edition, *Motivational Interviewing: Helping People Change* that 'Quite a lot is different in this edition, and more than 90% is new' (p. vii). Table 1 below considers the development of the core constructs of MI over

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Table 1. Comparisons of the definitions, spirit and principles across the three editions of *Motivational Interviewing* (Miller and Rollnick, 1991, 2002, 2012a)

Publication	Definition	Spirit	Principles
Miller and Rollnick (1991)	'MI is a particular way to help people recognize and do something about their current problems. It is particularly useful with people who are reluctant to change and ambivalent about changing.' (p. 52)	Not specifically defined	Five principles: express empathy; develop discrepancy; avoid argumentation; roll with resistance; support self-efficacy
Miller and Rollick (2002)	'A client-centred, directive method for enhancing intrinsic motivation to change by exploring and resolving ambivalence' (p. 25)	Three elements: collaboration, evocation and autonomy	Four principles: express empathy; develop discrepancy; roll with resistance; support self-efficacy
Miller and Rollnick (2012a)	Three levels of definition (p. 29) **Lay person's definition:** 'Motivational interviewing is a collaborative conversation style for strengthening a person's own motivation and commitment to change' **Practitioner's definition:** 'Motivational interviewing is a person-centred counselling style for addressing the common problem of ambivalence about change' **Technical definition:** 'Motivational interviewing is a collaborative, goal-orientated style of communication with particular attention to the language of change. It is designed to strengthen personal motivation for and commitment to a specific goal by eliciting and exploring the person's own reasons for change within an atmosphere or acceptance and compassion.'	Four elements – acceptance, collaboration, compassion and evocation	Principles do not appear. The authors define four processes – engaging, focusing, evoking and planning

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the three volumes, with significant revisions between the 2002 and 2012 editions presenting fundamental changes to the core structure of MI. The extent to which these amendments have actually affected the operationalization of MI is not clear, and this issue may warrant further research.

Efficacy

Within the fields of healthcare and addiction in particular, MI has continued to expand and to develop an increasing evidence base, and has yielded more than 1000 peer reviewed publications and 200 randomized clinical trials (Miller and Rollnick, 2010). Lundahl et al. (2013) explored MI use in medical care settings by undertaking systematic review and meta-analysis of randomized controlled trials. Overall, MI showed beneficial effects across 48 included studies, 63% of outcome comparisons yielding statistically significant results in favour of MI interventions. However, interestingly fidelity was inversely related to outcome, to such an extent that studies measuring fidelity produced lower effect sizes that those that did not. Lundahl et al. (2013) proposed this to be 'cause for sobering reflection', but also suggested that outcomes may indicate 'MI is easy to implement in real-world settings and has positive effects for patients even without time-intensive supervision of fidelity monitoring' (p. 166).

Barnett et al. (2012) reviewed 39 studies in which MI was used as an intervention for adolescent substance use, including within their design a quality evaluation of the MI intervention, in terms of manual use, training and supervision availability and maintenance of fidelity. Interestingly two of the studies presented none of these quality measures, yet both produced positive outcomes. This was not always true for studies demonstrating a higher quality MI intervention. Burke et al. (2003) found previously that studies conducted within William Miller's clinic produced higher effect sizes than those conducted elsewhere; the authors called for additional research into the efficacy of MI in its pure form, suggesting difficulties in disentangling contributions made by the relative components of adaptations of MI (AMIs).

Dray and Wade (2012) noted that when MI efficacy was evaluated with clients with eating disorders, one factor that made it difficult to draw conclusions was inconsistency in delivery. They suggested a need for future research to evaluate the efficacy of manual-based MI interventions, although this is inconsistent with the flexible, responsive and person-centred approach advocated by MI's proponents (Miller and Rollnick, 2012a). Britt et al. (2004) summarized applications of MI within health settings, concluding that despite promising evidence for its effectiveness, further clarity about how MI is effective and what elements of MI are essential was needed. Furthermore, they called for additional guidance on structuring sessions and identifying which specific motivational intervention would benefit which client group.

Theory of MI

Defending its atheoretical nature, Miller (1999) contended that MI was derived from practice, stating 'it was drawn out of me' (p. 2). Indeed, no direct reference to MI theory was made by Miller and Rollnick (2012a). Apodaca and Longabaugh (2009) noted that while theories underlying MI are rich, they have yet to be integrated into a comprehensive philosophy.

Previously, two theoretical models have been proposed for underpinning MI – the Transtheoretical Model (TTM) and Self-Determination Theory (SDT). These will now be briefly discussed in turn.

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The Transtheoretical Model

Miller and Rollnick (1991) originally linked MI to the Transtheoretical Model (TTM) of Change (DiClemente and Prochaska, 1982), acknowledging its usefulness in understanding client behaviour and guiding therapist action. Miller and Rollnick (1991) positioned the TTM as a helpful model and to date it has been the most significant theoretical structure supporting MI. The TTM has been used alongside MI in a number of contexts, including eating disorders (Dray and Wade, 2012), educational disaffection (Atkinson and Woods, 2003), self-harm (Kamen, 2009) and smoking cessation (Erol and Erdogan, 2008). Indeed, Atkinson (2014) argued that to practitioners using MI in educational settings it offered a central framework to enable understanding of the principles and spirit of MI (Miller and Rollnick, 2002). McNamara (2009) suggested that for education professionals:

> '…the techniques of Motivational Interviewing have been profoundly influential in helping people change and that the TTM has enabled the practice of Motivational Interviewing to be carried out with a degree of precision which might have otherwise not been the case' (p. 211).

McNamara (2014) further suggested that the absence of a structure like the TTM may limit MI use within the discipline of education.

However, the TTM is not a theory and offers, in itself, no explanatory power. It has been criticized for its lack of conceptual and theoretical derivation (Wilson and Schlam, 2004) and for the fact that its oversimplified presentation has led to poor assessment and intervention practice by clinicians over-reliant on its structure (West, 2005). However, its centrality to the original dissemination of MI practice (Miller and Rollnick, 1991) means that it might have been influential in the development of practice, as a heuristic for determining the focus and pace of MI as an intervention. Further exploration of the extent to which practitioners still reference the TTM in guiding MI practice may help to establish the ways in which MI and the TTM are currently associated.

Self-Determination Theory

Previously there has been support for the notion that SDT (cf. Ryan and Deci, 2000) could provide underlying theoretical explanations for the effectiveness of MI. Markland et al. (2005) proposed that SDT could offer a coherent framework for understanding the processes and efficacy of MI, while Vansteenkiste and Sheldon (2006) highlighted potentially mutual benefits of an alliance for both MI and SDT, suggesting respective advantages of theoretical and practical grounding. While Vansteenkiste and Sheldon (2006) were not explicit about how SDT might support MI practice, Markland et al. (2005) offered a SDT foundation for the approaches used within MI sessions (p. 821). However, Miller and Rollnick (2012b) proposed that while SDT held potential for supporting MI, they would not develop a systematic integration.

The need for theoretical stability

Despite earlier interest, neither the TTM nor SDT have influenced recent theory and practice developments, and indeed Miller and Rollnick (2002, 2009) have increasingly distanced MI from the TTM. Barnett et al. (2012) surmised that the search to understand mechanisms of change has been *ad hoc*, proposing that 'A theory-based approach to determine mechanisms

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of change in MI theory is needed' (p. 1332). Indeed, the role of underpinning theory is more widely acknowledged as potentially advantageous to evidence-based programme development, effective programme adaptation, anticipation of potential intervention risks, and ethical application within a practitioner's field of competence (Bickman, 1987; Bumbarger, 2014; Hagermoser Sanetti and Kratochwill, 2014; Kratochwill and Stoiber, 2002; McGivern and Walter, 2014; Rossi and Freeman, 1993). One possibility is that the principles, processes and spirit (see Table 1), while not offering a well-defined set of steps to clinical practice, do provide a guiding protocol, which implies a theoretical perspective that is never fully articulated. However, given that the core structure of MI is still in development (Miller and Rollnick, 2012a) and the rationale for changes are difficult to understand, particularly given the evidence for the efficacy of MI under its previous format (Miller and Rollnick, 2002; Miller and Rose, 2009), such elements ostensibly lack a clearly evidenced coherence to support a high level of treatment integrity (cf. King and Bosworth, 2014).

While development is expected within contemporary practice, it could be argued that MI is now over 30 years old and should have had opportunity to achieve theoretical stability. Were there to be in future greater impetus for theoretical underpinning, it might also be useful to consider other theories that could support understanding of the change processes which are fundamental to MI, such as social-cognitive theory (cf. Bandura, 2001).

Practice

Complexity of MI practice

Miller and Rollnick (2009) purported that 'MI is not easy' (p. 135), noting it involves a complex skill set which cannot be mastered via training alone, but through ongoing practice with feedback and coaching. The complexity of MI is evident in the recent writings of Miller and Rollnick (2012a) with the glossary running to 10 pages and boasting over 150 terms. These include practice acronyms such as CATS (Commitment, Activation and Taking Steps) and DARN (Desire, Ability, Reason and Need); alongside the central skills of OARS (Open questions, Affirmation, Reflection, Summary). There is an additional plethora of techniques, including the elegantly titled 'Bouquet', 'Equipoise', 'Goldilocks Principle' and 'Smoke Alarms'. Internalizing such extensive practitioner guidance, alongside the definitions, spirit and processes offers significant challenges for new MI practitioners, particularly those who lack regular practice opportunities, or access to ongoing training and supervision.

Previously, models and structures have been proposed to complement MI, potentially offering guidance and direction to practitioners. These include the Drinker's Check-up (Miller and Sovereign, 1989); the Menu of Strategies (Rollnick et al., 1992); Motivational Enhancement Therapy (MET) (Miller et al., 1994), FRAMES (Miller and Sanchez, 1994); a framework for negotiating behaviour change with ambivalent clients (Rollnick et al., 1999) and guidance for the 'competent novice' (Rollnick et al., 2010). Despite orchestrating many of these approaches, Rollnick and Miller (1995) were keen to separate MI from what they refer to as 'related methods'. For example, in reference to their framework for negotiating behaviour change (Rollnick et al., 1999), Rollnick et al. (2008) note in *Health Behaviour Change*, that 'Cautious about diluting or simplifying motivational interviewing beyond recognition, we all but avoided any reference to it' (p. viii).

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The reason why clear structures have not been maintained or developed might be exemplified by the Menu of Strategies (Rollnick et al., 1992), which remains arguably the best-defined generic MI protocol. It was developed as a brief MI approach for use in medical settings, following practitioner feedback about losing direction when trying to undertake MI. However, despite the rationale of practitioner need and the well-defined phases described by Rollnick et al. (1992), the approach has had limited application within MI practice. Indeed, the second and third editions of *Motivational Interviewing* Miller and Rollnick (2002, 2012a) make no reference to the approach, although the structure has appealed to practitioners (Atkinson and Woods, 2003; McCambridge and Strang, 2003, 2004).

Rollnick and Miller (1995) questioned whether the spirit of MI could be captured within the Menu of Strategies and other brief intervention models. They cautioned against similar methods being described as MI, instead propagating the importance of distinguishing the mechanisms by which interventions work from the specific methods designed to encourage behaviour change. Miller and Rollnick (2009) reflected that the impetus for this had been the observation of formulaic practice, suggesting that this was incompatible with demonstration of MI spirit and more favourable treatment outcomes, although limitations appear to be related particularly to manualization (Hettema et al., 2005), rather than the use of MI alongside practice frameworks. However, wariness of procedural specification is perhaps understandable, given the need to individualize the emphasis of MI elements, depending on impetus for change, self-efficacy, personal circumstances and client commitment.

Central to competency in MI delivery is demonstration of OARS (Moyers et al., 2005). However, recent systematic reviews of MI effectiveness (e.g. Barnett et al., 2012; Lundahl et al., 2013) have evaluated the quality of the research study and MI fidelity, but not the quality of MI delivery. In a recent systematic review of school-based MI research, Snape and Atkinson (2016) noted that only one of the eight best-practice studies made reference to OARS.

The Motivational Interviewing Treatment Integrity (MITI) code (Moyers et al., 2005, 2014) was developed by MI proponents as a reliable and valid (Pierson et al., 2007) assessment of core elements of MI, including OARS and the MI spirit, whilst addressing the need for practice flexibility. However, the MITI's complexity, which has training and resources implications, may have practice-based limitations reducing its use to research contexts (Barwick et al., 2012) and simplification may need to be considered to improve its functionality and access (Frey et al., 2013).

Training and assessment in MI

Miller and Rose (2009) suggested that MI is 'learnable by a broad range of helping professionals' (p.12); but also reported that following clinicians' engagement in MI training, tape recorded work indicated only modest practice development and no change to client in-session response. Recent research suggests that acquisition of MI skills may be problematic, particularly for practitioners without a psychological or therapeutic background. Bohman et al. (2013), realising that a one-off workshop format for MI training may have been insufficient, offered enhanced MI training to 36 nurses, which included a 3.5-day workshop, systematic performance feedback and four supervision sessions. The workshop was led by a member of the Motivational Interviewing Network of Trainers (MINT) and practitioner skills were evaluated using the MITI (Moyers et al., 2005). Results indicated that despite intensive training, none of

the participants reached beginning thresholds on any of the proficiency indicators. Supervision sessions appeared to decrease, rather than increase proficiency in most cases.

Bohman et al. (2013) offered three possible explanations: that the nature of the intervention may have affected the development of proficiencies; that time digressions within the training period affected outcomes; and that the nurses did not have the same level of basic training or were less motivated than participants in other studies. The third explanation should be considered alongside the fact that 64% of the participants had previous MI training and all volunteered to participate. It is also possible that without a practical, conceptual or theoretical framework to support it, MI is not easily learnable because of its ongoing evolution and complexity.

Barwick et al. (2012) undertook a systematic review of 22 studies to investigate the effectiveness of MI training in North America and Europe. Whilst seventeen studies reported significant practitioner behaviour change, the authors reported limited baseline skills as a potential barrier to development. Miller and Moyers (2006) defined Eight Stages of Learning MI, but noted that methods of assessing MI competence had practice-based limitations in that they required intensive training, were costly to use and were predominantly limited to research contexts. Highlighting their observations on the practice-based applicability of the MITI, Barwick et al. (2012) proposed that 'Research on MI training has yet to develop a product, process, or checklist for practitioners to utilize in the real world. A standard, feasible, and preferred method for establishing MI adherence in practice has not yet been developed' (p. 1793).

The need for practitioner structure

Miller and Rollnick (2012b) defended the practitioner appeal of MI, which emerged before empirical exploration of its efficacy, claiming, '… MI disseminated rapidly by word of mouth among clinicians, who are drawn to it not just from the clinical trials but because, for the lack of a better term, they seemed to "recognize" it. It feels intuitively sound based on their own experience' (para. 3). However, issues relating to training and assessment of MI raise questions about whether this is a sufficiently robust process for practice-based evidence to ensure that therapists deliver MI consistently, potentially casting doubt on the reliability and promise of evidence of MI efficacy emerging from the practitioner community. Claims of therapists not internalizing MI processes on accessing training, despite self-perceptions of practice development (Miller and Rose, 2009) were supported by findings from a systematic literature review by Hall et al. (2016), which examined training outcomes for MI in the field of substance use disorder treatment. The authors set the criterion of: 75% of clinicians undertaking the training achieving beginning proficiency in MI spirit (e.g. Moyers et al., 2005), for determining that training had resulted in sustained practice change. However, this figure was achieved in only two of the 11 studies for which proficiency could be established. This led Hall et al. (2016) to conclude that achieving the criterion would be unlikely without competency benchmarking, and ongoing training. Hall et al. (2016) offered evidence for Miller and Rollnick's (2012) claims that MI is 'simple, but not easy to learn' (Hall et al., 2016, p. 1148), and also suggested that MI's complexity may not just lie in its acquisition of skills, but in its suppression of previous practice. For practitioners who may have limited grounding in psychology or counselling and/or limited opportunities to practise, it could be argued that MI is becoming increasingly inaccessible.

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Conclusions

It could be argued that developments between the earlier core texts (Miller and Rollnick, 1991, 2002) (see Table 1) represent the evaluation and re-evaluation of a therapy in its infancy. However, the MI concept is now more than 30 years old and, given the reported success of previous versions (Miller and Rollnick, 1991, 2002), radical and repeated changes to the structure should be questioned in the absence of a clear empirical or theoretical rationale. We have argued that the development of a psychological intervention as an evidence-based practice is hampered by the lack of a clear theoretical foundation. The very complexity that practitioners manage and navigate through use of clinical judgement and clinical supervision is only possible through established theoretical coherence (Bickman, 1987; Christensen et al., 2002; Kratochwill and Stoiber, 2002). The authors therefore argue against the general credibility of MI at the present time and advocate attention to the general stage of development of MI intervention (cf. Rossi and Freeman, 1993). Meanwhile, published studies are still drawing on earlier 'versions' of MI. For instance, Anstiss et al. (2011) used the five principles of MI (Miller and Rollnick, 1991) when developing a brief MI intervention for use with prisoners in New Zealand, although notably with positive results. In fact, even some of the most recently public research references previous concepts, such as the principles (Riegel et al., 2016), triadic spirit (Catley et al., 2016) and stages of change (Bortolon et al., 2016)

Without a coherent structure, it is difficult to generate an evidence base for MI use, or to reliably train its practitioners. The findings of Burke et al. (2003) suggest that it is difficult to understand the mechanisms behind its efficacy. Additionally, its complexity may limit its accessibility to those only for whom MI represents core practice, while its availability to practitioners using it within other domains remains questionable. The probability is that few practitioners are adhering to a pure model of MI, while many are seeing very real benefits of contemporary approaches using MI principles in non-traditional domains such as prisoner re-offending (Anstiss et al., 2011), educational attainment (Strait et al., 2012), and domestic violence (Zalmanowitz et al., 2013). Interestingly, all of these interventions employ bespoke adaptations of MI which are manualized and replicable. Kamen (2009), using the TTM alongside MI with adolescents who were self-harming, acknowledged that the approach used required its own empirical validation and that it may be appropriate for other MI-based interventions to be viewed similarly.

This paper is by no means advocating the manualization of MI, giving full recognition to the role of clinical judgement in the delivery of evidence-based interventions. Nor it is seeking to be critical of a therapeutic approach for which there is strong evidence of efficacy across a multitude of settings and with a great range of behaviours, albeit that the evidence base may actually be referring to different kinds of intervention. Instead, as practitioners wrestling with the theoretical and practice elements, without access to ongoing MI training, practice opportunities and supervision, the authors call for greater clarity with regard to the structure of MI. Developed models consistent with MI principles, such as the Menu of Strategies, could be revised in light of practice developments, although it is acknowledged that these should be offered as a way of providing structure, not replacing core aspects such as the spirit and processes with a set of techniques. Such theoretically informed, transferable frameworks, could then been subjected to rigorous empirical investigation across different settings, allowing examination of the processes for and mechanisms enabling client change. Simplification of the MITI into an accessible practitioner instrument may be one means of

ensuring consistency of practice and offering opportunity for self-reflection. Finally, the current evidence for the proponents' rejection of techniques and frameworks seems insufficient, and more contemporary research investigating the relative benefits of 'pure' MI interventions over comparable manualized or framework-referencing approaches would be beneficial.

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References

Anderson, N. (2006). Evidence-based practice in psychology. *American Psychologist*, *61*, 271–285.

Anstiss, B., Polaschek, D. L. L. and Wilson, M. (2011). A brief motivational interviewing intervention with prisoners: when you lead a horse to water, can it drink for itself? *Psychology, Crime and Law*, *17*, 689–710. doi: 10.1080/10683160903524325

Apodaca, T. R. and Longabaugh, R. (2009). Mechanisms of change in motivational interviewing: a review and preliminary evaluation of the evidence. *Addiction*, *104*, 705–715. doi: 10.1111/j.1360-0443.2009.02527.x

Atkinson, C. (2014). Motivational Interviewing and the Transtheoretical Model. In E. McNamara (ed), *Motivational Interviewing: Further Applications with Children and Young People*. Ainsdale: PBM.

Atkinson, C. and Woods, K. (2003). Motivational Interviewing strategies for disaffected secondary school students: a case example. *Educational Psychology in Practice*, *19*, 49–64. doi: 10.1080/0266736032000061206.

Bandura, A. (2001). Social cognitive theory: an agentic perspective. *Annual Review of Psychology*, *52*, 1–26. doi: 10.1146/annurev.psych.52.1.1

Barnett, E., Sussman, S., Smith, C., Rohrbach, L. A. and Spruijt-Metz, D. (2012). Motivational Interviewing for adolescent substance use: a review of the literature. *Addictive Behaviors*, *37*, 1325–1334. doi: 10.1016/j.addbeh.2012.07.001

Barwick, M. A., Bennett, L. M., Johnson, S. N., McGowan, J. and Moore, J. E. (2012). Training health and mental health professionals in motivational interviewing: a systematic review. *Children and Youth Services Review*, *34*, 1786–1795. doi: 10.1016/j.childyouth.2012.05.012

Bickman, L. (1987). The functions of program theory. In L. Bickman (ed), *Using Program Theory in Evaluation* (New Directions for Program Evaluation, no. 33), pp. 5–18. San Francisco: Jossey-Bass

Bohman, B., Forsberg, L., Ghaderi, A. and Rasmussen, F. (2013). An evaluation of training in motivational interviewing for nurses in child health services. *Behavioural and Cognitive Psychotherapy*, *41*, 329–43. doi: 10.1017/S1352465812000331

Bortolon, C. B., Moreira, T. D. C., Signor, L., Guahyba, B. L., Figueiró, L. R., Ferigolo, M., and Barros, H. M. T. (2016). Six-month outcomes of a randomized, motivational tele-intervention for change in the codependent behavior of family members of drug users. *Substance Use and Misuse*, *6084*, 1–11. doi: 10.1080/10826084.2016.1223134

Britt, E., Hudson, S. M. and Blampied, N. M. (2004). Motivational interviewing in health settings: a review. *Patient Education and Counseling*, *53*, 147–155. doi: 10.1016/S0738-3991(03)00141-1

Bumbarger, B. K. (2014). Understanding and promoting treatment integrity in prevention. In L. M. Hagermoser Sanetti and T. R. Kratochwill (eds), *Treatment Integrity: A Foundation for*

Evidence-Based Practice in Applied Psychology. School Psychology book series. Washington, DC: American Psychological Association.

Burke, B. L., Arkowitz, H. and Menchola, M. (2003). The efficacy of motivational interviewing: a meta-analysis of controlled clinical trials. *Journal of Consulting and Clinical Psychology*, *71*, 843–861. doi: 10.1037/0022-006X.71.5.843

Catley, D., Goggin, K., Harris, K. J., Richter, K. P., Williams, K., Patten, C. et al. (2016). A randomized trial of motivational interviewing: cessation induction among smokers with low desire to quit. *American Journal of Preventive Medicine*, *50*, 573–583. doi: 10.1016/j.amepre.2015.10.013

Century, J. and Cassata, A. (2014). Conceptual foundations for measuring the implementation of educational interventions. In L. M. Hagermoser Sanetti and T.R. Kratochwill (eds), *Treatment Integrity: A Foundation for Evidence-Based Practice in Applied Psychology*. School Psychology book series. Washington, DC: American Psychological Association.

Christensen, S. L., Carlson, C. and Valdez, C. R. (2002). Evidence-based practice in school psychology: opportunities, challenges and cautions. *School Psychology Quarterly*, *17*, 466–474. doi: 10.1521/scpq.17.4.466.20862

DiClemente, C. and Prochaska, J. (1982). Transtheoretical therapy: toward a more integrative model of change. *Psychotherapy: Theory, Research and Practice*, *19*, 276–288. doi: 10.1037/h0088437

Dray, J. and Wade, T. D. (2012). Is the transtheoretical model and motivational interviewing approach applicable to the treatment of eating disorders? A review. *Clinical Psychology Review*, *32*, 558–565. doi: 10.1016/j.cpr.2012.06.005

Erol, S. and Erdogan, S. (2008). Application of a stage based motivational interviewing approach to adolescent smoking cessation: the Transtheoretical Model-based study. *Patient Education and Counseling*, *72*, 42–48. doi: 10.1016/j.pec.2008.01.011

Frederickson, N. (2002). Evidence-based practice and educational psychology, *Educational and Child Psychology*, *19*, 96–111.

Frey, A. J., Lee, J., Small, J. W., Seeley, J. R., Walker, H. M. and Feil, E. G. (2013). Transporting motivational interviewing to school settings to improve the engagement and fidelity of tier 2 interventions. *Journal of Applied School Psychology*, *29*, 183–202. doi: 10.1080/15377903.2013.778774

Hagermoser Sanetti, L. M. and Kratochwill, T. R. (eds) (2014). *Treatment Integrity: A Foundation for Evidence-Based Practice in Applied Psychology*. School Psychology book series. Washington, DC: American Psychological Association.

Hall, K., Staiger, P. K., Simpson, A., Best, D. and Lubman, D. I. (2016). After 30 years of dissemination, have we achieved sustained practice change in motivational interviewing? *Addiction*, *3*. doi: 10.1111/add.13014

Health and Care Professions Council (HCPC) (2012). *Standards of Conduct, Performance and Ethics*. London: HCPC.

Hettema, J., Steele, J. & **Miller, W. R.** (2005). Motivational interviewing. *Annual Review of Clinical Psychology*, *1*, 91–111. doi: 10.1146/annurev.clinpsy.1.102803.143833

Kamen, D. (2009). Stop our children from hurting themselves? Stages of change, motivational interviewing, and exposure therapy applications for non-suicidal self-injury in children. *Journal of Behavioral Consultation and Therapy*, *5*, 106–123.

King, H. A. and Bosworth, H. (2014). Treatment fidelity in health services research. In L. M. Hagermoser Sanetti and T.R. Kratochwill (eds), *Treatment Integrity: A Foundation for Evidence-Based Practice in Applied Psychology*. School Psychology book series. Washington, DC: American Psychological Association.

Kratochwill, T. R. and Stoiber, L. M. (2002). Evidence-based interventions in school psychology: conceptual foundations of the procedural and coding manual of Division 16 and the Society for the Study of School Psychology Task Force. *School Psychology Quarterly*, *17*, 341–389. doi: 10.1521/scpq.17.4.341.20872

Lewis-Snyder, G., Kratochwill, T. R. and Stoiber, L. M. (2002). Evidence-based interventions in school psychology: an illustration of task force coding criteria using group-based research. *School Psychology Quarterly*, *17*, 423–465. doi: 10.1521/scpq.17.4.423.20868

Lundahl, B., Moleni, T., Burke, B. L., Butters, R., Tollefson, D., Butler, C. and Rollnick, S. (2013). Motivational interviewing in medical care settings: a systematic review and meta-analysis of randomized controlled trials. *Patient Education and Counseling*, *93*, 157–68. doi: 10.1016/j.pec.2013.07.012

Markland, D., Ryan, R. M., Tobin, V. J. and Rollnick, S. (2005). Motivational Interviewing and Self-Determination Theory. *Journal of Social and Clinical Psychology*, *24*, 811–831. doi: 10.1521/jscp.2005.24.6.811

McCambridge, J. and Strang, J. (2003). Development of a structured generic drug intervention model for public health purposes: a brief application of motivational interviewing with young people. *Drug and Alcohol Review*, *22*, 391–399. doi: 10.1080/09595230310001613903

McCambridge, J. and Strang, J. (2004). The efficacy of single-session motivational interviewing in reducing drug consumption and perceptions of drug-related risk and harm among young people: results from a multi-site cluster randomized trial. *Addiction*, *99*, 39–52.

McGivern, J. E. and Walter, M. J. (2014). Legal and ethical issues related to treatment integrity in psychology and education. In L. M. Hagermoser Sanetti and T.R. Kratochwill (eds), *Treatment Integrity: A Foundation for Evidence-Based Practice in Applied Psychology*. School Psychology book series. Washington, DC: American Psychological Association.

McNamara, E. (2009). *Motivational Interviewing: Theory, Practice and Applications with Children and Young People*. Ainsdale: Positive Behaviour Management.

McNamara, E. (2014). *Motivational Interviewing: Further Applications with Children and Young People*. Ainsdale: Positive Behaviour Management.

Miller, W. R. (1983). Motivational Interviewing with problem drinkers. *Behavioural Psychotherapy*, *11*, 147–172. doi: 10.1017/S0141347300006583

Miller, W. R. (1999). Toward a theory of motivational interviewing. *Motivational Interviewing Newsletter: Updates, Education and Training*, *6*, 2–4.

Miller, W. R. and Moyers, T. B. (2006). Eight stages in learning motivational interviewing. *Journal of Teaching in the Addictions*, *5*, 3–17. doi: 10.1300/J188v05n01_02

Miller, W. R. and Rollnick, S. (1991). *Motivational Interviewing: Preparing People to Change Addictive Behaviour*. New York: Guilford Press.

Miller, W. R. and Rollnick, S. (2002). *Motivational Interviewing: Preparing People for Change*, 2nd edition. New York: Guilford Press.

Miller, W. R. and Rollnick, S. (2009). Ten things that motivational interviewing is not. *Behavioural and Cognitive Psychotherapy*, *37*, 129–140. doi: 10.1017/S1352465809005128

Miller, W. R. and Rollnick, S. (2010). What's new since MI-2? Presentation at the International Conference on Motivational Interviewing (ICMI), Stockholm, 6 June 2010.

Miller, W. R. and Rollnick, S. (2012a). *Motivational Interviewing: Helping People Change*, 3rd edition. New York: Guilford Press.

Miller, W. R. and Rollnick, S. (2012b). Meeting in the middle: motivational interviewing and self-determination theory. *The International Journal of Behavioral Nutrition and Physical Activity*, *9*, 25. doi: 10.1186/1479-5868-9-25

Miller, W. R. and Rose, G. S. (2009). Toward a theory of motivational interviewing. *The American Psychologist*, *64*, 527–537. doi: 10.1037/a0016830

Miller, W. R. and Sanchez, V. C. (1994). Motivational young adults for treatment and lifestyle change. In G. S. Howard and P. E. Nathan (eds), *Alcohol Misuse by Young Adults*. Notre Dame, IN: Notre Dame Press.

Miller, W. R. and Sovereign, R. G. (1989). Check-up: a model for early intervention in addictive behaviours. In P. E. N. and G. A. M. T. Loberg, W. R. Miller (eds), *Addictive Behaviour: Prevention and Early Intervention*. Amsterdam: Swets and Zeitlinger.

Miller, W. R., Zweben, A., DiClemente, C. and Rychtarik, R. G. (1994). *Motivational Enhancement Therapy Manual: The Clinical Research Guide for Therapists Treating Individuals with Alcohol Abuse and Dependence*. Bethesda, MD: National Institute on Alcohol Abuse and Alcoholism.

Moyers, T. B., Manuel, J. K. and Ernst, D. (2014). Motivational Interviewing Treatment Integrity Coding Manual 4.1 (MITI 4.1) (December). Retrieved from: http://casaa.unm.edu/download/MITI4_1.pdf (accessed 1 March 2017).

Moyers, T. B., Martin, T., Manuel, J. K., Hendrickson, S. M. L. and Miller, W. R. (2005). Assessing competence in the use of motivational interviewing. *Journal of Substance Abuse Treatment*, *28*, 19–26. doi: 10.1016/j.jsat.2004.11.001

National Association of School Psychologists (NASP) (2010). *Principles for professional ethics*. Bethesda, MD: NASP.

Pierson, H. M., Hayes, S. C., Gifford, E. V., Roget, N., Padilla, M., Bissett, R. et al. (2007). An examination of the Motivational Interviewing Treatment Integrity code. *Journal of Substance Abuse Treatment*, *32*, 11–17.

Riegel, B., Dickson, V. V., Garcia, L. E., Creber, R. M. and Streur, M. (2016). Mechanisms of change in self-care in adults with heart failure receiving a tailored, motivational interviewing intervention. *Patient Education and Counseling*, *100*, 283–288. doi: 10.1016/j.pec.2016.08.030

Rollnick, S., Butler, C. C., Kinnersley, P. R., Gregory, J. W. and Nash, B. (2010). Motivational interviewing. *Alcohol*, *2*, 593–603. doi: 10.1136/bmj.c1900

Rollnick, S., Heather, N. and Bell, A. (1992). Negotiating behaviour change in medical settings: the development of brief motivational interviewing. *Journal of Mental Health*, *1*, 25–37. doi: 10.3109/09638239209034509

Rollnick, S., Mason, P. and Butler, C. (1999). *Health Behavior Change: A Guide for Practitioners*. Edinburgh: Churchill Livingstone.

Rollnick, S. and Miller, W. R. (1995). What is Motivational Interviewing? *Behavioural and Cognitive Psychotherapy*, *23*, 325. doi: 10.1017/S135246580001643X

Rollnick, S., Miller, W. R. and Butler, C. C. (2008). *Motivational Interviewing in Health Care: Helping Patients Change Behavior*. New York: Guilford Press.

Rossi, P. H. and Freeman, H. E. (1993). *Evaluation: A Systematic Approach*, 5th edition. Thousand Oaks, CA: Sage.

Ryan, R. and Deci, E. (2000). Intrinsic and extrinsic motivations: classic definitions and new directions. *Contemporary Educational Psychology*, *25*, 54–67. doi: 10.1006/ceps.1999.1020

Salkovskis, P. M. (1995). Demonstrating specific skills in cognitive and behaviour therapy. In M. Aveline and D. Shapiro (eds), *Research Foundations for Psychotherapy Practice*. Chichester: Wiley.

Snape, L. and Atkinson, C. (2016). The evidence for student-focused motivational interviewing in educational settings: a review of the literature. *Advances in School Mental Health Promotion*, *9*, 119–139. doi: 10.1080/1754730X.2016.1157027

Steele Shernoff, E., Kratochwill, T. R. and Stoiber, L. M. (2002). Evidence-based interventions in school psychology: an illustration of task force coding criteria using single-participant research design. *School Psychology Quarterly*, *17*, 390–422. doi: 10.1521/scpq.17.4.390.20863

Strait, G. G., Smith, B. H., McQuillin, S., Terry, J., Swan, S. and Malone, P. S. (2012). A randomized trial of motivational interviewing to improve middle school students' academic performance, *Journal of Community Psychology*, *40*, 1032–1039. doi: 10.1002/jcop

Vansteenkiste, M. and Sheldon, K. M. (2006). There's nothing more practical than a good theory: integrating motivational interviewing and self-determination theory. *The British Journal of Clinical Psychology*, *45*, 63–82. doi: 10.1348/014466505X34192

West, R. (2005). Time for a change: putting the Transtheoretical (Stages of Change) Model to rest. *Addiction*, *100*, 1036–1039. doi: 10.1111/j.1360-0443.2005.01139.x

Wilson, T. G. and Schlam, T. R. (2004). Thetranstheoretical model and motivational interviewing in the treatment of eating and weight disorders. *Clinical Psychology Review*, *24*, 361–378. doi: 10.1016/j.cpr.2004.03.003

Zalmanowitz, S. J., Babins-Wagner, R., Rodger, S., Corbett, B. A. and Leschied, A. (2013). The association of readiness to change and motivational interviewing with treatment outcomes in males involved in domestic violence group therapy. *Journal of Interpersonal Violence*, *28*, 956–74. doi: 10.1177/0886260512459381