

Identification of the motivational techniques within Motivational Interviewing and relations with behaviour change techniques from the BCTTv1

Sarah Hardcastle
Curtin University

Motivational interviewing (MI) has been shown to be a promising approach for promoting health behaviour change in a number of contexts including substance abuse (Jenson, Cushing, & Aylward, 2011), quitting smoking (Heckman, Egleston, & Hofmann, 2010; Lai, Cahill, Qin, & Tang, 2010), physical activity promotion (Bennett, Lyons, Winters-Stone, Nail, & Scherer, 2007; Carels et al., 2007; Hardcastle, Taylor, Bailey, & Castle, 2008; O'Halloran et al., 2014), and dietary change (Armstrong et al., 2011; Befort et al., 2008). MI can be considered a complex intervention comprising multiple techniques. Complex interventions have posed considerable challenges to researchers attempting to identify the mechanisms underpinning their effects and replicate them due to the fact that it is difficult to isolate the individual techniques effective in changing behaviour. Although researchers adopting MI interventions have described the general characteristics of MI interventions in some detail (e.g., identifying who delivers the intervention, how often the intervention sessions are delivered and duration of sessions, context in which the intervention is presented), attempts to distil the components of MI have been impeded because descriptions of exact content of the intervention have lacked detail, precision, and clarity.

There has, however, been considerable recent progress in the scientific literature on identification and isolation of the techniques adopted in interventions to change behaviour, resulting in the development of numerous

taxonomies of the techniques that 'do the work' in terms of changing behaviour in health-related behaviour change interventions (Abraham & Michie, 2008; Michie, Abraham, Whittington, McAteer, & Gupta, 2009; Michie et al., 2011; Michie et al., 2013).

Following these developments, there is a need to identify the content of specific techniques employed in MI and examine the extent to which these techniques are unique or exhibit overlap with behaviour change techniques identified in the most recent behaviour change techniques taxonomy (BCTTv1) (Michie et al., 2013). Such research would advance knowledge by enhancing the conceptualization and operationalization of interventions adopting MI. The identification of the specific components that make up MI interventions will enable researchers to develop studies that may establish which of the techniques, or combination of techniques, is most effective in changing health behaviour. This will not only assist in identifying the key components, but will also assist researchers and practitioners increase the effectiveness and efficiency of, and reduce redundancy in, their interventions.

The behaviour change techniques identified by Michie and her colleagues (2013) have been derived from multiple approaches and theories applied to health behaviour. There is evidence that interventions aiming to promote health-related behaviour adopting techniques identified in the taxonomy have been effective in bringing about behaviour change (Avery, Sniehotta, Flynn, Trenell, & van Wersch, 2012; Dombrowski et al., 2012; Gilinsky et al., 2014; Olander et al., 2013).

However, MI has not been included in the 2013 taxonomy even though it is regarded as a popular approach that has shown to be effective in promoting health behaviour change in several systematic reviews and meta-analyses (O'Halloran et al., 2014; Armstrong et al., 2011; Knight, McGowan, Dickens, & Bundy, 2006; Lundahl & Burke, 2009; Lundahl et al., 2013; Rubak, Sandbaek, Lauritzen, & Christensen, 2005; VanBuskirk & Wetherell, 2014). For example, a meta-analysis of 72 randomized controlled trials using MI in health related contexts revealed that it was more effective in improving both behavioural and health related outcomes relative to usual care in 80% of studies (VanBuskirk & Wetherell, 2014).

There are three main barriers to understanding the effectiveness of MI-based interventions: (1) the complexity of MI as an intervention comprising multiple behaviour change techniques, as noted earlier (Hagger & Hardcastle, 2014); (2) poor reporting of MI intervention components (Michie & Abraham, 2008; Michie & Johnson, 2012); and (3) the lack of research on the techniques of MI that are affecting behaviour change.

MI is comprised of several techniques used by interviewers to evoke motivation and behaviour change in clients. Some of the MI techniques focus more on 'content' (e.g., the provision of information or the identification of past successes), which is similar to the operationalization of the behaviour change techniques outlined in other taxonomies. In contrast, a substantial number of the MI techniques focus on the relational-interpersonal style that captures the manner in which other content-related techniques are delivered. The relational-interpersonal style components are usually referred to collectively as the MI 'spirit' (Miller & Rollnick, 2013). However, the reporting of MI interventions has tended to be insufficient in fully documenting intervention content,

particularly of the individual MI techniques. In general, reporting of intervention content in research adopting MI is often brief and lacking in specific detail and content making the intervention difficult to replicate or pinpoint the precise components that may be affecting observed behaviour change. For example, several studies have failed to provide any description of the specific MI techniques used (Ackerman, Falsetti, Lewis, Hawkins, & Heinschel, 2011; Armit et al., 2009; Harland et al., 1999; Kerse, Elley, Robinson, & Arroll, 2005; Lakerveld et al., 2013; Lawton, Rose, & Elley, 2008; Whitemore et al., 2009; Penn et al., 2009). Furthermore, many MI studies lack detail in their descriptions of the precise techniques adopted, how they were delivered, practitioner training and competency in MI. Such intervention reporting presents considerable challenges to researchers attempting to replicate the intervention and to understand how the intervention works (Michie & Abraham, 2008).

It seems that most intervention research adopting MI has made links between its set of techniques and dominant theoretical approaches adopted in health behaviour research such as the theory of planned behavior and the transtheoretical model... (Armit et al., 2009; Lakerveld et al., 2013). The problem is that the links have been vague and lack precision when it comes to examining parallels between behaviour change techniques and MI techniques. In addition, identifying the key psychological constructs targeted by the techniques that should mediate any observed change in behaviour brought about by these techniques. This is not confined to MI, various theorists and researchers have noted a generalized problem in the scientific literature of the lack of clear mapping of intervention techniques onto theoretical constructs that lead to change (Fortier, Duda, Guerin, & Teixeira, 2012; Michie, Webb & Sniehotta, 2010). Numerous examples exist, for

instance researchers have aligned their MI intervention with the transtheoretical model (Armit et al., 2009) and a recent study made links between MI and the theory of planned behavior (Lakerveld et al., 2013). In both examples, the authors do not clearly elucidate how the techniques of MI match up with the concepts of the theory that ostensibly provides an explanation for the action of the MI techniques on behaviour.

There are, however, instances in the literature where researchers have provided explicit detail of MI intervention content sufficient for replication and for the understanding of the mechanisms underpinning the intervention effect. For example, Resnicow, Jackson, and Braithwaite (2002) provided considerable detail on their MI intervention and the specific techniques used. The description is comprehensive, clear, and incorporates all the necessary information to classify the appropriate techniques and identify the key mediators from self-determination theory, the target theoretical basis. The authors also provide sufficient information for a precise replication of the intervention. Fortier and Kowal (2007) also listed the specific self-determination theory and MI techniques of interventions to promote physical activity and, similar to Resnicow et al. (2011), identified and explained which variables from self-determination theory would be expected to mediate effects of the intervention techniques on physical activity behaviour change.

The second barrier underlying the lack of progress in understanding the effectiveness of MI-based interventions is the lack of research identifying the precise MI techniques that are affecting behaviour change in MI-based interventions. This has made it difficult to draw precise conclusions regarding how MI facilitates behaviour change. Therefore, consensus is needed to elucidate the various MI techniques.

Research generally supports the efficacy of

interventions that adopt MI, but a high degree of variability in the strength of the effects of MI observed in trials across studies, contexts and practitioners. Miller and Rollnick (2013) suggest that the effectiveness of MI is strongly influenced by the practitioner, that is, the techniques that specify the relational-interpersonal style of the practitioners when delivering the intervention content. The notion that these techniques of MI are fundamental is evidenced in the fact that studies employing didactic manuals of MI have been shown to be less effective (Hettema, Steel, & Miller, 2005; Lundahl, Kunz, Brownell, Tollefson, & Burke, 2010). Meta-analytic data has indicated that the effect size of MI was half the size when the intervention was guided by a manual (Hettema, Steel, & Miller, 2005). Specifically with regards to the physical activity context, a recent systematic review and meta-analysis revealed that MI treatment fidelity (practitioner's adherence to the relational-interpersonal style techniques of MI) produced larger physical activity effects (O'Halloran et al., 2014). These data provide some initial indications that the interpersonal aspects of MI are paramount to the efficacy of these interventions.

Motivational interviewing is primarily a counseling approach and a way of interacting with a client in health contexts (Miller & Rollnick, 2013). Collectively the interaction and counseling aspects of MI are known as the 'spirit' of MI. This is essentially characterized by the interpersonal behaviours and actions of the practitioner above and beyond the content of the techniques (Hagger & Hardcastle, 2014). The 'spirit' is central to MI and is made up of four key elements: collaboration, evocation, autonomy, and compassion. Collaboration refers to relations between the practitioner and client grounded in the perspectives and experiences of the client. Evocation refers to drawing out the client's ideas about change. The practitioner draws out the client's own motivations and skills for change

rather than tell them what to do or the reasons why they should do it. Definitions of the evocation component make reference to the generation of 'change talk' in the client. Change talk is a key mediator at the core of MI and is defined as "any self-expressed language than is an argument for change" (Miller & Rollnick, 2013, p.159; for a review on Change Talk strategies see Resnicow, Gobat and Naar in this issue). One of the primary roles of MI practitioners is to elicit and evoke change talk and to reduce 'sustain talk': "the person's own arguments for not changing, for sustaining the status quo" (Miller & Rollnick, 2013, p. 7). Promoting autonomy in the client refers to the practitioner ensuring that the decision to change rests with the client. Finally, the practice of compassion refers to the practitioner's acceptance of one's path and choices. The practitioner is committed to seek an understanding of the other's experiences, values and motives without engagement of explicit or implicit judgment.

The relational-interpersonal style components of MI are fundamental and few other approaches are as explicit about the importance and impact of the relational- interpersonal style in which interventions are delivered. In fact these techniques have tended to be neglected or omitted from previous behaviour change technique taxonomies (Hagger & Hardcastle, 2014), although the distinction between content and interpersonal style has been noted previously (Michie, Churchill, & West, 2011). Future taxonomies should incorporate these relational-interpersonal techniques as MI techniques in their own right sitting alongside the content-related behaviour change techniques. Such an endeavour is essential if the effectiveness of complex interventions that adopt both content and relational-interpersonal behaviour change techniques are to be adequately evaluated.

In summary, there are several reasons for the need to identify and isolate the components of MI

interventions that are effective in evoking change. The first is that MI has been recognised as a complex intervention comprising multiple techniques and, to date, the specific unique MI techniques have not been systematically identified. If the effectiveness of MI interventions is to be improved, then it is necessary to isolate and define the individual techniques of the MI approach that are effective in changing behaviour. Second, in earlier iterations of the behaviour change technique taxonomy, Michie et al. (2013) isolated MI as a single behaviour change technique. However, according to theory and evidence, MI is a complex intervention comprising multiple techniques, some of which are content-related and others are relational-interpersonal. MI, therefore, needs further elaboration in the contexts of existing techniques to identify uniqueness and redundancy. Third, given that the BCTTv1 is based almost exclusively on content related strategies, we may expect to find significant differences between existing behaviour change techniques and those techniques in MI that have a greater emphasis on the interpersonal components of MI interventions that are fundamental to this approach.

References

- Abraham, C., & Michie, S. (2008). A taxonomy of behavior change techniques used in interventions. *Health Psychology, 27*(3), 379-387. doi:10.1037/0278-6133.27.3.379
- Ackerman, E., Falsetti, S.A., Lewis, P., Hawkins, A.O., & Heinschel, J. A. (2011). Motivational interviewing: A behavioral counseling intervention for the family medicine provider. *Family Medicine, 43*(8), 582-585.
- Armit, C. M., Brown, W. J., Marshall, A. L.,

- Ritchie, C. B., Trost, S. G., Green, A., & Bauman, A. E. (2009). Randomized controlled trial of three strategies to promote physical activity in general practice. *Preventive Medicine, 48*(2), 156-163. doi:10.1016/j.ypmed.2008.11.009
- Armstrong, M. J., Mottershead, T. A., Ronksley, P. E., Sigal, R. J., Campbell, T. S., & Hemmelgarn, B. R. (2011). Motivational interviewing to improve weight loss in overweight and/or obese patients: A systematic review and meta-analysis of randomised controlled trials. *Obesity Review, 12*(9), 709-723. doi:10.1111/j.1467-789X.2011.00892.x
- Avery, L., Sniehotta, F. F., Flynn, D., Trenell, M. I., & van Wersch, A. (2012). Changing physical activity behavior in type 2 diabetes: A systematic review and meta-analysis of behavioral interventions. *Diabetes Care, 35*(12), 2681-2689. doi:10.2337/dc11-2452
- Befort, C. A., Nollen, N., Ellerbeck, E. F., Sullivan, D. K., Thomas, J. L., & Ahluwalia, J. S. (2008). Motivational interviewing fails to improve outcomes of a behavioural weight-loss program for obese African American women: A pilot randomised trial. *Journal of Behavioral Medicine, 31*(5), 367-377. doi:10.1007/s10865-008-9161-8
- Bennett, J. A., Lyons, K. S., Winters-Stone, K., Nail, L. M., & Scherer, J. (2007). Motivational interviewing to increase physical activity in long-term cancer survivors: A randomized controlled trial. *Nursing Research, 56*(1), 18-27.
- Carels, R. A., Darby, L. A., Cacciapaglia, H. M., Konrad, K., Coit, C., & Harper, J. (2007). Using motivational interviewing as a supplement to obesity treatment: A stepped-care approach. *Health Psychology, 26*(3), 369-374. doi:10.1037/0278-6133.26.3.369
- Dombrowski, S. U., Sniehotta, F. F., Avenell, A., Johnston, M., MacLennan, G., & Araújo-Soares, V. (2012). Identifying active ingredients in complex behavioural interventions for obese adults with additional risk factors: A systematic review. *Health Psychology Review, 6*(1), 7-32. doi:10.1080/17437199.2010.513298
- Fortier, M., & Kowal, J. (2007). The flow state and physical activity behaviour change as motivational outcomes: A self-determination theory perspective. In M. S. Hagger and N. L. D. Chatzisarantis (Eds.), *Intrinsic motivation and self-determination theory in exercise and sport* (pp. 113-125). Champaign, IL: Human Kinetics.
- Fortier, M. S., Duda, J. L., Guerin, E., & Teixeira, P. J. (2012). Promoting physical activity: Development and testing of self-determination theory-based interventions. *International Journal of Behavioral Nutrition & Physical Activity, 9*:20. doi:10.1186/1479-5868-9-20
- Gilinsky, A., Dale, H., Robinson, C., Hughes, A. R., McInnes, R., & Lavalley, D. (2014). Efficacy of physical activity interventions in post-natal populations: Systematic review, meta-analysis and content coding of behaviour change techniques. *Health Psychology Review*. doi:10.1080/17437199.2014.899059
- Hagger, M. S., & Hardcastle, S. J. (2014). Interpersonal style should be included in taxonomies of behaviour change techniques. *Frontiers of Psychology, 5*:254. doi:10.3389/fpsyg.2014.00254
- Hardcastle, S. J., Taylor, A. H., Bailey, M., & Castle, R. (2008). A randomised controlled trial on the effectiveness of a primary health care based counselling intervention on physical activity, diet and CHD risk factors. *Patient Education and Counseling, 70*(1), 31-39. doi:10.1016/j.pec.2007.09.014
- Harland, J., White, M., Drinkwater, C., Chinn, D., Farr, L., & Howel, D. (1999). The Newcastle exercise project: A randomised controlled trial of methods to promote physical activity in primary care. *BMJ, 319*, 828-832. doi:10.1136/bmj.319.7213.828

- Heckman, C. J., Egleston, B. L., & Hofmann, M. T. (2010). Efficacy of motivational interviewing for smoking cessation: A systematic review and meta-analysis. *Tobacco Control, 19*(5), 410-416. doi: 10.1136/tc.2009.033175
- Hettema, J., Steel, J., & Miller, W. (2005). Motivational interviewing. *Annual Review of Clinical Psychology, 1*, 91-111. doi:10.1146/annurev.clinpsy.1.102803.143833
- Jenson, C. D., Cushing, C. C., Aylward, B. S., Craig, J. T., Sorell, D. M., & Steele, R. G. (2011). Effectiveness of motivational interviewing for adolescent substance abuse behaviour change: A meta-analytic review. *Journal of Consulting and Clinical Psychology, 79*(4), 433-440. doi:10.1037/a0023992
- Kerse, N., Elley, C. R., Robinson, E., & Arroll, B. (2005). Is physical activity counseling effective for older people? A cluster randomized, controlled trial in primary care. *Journal of the American Geriatrics Society, 53*(11), 1951-1956. doi:10.1111/j.1532-5415.2005.00466.x
- Knight, K. M., McGowan, L., Dickens, C., & Bundy, C. (2006). A systematic review of motivational interviewing in physical health care settings. *British Journal Health Psychology, 11*(2), 319-332.
- Lai, D. T. C., Cahill, K., Qin, Y., & Tang, J. (2010). Motivational interviewing for smoking cessation. *Cochrane Database Systematic Reviews, 1*, CD006936. doi:10.1002/14651858.CD006936.pub2.
- Lakerveld, J., Bot, S. D., Chinapaw, M. J., van Tulder, M. W., Kostense, P. J., Dekker, J. M., & Nijpels, G. (2013). Motivational interviewing and problem solving treatment to reduce type 2 diabetes and cardiovascular disease risk in real life: A randomized controlled trial. *International Journal Behavioral Nutrition Physical Activity, 10*:47. doi:10.1186/1479-5868-10-47
- Lawton, B.A., Rose, S. B., Elley, C.R., et al. (2008). Exercise on prescription for women aged 40-74 recruited through primary care: Two year randomized controlled trial. *BMJ, 337*:a2509. doi:10.1136/bmj.a2509
- Lundahl, B.W., & Burke, B.L. (2009). The effectiveness and applicability of motivational interviewing: A practice-friendly review of four meta-analyses. *Journal of Clinical Psychology, 65*(11), 1232-1245. doi:10.1002/jclp.20638
- Lundahl, B. W., Kunz, C., Brownell, C., Tollefson, D., & Burke, B. L. (2010). A meta-analysis of motivational interviewing: Twenty-five years of empirical studies. *Research on Social Work Practice, 20*(2), 137-160. doi:10.1177/1049731509347850
- Lundahl, B., Moleni, T., Burke, B. L., Butters, R., Tollefson, D., Butler, C., & Rollnick, S. (2013). Motivational interviewing in medical care settings: A systematic review and meta-analysis of randomized controlled trials. *Patient Education Counseling, 93*(2), 157-168. doi:10.1016/j.pec.2013.07.012
- Michie, S., & Abraham, C. (2008). Advancing the science of behaviour change: A plea for scientific reporting. *Addiction, 103*(9), 1409-1410. doi: 10.1111/j.1360-0443.2008.02291.x
- Michie, S., Abraham, C., Whittington, C., McAteer, J., & Gupta, S. (2009). Effective techniques in healthy eating and physical activity interventions: A meta-regression. *Health Psychology, 28*(6), 690-701. doi: 10.1037/a0016136
- Michie, S., Webb, T. L., & Sniehotta, F. F. (2010). The importance of making explicit links between theoretical constructs and behaviour change techniques. *Addiction, 105*(11), 1897-1898. doi:10.1111/j.1360-0443.2010.03161.x
- Michie, S., Ashford, S., Sniehotta, F. F., Dombrowski, S. U., Bishop, A., & French, D. P. (2011). A refined taxonomy of behaviour change techniques to help people change their physical activity and healthy eating behaviours: The CALO-RE taxonomy. *Psychology & Health, 26*(11), 1479-1498. doi:10.1080/08870446.2010.540664
- Michie, S., Churchill, S., & West, R. (2011).

- Identifying evidence-based competences required to deliver behavioral support for smoking cessation. *Annals of Behavioral Medicine*, 41(1), 59–70. doi:10.1007/s12160-010-9235-z
- Michie, S., & Johnston, M. (2012). Theories and techniques of behaviour change: Developing a cumulative science of behaviour change. *Health Psychology Review*, 6(1), 1–6. doi:10.1080/17437199.2012.654964
- Michie, S., Richardson, M., Johnston, M., Abraham, C., Francis J., Hardeman, W.,... Wood, C. E. (2013). The Behavior Change Technique Taxonomy (v1) of 93 hierarchically clustered techniques: Building an international consensus for the reporting of behavior change interventions. *Annals of Behavioral Medicine*, 46(1), 81–95. doi:10.1007/s12160-013-9486-6
- Miller, W.R., & Rollnick, S. (2013). *Motivational interviewing: Preparing people for change* (3rd Ed.). New York: Guilford Press.
- O'Halloran, P. D., Blackstock, F., Shields, N., Holland, A., Iles, R., Kingsley, M.,... Taylor, N. F. (2014). Motivational interviewing to increase physical activity in people with chronic health conditions: A systematic review and meta-analysis. *Clinical Rehabilitation*, 28(12). doi:10.1177/0269215514536210
- Olander, E. K., Fletcher, H., Williams, S., Atkinson, L., Turner, A., & French, D. P. (2013). What are the most effective techniques in changing obese individuals' physical activity self-efficacy and behaviour: A systematic review and meta-analysis. *International Journal of Behavioral Nutrition and Physical Activity*, 10:29. doi:10.1186/1479-5868-10-29
- Penn, L., White, M., Oldroyd, J., Walker, M., Alberti, K. G. M. M., & Mathers, J. C. (2009). Prevention of type 2 diabetes in adults with impaired glucose tolerance: The European Diabetes Prevention randomized controlled trial in Newcastle upon Tyne, UK. *BMC Public Health*, 9:342. doi:10.1186/1471-2458-9-342
- Resnicow, K., Jackson, A., & Braithwaite, R. (2002). Healthy body/healthy spirit: A church based nutrition and physical activity intervention. *Health Education Research*, 17(5), 562–573. doi:10.1093/her/17.5.562
- Resnicow, K., Dilorio, C., Soet, J. E., Borrelli, B., Hecht, J., & Ernst, D. (2011). Motivational interviewing in health promotion: It sounds like something is changing. *Health Psychology*, 21(5), 444–451. doi:10.1037/0278-6133.21.5.444
- Resnicow, K., Gobat, N., & Naar, S. (2015). Intensifying and igniting change talk in motivational interviewing: A theoretical and practical framework. *The European Health Psychologist*, 17(3), 103–111.
- Rubak, S., Sandbaek, A., Lauritzen, T., & Christensen, B. (2005). Motivational interviewing: a systematic review and meta-analysis. *British Journal General Practice*, 55(513), 305–312.
- VanBuskirk, K. A., & Wetherell, J. L. (2014). Motivational interviewing with primary care populations: A systematic review and meta-analysis. *Journal of Behavioral Medicine*, 37(4), 768–780. doi:10.1007/s10865-013-9527-4
- Whittemore, R., Melkus, G. J. W., Wagner, J., Dziura, J., Northrup, V., & Grey, M. (2009). Translating the Diabetes Prevention Program to primary care: A pilot study. *Nursing Research*, 58(1), 2–12. doi:10.1097/NNR.0b013e31818fcef3



Sarah Hardcastle
School of Psychology and Speech
Pathology, Faculty of Health
Sciences, Curtin University, Perth,
Australia
sarah.hardcastle@curtin.edu.au