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Identifying content-based and relational techniques to change behavior in Motivational Interviewing

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Abstract

Motivational interviewing (MI) is a complex intervention comprising multiple techniques aimed at changing health related motivation and behavior. However, MI techniques have not been systematically isolated and classified. This study aimed to identify the techniques unique to MI, classify them as content-related or relational, and evaluate the extent to which they overlap with techniques from the behavior change technique taxonomy version 1 (BCTTv1; Michie et al., 2013). Behavior-change experts (n=3) content-analyzed MI techniques based on Miller and Rollnick's (2013) conceptualization. Each technique was then coded for independence and uniqueness by independent experts (n=10). The experts also compared each MI technique to those from the BCTTv1. Experts identified 38 distinct MI techniques with high agreement on clarity, uniqueness, preciseness, and distinctiveness ratings. Of the identified techniques, 16 were classified as relational techniques. The remaining 22 techniques were classified as content-based. Sixteen of the MI techniques were identified as having substantial overlap with techniques from the BCTTv1. The isolation and classification of MI techniques will provide researchers with the necessary tools to clearly specify MI interventions and test the main and interactive effects of the techniques on health behavior. The distinction between relational and content-based techniques within MI is also an important advance, recognising that changes in motivation and behavior in MI is a function of both intervention content and the interpersonal style in which the content is delivered.

Keywords: behavior change; motivational interviewing; techniques; intervention

Identifying content-based and relational techniques to change behavior in Motivational Interviewing

Motivational interviewing (MI) has been shown to be a promising approach for promoting health behavior change in a number of contexts including substance abuse (Jenson et al., 2011), quitting smoking (Heckman, Egleston, & Hofmann, 2010; Lai, Cahill, Qin, & Tang, 2010), physical activity promotion (Bennett, Lyons, Winters-Stone, Nail, & Scherer, 2007; Carels, Darby, Cacciapaglia, Konrad Coit, & Harper, 2007; Hardcastle, Blake, & Hagger, 2012; 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 to promote behavior-change. Complex interventions have posed considerable challenges to researchers attempting to identify the mechanisms underpinning their effects and replicate them. This is because tests of interventions adopting one-way designs that compare the effects of the intervention against a no-intervention control preclude the researcher from isolating the individual components of the intervention that are effective in changing behavior. It is only through the systematic specification of the intervention to isolate its separate techniques, and the subsequent tests of specific techniques in factorial designs that can allow the researcher fully evaluate which techniques are effective in changing health behavior. 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 specific MI techniques have been impeded because descriptions of exact content of the intervention have lacked detail, precision, and clarity. While the issue of interventions being poorly defined is not confined to MI, it is particularly pertinent given that MI is a complex intervention comprising multiple techniques.

There has been considerable progress in the scientific literature on identification and isolation of the single components or *techniques* adopted in interventions to change behavior. The systematic classification of behavior change intervention components has resulted in the development of taxonomies of the individual techniques of interventions that are effective in changing the antecedents of behavior in health-related behavioral interventions (Abraham & Michie, 2008; Michie, Abraham, Whittington, McAteer, & Gupta, 2009; Michie et al., 2011; Michie et al., 2013). Following these developments, the purpose of the present article is to identify the specific techniques employed in MI and examine the extent to which these techniques are unique or exhibit overlap with behavior change techniques identified in the most recent behavior change techniques taxonomy (BCTTv1; Michie et al., 2013). We expect our research to advance knowledge by enhancing the conceptualization and operationalization of interventions adopting MI, classifying the techniques into categories relating to their function as content-related or relational techniques, and assessing the uniqueness of the MI techniques against the techniques identified in the most recent taxonomy of behavior change techniques (Michie et al., 2013). The identification of the specific techniques 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 behavior. This will not only assist in identifying the key techniques, but will also assist researchers and practitioners increase the effectiveness and efficiency of their interventions (Hardcastle et al., 2015).

Isolating and Identifying MI Intervention Components

MI has not been included in the most recent taxonomy of behavior change techniques (Michie et al., 2013) because it was classified as an 'approach' rather than a single, behavior change technique. It is, however, an approach that has been found to be efficacious in changing health behavior, as evidenced in several systematic reviews and meta-analyses

(Armstrong et al., 2011; Knight, McGowan, Dickens, & Bundy, 2006; Lundahl & Burke, 2009; Lundahl et al., 2013; O'Halloran et al., 2014; Rubak, Sandbaek, Lauritzen, & Christensen, 2005; VanBuskirk & Loebach 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 behavioral and health related outcomes relative to usual care in 80% of studies (Rubak et al., 2005). However, despite the evidence in support of MI interventions in changing health-related behavior, there are studies that have shown null findings on health behavior change for MI-based interventions (Craigie, Macleod, Barton, Treweek, & Anderson, 2011; Greaves et al., 2008). Resolving these inconsistencies presents a challenge to researchers attempting to evaluate the value of adopting MI as a possible approach to use when designing behavior change interventions and makes understanding of the exact processes and mechanisms that underpin MI's effectiveness an imperative. In our view, there are three main barriers to understanding the effectiveness of MI-based interventions: (1) the complexity of MI as an intervention comprising multiple behavior change techniques and relational techniques, as we noted in our earlier discussion (Hagger & Hardcastle, 2014); (2) poor reporting of MI intervention content; and (3) the lack of research on the specific techniques of MI that are affecting behavior change.

The Need for Better Reporting of MI Techniques

MI comprises of several techniques used by practitioners to evoke motivation and behavior change in clients. A key feature of MI is that it comprises techniques that differ in function. Some MI techniques focus on *content* of the intervention, which reflect the information and knowledge provided to intervention recipients to promote behavior change (e.g., exploration of pros and cons). These techniques are similar to the operationalization of techniques identified in taxonomies of behavior change techniques. In contrast, MI also comprises techniques that reflect the interpersonal style of delivery in which the content-

based techniques are presented by the practitioner to increase their effectiveness. These *relational* aspects and are usually referred to collectively as the MI 'spirit' (Miller & Rollnick, 2013). However, the individual techniques of MI interventions have not been systematically documented. In addition, reporting of the content of interventions adopting MI is often brief and lacking in specific detail making it difficult to replicate or pinpoint the precise techniques that may be affecting behavior change. Many MI studies lack detail in their descriptions of the precise techniques adopted, how they were delivered, practitioner training and competency in MI (Douaihy, Kelly, & Gold, 2014) and some do not provide any detailed description of the MI intervention components at all (e.g., Ackerman, Falsetti, Lewis, Hawkins, & Heinschel, 2011; Armit et al., 2009; Harland et al., 1999; Kerse, Elley, Robinson, & Arroll, 2005; Lawton et al., 2008; Penn et al., 2009; Whittemore et al., 2009). Such intervention reporting presents considerable challenges to researchers attempting to replicate the intervention and to understand how the intervention works, although these shortcomings are not limited to MI interventions (Michie & Abraham, 2008).

Research on Effective MI Techniques

Beyond the limited detail reported in interventions adopting MI, a further barrier to progress in understanding the effectiveness of MI-based interventions is the lack of research identifying the precise MI techniques that affect behavior change. This has made it difficult to draw precise conclusions regarding how MI facilitates behavior change. A systematic identification and classification of the techniques of MI is needed. Isolating MI techniques will enable researchers to better specify the content of their interventions and establish whether the inclusion or omission of particular techniques enhances or diminishes the effectiveness of their interventions using study designs that compare the intervention effectiveness in the presence or absence of specific techniques.

Motivational interviewing is primarily a counseling approach and a way of interacting

with a client in health contexts (Miller & Rollnick, 2013). Central to its approach is the 'spirit' of MI, which is a collective term that encompasses the interpersonal or relational components of MI focusing on the actions of the practitioner in delivering intervention content to clients or individuals (Hagger & Hardcastle, 2014). Given its development in counseling and clinical practice, it is unsurprising that the effectiveness of MI is strongly influenced by the practitioner, that is, the relational components of MI. A recent systematic review and meta-analysis revealed that MI interventions with high treatment fidelity, defined as the practitioner's adherence to the relational components of MI, produced larger effects on physical activity behavior change than interventions with lower fidelity (O'Halloran et al., 2014). These data provide initial indication that the interpersonal components are paramount to the efficacy of MI interventions.

According to Miller and Rollnick (2013), the 'spirit' of MI comprises four key components: 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. Promoting *autonomy* in the client refers to the practitioner ensuring that the decision to change rests with the client. 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.

An important relational-interpersonal component of MI is its client-centered focus on drawing out clients' ideas about change. Central to this is the evocation of 'change talk'. The evocation of change talk is a key component of MI and is defined as "any self-expressed language that is an argument for change" (Miller & Rollnick, 2013, p. 159). 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).

MI also comprises components that relate to the content of the interventions, that is, what is delivered to clients rather than how it is delivered. Such components are akin to the techniques adopted in behavior change interventions that have recently been classified in behavior change taxonomies (e.g., Michie et al., 2013). This means that MI comprises components that include the content of interventions and the means by which the intervention is presented to the client, by the practitioner. We refer to the components of MI that specify the interpersonal style used by the interviewer or practitioner to deliver the intervention as 'relational' techniques. These relational techniques are fundamental to MI and their identification and isolation is important in order to fully break down MI into its individual components.

There is previous research work that has informed the classification of the components of MI, although none have adopted a systematic approach to isolate the components of MI. For example, evaluation of the fidelity of MI interventions has necessitated the identification of its components and skills. Assessing the fidelity of MI interventions has been achieved by identifying the extent to which practitioners adhere to the key conditions or parameters of MI. The motivational interviewing treatment integrity (MITI) and the motivational interviewing skill code (MISC) are the two common instruments used to examine the fidelity of MI interventions (Moyers, Martin, Manuel, Miller & Ernst, 2010). These instruments mainly measure overall competency of the interviewer with the main components of MI such as the practitioner's ability to cultivate change talk and soften sustain talk. They also assess adherence to the underlying spirit of MI in terms of collaboration, empathy, autonomy, and evocation. In addition, they assess the proportion of questions

versus reflections, and the proportion of MI adherent versus non-adherent practitioner behaviors (e.g., emphasis of autonomy versus confronting and persuading language). The MISC also examines client language in relation to the expression of reasons to change, taking steps, and commitment language. These tools have been very useful in assessing the fidelity of MI interventions with respect to MI as an overall intervention and closeness with Miller and Rollnick's 'spirit' of MI. However, as their focus is on overall adherence to MI as stipulated in intervention protocols, the fidelity tools do not break MI down into specific techniques and are, therefore, not fit-for-purpose means for the isolation and classification of MI components.

In the current research we recognize that although MI interventions have arisen from clinical practice, as an intervention approach it comprises multiple distinct techniques. However, the techniques have not been systematically identified and isolated in a process that aims to identify the individual techniques of MI based on procedures adopted in the behavior change taxonomy literature (BCTTv1; Michie et al., 2013). The purpose of the current research is to specify the MI techniques to bridge the gap between MI as an intervention method born out of clinical practice and MI as a complex behavior change intervention that comprises multiple techniques, both content and relational. In order to improve the effectiveness and efficiency of MI interventions, there is a need to identify and isolate the discreet techniques employed and assess which techniques, or combinations of techniques, are more effective in changing health behavior. The research will also permit further testing of the mechanisms and process by which MI interventions exert their effects, by indicating the specific mediating factors that may explain their effects, which will further improve understanding and efficiency of MI interventions.

MI Techniques and Existing Taxonomies of Behavior-Change Techniques

The relational components of MI are fundamental to its effectiveness as an approach

to behavior change and these relational techniques have tended to be neglected or omitted from previous behavior change technique taxonomies (Hagger & Hardcastle, 2014). As taxonomies evolve, they need to identify and incorporate these relational techniques that fulfil the conditions to be satisfied for the intervention to be effective and determine whether they moderate the effect of the content-based techniques. There have been a number of previous approaches to examining the components of interventions related to interpersonal or presentation style. Kok and colleagues (2015) have highlighted the importance of *parameters* for a behavior change method to be effective. According to Kok et al., "parameters of effectiveness of a theoretical method are defined as the conditions that must be satisfied in practical applications for the method to be effective. If a practical application embodies a given theoretical method but violates one or more parameters of effectiveness of that method, it will be less effective or may even be counter-productive" (p. 5). Similarly, Dixon and Johnston (2010) have identified foundation and behavior change competencies required to deliver effective behavior change interventions. One of the competencies identified by Dixon and Johnston is similar to Kok et al.'s (2015) parameters for an intervention is the "capacity to implement behavior change in a manner consonant with its underlying philosophy" (p. 8). The foundation competences primarily involve the communication skills necessary to develop an effective alliance between the practitioner and the client or target of behavior change. For example, competencies relevant to MI include 'ability to engage client' and 'ability to foster and maintain good intervention alliance'. However, these competencies do not identify or isolate the particular techniques by which such competencies can be included or incorporated in interventions. Roth and Pilling (2008) also refer to the importance of generic components in the delivery of behavior change interventions such as the generic skills of engaging client and maintaining a good therapeutic alliance.

Similarly, we view the generic components and competencies as skills or parameters

that will enhance the effectiveness of interventions. However, while parameters are important aspects of interventions, we feel these are separate from relational techniques and we make a distinction between relational techniques and generic competencies. Our current research is concerned with the relational techniques rather than skills or competencies. For example, one competency identified by Roth and Pilling is the 'ability to work in a collaborative manner'. While generic competencies in the interviewer in developing collaboration with the client is at the core of the MI approach, we feel that the specific actions an interviewer would take to forge a collaborative alliance are separable and distinct from the generic skills, and that these constitute techniques that an interviewer would apply when conducting an MI intervention. The techniques are, therefore, separable from the parameters, the generic skills and competencies that assist interviewers in developing a collaborative alliance.

The Present Study

The purpose of the present study was to identify, isolate, and incorporate the techniques, both content and relational, that comprise MI interventions in health contexts. Such an endeavour is essential if the effectiveness of complex interventions that adopt both content behavior change techniques and relational techniques are to be adequately evaluated. In this article we will systematically identify MI techniques based on Miller and Rollnick's recent classification [1] and relate them to the behavior change techniques in the BCTTv1 (2013).

The second purpose was to examine the relationship between the MI techniques identified in the present study and those identified in the BCTTv1 (2013) and identify MI techniques that are closely aligned with behavior change techniques in the 93 BCTTv1 taxonomy and those that are unique to MI. The research will contribute to the literature in four ways. First, the identification of unique techniques will allow researchers to clearly specify MI-based interventions by isolating its basic techniques that cannot be broken down

further. Second, the identification of, and distinction between, content-based and relational techniques means that researchers will have access to the essential 'building blocks' of MI interventions, and permit them to develop research examining the efficacy of the techniques alone or alongside or interacting with others in interventions seeking to change behavior. Third, the identification of techniques may assist in developing more efficient and parsimonious interventions by reducing redundancy and focusing on the techniques that are most effective. Fourth, the identification of relational techniques that have been omitted in existing behavior change taxonomies that focus exclusively on content will make a unique contribution to the literature by more fully documenting the techniques associated with the interpersonal components of the intervention. Such relational techniques could have broad appeal and do not need to be confined to MI but could be adopted in other behavioral change interventions regardless of theoretical persuasion.

Method

Participants. Participants were ten (7 female; *M* age = 40.50, SD = 5.50) international behavior change experts (i.e., active in their field and engaged in investigating, designing, and/or delivering behavior change interventions). We initially identified 12 experts as suitable candidates to participate in the classification and processes. Experts were identified from scientific networks (e.g., professional and scientific societies, authorship in leading articles in peer-reviewed journals) on the basis of knowledge of BCTs and/or experience of designing or delivering MI interventions. Of the twelve approached, ten agreed to participate. The final number was considered appropriate to arrive at consensus and compares favourably to numbers of experts adopted in research using similar classification procedures (e.g., Michie et al., 2014; Roth & Pilling, 2008). Three resided in the UK, three in Australia, and one each in Poland, the United States, Canada, and Portugal. Six were health psychologists; two were exercise psychologists and two were practitioners with postgraduate

degrees in exercise and health science. Six had completed the BCTTv1 online training and have certificates to demonstrate competency in coding behavior change techniques in interventions. Of the four without BCTTv1 training, one serves on the International Advisory Board for the Theories and Techniques of Behavior Change Project (2014-2017); another is a registered psychologist with many years' experience with behavior change interventions; the final two are researchers with expertise in conducting research on theory-based behavior interventions. The authors participated in the coding exercise along with another six independent experts. A similar protocol was adopted by Roth and Pilling (2008) where three of the seven participants made up the project team. All participants had good working knowledge of MI and were behavior change experts and half of the participants had designed and delivered several MI interventions (e.g., Fortier, Duda, Guerin, & Teixeira, 2012; Greaves et al., 2008; Hardcastle & Hagger, 2011; Hardcastle, Taylor, Bailey, Harley, & Hagger, 2013; Marques, Guht, Leal, & Maes, 2014).

Procedure. The review involved three steps. The first step involved the identification of the distinct techniques that comprise the MI approach in behavioral interventions in health contexts. This was achieved by conducting a content analysis of Miller and Rollnick's (2013) conceptualization of MI to identify the separate techniques that comprise the approach. The content analysis involved working through the book systematically, section-by-section, and making a note of each MI technique introduced. The analysis was conducted by the lead author and two experts in MI. We did not use other sources to identify MI techniques within MI because Miller and Rollnick's recent conceptualization offers the most recent formulation that takes into account the changes to MI since its inception. Furthermore, the updated conceptualization includes adaptations to previous versions and uses new terminology. For example, previous conceptualizations of MI broke the process of change down into two phases: phase one, building motivation to change; and phase two, strengthening commitment

to change. However, the more recent conceptualization refers to four phases: engaging, focusing, evoking, and planning. In addition, technique labels were also updated. For example, the earlier technique of exploring the 'good things and less good things (about the status quo)' has been labelled as 'running head start' in the 2013 conceptualization. Another example of technique labels that were updated is that of 'amplified reflection' which in 2013 is referred to as 'overshooting'. In order to maintain parsimony and homogeneity in terminology we based the identification of techniques on the latest conceptualization. For the purposes of the present analysis, an MI technique was defined as any single, component of MI that seeks to foster behavior change or engage the client in the intervention. A content technique refers to an MI technique that focuses on the content of the intervention (e.g., goal setting). Relational techniques are defined as MI techniques that refer to interpersonal or delivery style and primarily signify the way in which content-based techniques are presented or delivered. Relational techniques also vary in their function in that may magnify or reduce the effects of content-based techniques. In order to qualify as a MI technique, the intervention technique must (a) contain verbs (e.g., provide, elicit, prompt) that refer to the action(s) taken by the counsellor or interviewer delivering the technique and (b) contain reference to performing a specified health-related behavior or motivation (e.g., motivational, motivating, motivate) to perform a specified health-related behavior. The specified behavior(s) can be engaging in health-promoting behavior(s) and/or refraining from, or avoidance of, health compromising behavior(s). The content analysis was conducted independently by the lead author and another author without knowing each other's extraction of techniques. The two authors then compared notes, and discussed differences. The final document was sent to a third reviewer who reviewed the decisions made and approved or suggested modifications. In relation to the content of discussions between the lead author and two experts, it was an interactive, iterative process in which the lead author initially developed the list that was

subsequently checked by two others for agreement and discussion with continued iterations until any discrepancies were eliminated and agreement was reached. Any discrepancies were discussed until agreement was reached. For example, the lead author initially coded 'develop discrepancy' as an MI technique but following discussion, it was agreed that it was in fact a parameter and not a technique of itself. The specific techniques to develop discrepancy included values exploration and looking forward as examples.

The second step involved collating each MI technique alongside a clear definition derived by expert consensus. The definitions for each technique were taken from Miller and Rollnick's latest conceptualization. The table was circulated to ten independent experts who were asked to code the definitions according following questions: a) "Please indicate whether the MI technique is relational or content-based"; b) Are you are satisfied that the MI technique is conceptually unique within MI? with responses made on a three-point scale with 1 corresponding to 'unique', 2 corresponding to 'redundant', and 3 corresponding to 'overlapping'); "If you consider the technique redundant or overlapping with others, please explain why"; c) "Does the list omit any other techniques that you consider part of MI? If so, which?" The second step included two rounds of coding/re-coding and feedback prior to the final list. In the first round, some techniques were dropped due to overlap. For example, the technique 'imagined future if status quo is sustained' was dropped because it was considered the same technique as 'looking forward' and another technique 'identifying strengths and past successes' was broken down into two separate techniques: 'identify strengths' and 'identify past successes'. Also, 'offer emotional support' was considered to include three separate techniques and was subsequently broken down into affirmation, review outcome goal and offer emotional support. An additional six techniques that were not identified in the first round were added to the list of MI techniques and circulated to the experts for coding including: affirmation, hypothetical thinking, normalizing, overshooting, undershooting,

double-sided reflection, and review outcome goal.

The third step of the review involved undertaking a direct comparison of the constructed list of techniques used in MI and comparing each technique with the BCTTv1 (2013). The aim was to identify techniques that could be closely aligned with those outlined in the existing taxonomy and to identify techniques that appeared to be unique to MI and not included in the existing taxonomy. The independent experts were emailed the table of MI techniques along with definitions for the 93 existing BCTs (supplemental online material from Michie et al.) and asked to independently code the MI techniques alongside the taxonomy, with a view to identifying techniques that were unique to MI and those that were closely aligned in content with existing BCTs. The independent experts were instructed to evaluate each MI technique by responding to the following questions: 1) Please indicate whether you are satisfied that the technique is conceptually unique (score 1 for unique, 2 redundant, 3 overlapping); 2) Taking each one in turn, do you think the technique is clear, precise and distinct (each a separate score) (1= definitely yes, 2= probably yes, 3= not sure, 4= probably no, 5= definitely no). The final question was used to evaluate the uniqueness of the technique in comparison to the BCTTv1. Specifically, experts were asked: "Do you think the technique can be matched to an existing behavior change technique from the 93 taxonomy? (coded 1 = yes, 2 = no). If raters responded "yes" to question 2, they were asked to identify the overlapping technique from the BCTTv1 and provide a justification. Participants' consensus in coding the set of techniques as unique, clear, precise, and distinct was established through intra-class correlation (R) and its 95% confidence intervals (95% CI) across techniques and raters.

Results

The list of MI techniques with definitions and examples developed from the content analysis of Miller and Rollnick's (2013) conceptualization can be found in Table 1. Our

initial content analysis identified 38 separate MI techniques. The analysis identified 16 relational and 22 content-based MI techniques. In Table 1, these techniques have been allocated to the four phases of MI: engaging, focusing, evoking, and planning. The ten raters independently evaluated whether each of MI techniques identified in the content analysis was independent and 'standalone' and flagged any overlap or redundancy across the MI techniques and the behavior change techniques from the BCTTv1. Intraclass correlations (R) revealed that participants exhibited good consensus on ratings of uniqueness (R = .829, 95% CI [.738 .898], $p < .001$), clarity (R = .747, 95% CI [.656, .838], $p < .001$), preciseness (R = .806, 95% CI [.702, .804], $p < .001$), and distinctiveness (R = .936, 95% CI [.901, .962], $p < .001$) for the techniques. Of the 38 MI techniques, 16 were considered to be conceptually equivalent in content to behavior change techniques in BCTTv1.

Table 1 provides an concise overview of the identified MI techniques, according to stage: engaging, focusing, evoking, and planning identified by Miller and Rollnick (2013). A more detailed overview of MI techniques with further examples is provided as an online supplemental table (see Appendix A in online supplemental materials). Within Table 1, the motivational techniques within MI considered to overlap with those from the BCTTV1 are displayed in a bold typeface.

Four MI techniques were deemed to have some partial overlap with existing behavior change techniques. However, we opted to keep them separate and classified as unique to MI. These were *elicit-provide-elicit* that shared with some similarities to 'information on health consequences'; *affirmations* with some similarities to 'verbal persuasion about capability'; *hypothetical thinking*, with some similarities to 'mental rehearsal of successful performance'; and *consider change options*, with some similarities to 'action planning'. Our rationale for retaining each of the four techniques as unique MI techniques is provided as an online supplemental table (see Appendix B in online supplemental materials).

Sixteen of the MI techniques were matched, with complete consensus among participants, to techniques from the BCTTv1 and the matches are displayed in in Table 1 in a bold typeface. It should be noted that all of the MI techniques that were matched to a technique from the BCTTv1 were content-based with the exception of *offer emotional support*.

Discussion

Motivational interviewing is recognized as an important approach to behavior change in multiple health contexts (Armstrong et al., 2011; Befort et al., 2008; Bennett et al., 2007; Carels et al., 2007; Hardcastle et al., 2008; Heckman et al., 2010; Jenson et al., 2011; Lai et al., 2010; O'Halloran et al., 2014). MI has also been recognised as a complex approach to interventions comprising multiple techniques (Michie et al., 2013; Miller & Rollnick, 2013). We contend that if knowledge of the effectiveness of MI-based interventions is to be improved, the identification and isolation of the individual MI techniques that lead to health behavior change and cannot be further reduced to smaller components is needed. Our aim was to identify the unique techniques that comprise the MI approach which have, thus far, not been identified in the research literature. A further goal of the current research was to make the distinction between techniques that relate to the content of interventions that change behavior and techniques that focus on the interpersonal or relational style adopted by the practitioner delivering the intervention. The literature on MI places considerable emphasis on relational techniques and it is an essential part of the approach (Miller & Rollnick, 2013). A key aim of the present study was, therefore, to identify the unique techniques used in MI and examine the relationship between the MI techniques and those in the BCTTv1 (2013). Our content analysis identified 38 discernable, separate techniques within MI and the participating experts (n = 10) exhibited good consensus on ratings of clarity, preciseness, and distinctiveness across the techniques. Of the 38 MI techniques, 16 were conceptually matched

by consensus to techniques from the BCTTv1. Twenty-two of the MI techniques were classified as 'content' based and 16 were classified as relational.

Given that almost half of the MI techniques were classified as relational, it seems that intervention approaches like MI that are delivered by a practitioner should pay close attention to the role of relational techniques in promoting behavior change (Hagger & Hardcastle, 2014). To date, techniques classified in behavior change taxonomies focus exclusively on intervention content and do not include the interpersonal aspects of interventions. One of the defining features of MI and its techniques is the prominence afforded to interpersonal style, that is, the manner or 'way' in which intervention content is delivered or expressed to clients. The relational techniques are likely to interact with other content-only behavior change techniques in affecting behavior change. The relational techniques are likely to be parallel to techniques that focus exclusively on content such that an intervention will combine content and relational techniques to maximise effectiveness. We have explicitly made the distinction between relational and content-based techniques in our identification of techniques arising from the MI approach.

Our research builds on and extends previous work that has attempted to identify the competencies, foundations and parameters required for the delivery of effective behavior change interventions (Dixon & Johnston, 2011; Kok et al., 2015; Roth & Pilling, 2008). Previous work has identified specific competencies, in particular, the communication skills necessary to develop an effective alliance. However, the previous research did not identify or isolate the particular techniques that would manifest such competencies. For example, Roth and Pilling (2008) identified the ability to work in a collaborative manner as a core competency but did not isolate the techniques that could be adopted to promote better collaboration in practitioner-client interactions. The present study has identified the following relational techniques within MI that focus on fostering collaboration: agenda mapping,

typical day, and permission to provide information. The present study makes a unique contribution to the literature by identifying and isolating the relational techniques that demonstrate such competencies. Many of these relational techniques could have a wider appeal than MI and be used effectively to engage clients in many other behavior change interventions. Future research needs to determine whether the relational techniques moderate the effect of the content techniques, and the current analysis provides researchers with the tools to do so.

Michie et al. (2013) acknowledge that "mode and context of delivery, and competence of those delivering the intervention would… benefit from being specified by detailed taxonomies" (p. 93). In the current research we made the distinction between content and delivery components and classified them as separate content and relational techniques within MI. Such a distinction has not been made in previous taxonomies, and we view the inclusion of relational techniques as a step forward in the development of a comprehensive organisation of the components MI interventions. We also expect these findings to make a contribution to taxonomies of behavior change techniques in general as the inclusion of relational techniques may assist in further developing the sets of components that comprise behavior change interventions. Descriptions of content-only behavior change techniques, such as goal-setting, do not capture the relational components of the intervention by which that content could be delivered. For example, goal-setting could be delivered empathetically using open-ended questions, affirmation and reflections, or delivered didactically using pencil and paper methods. We have demonstrated that experts can and do make the distinction between relational and content, and that MI comprises separate sets of individual techniques in both categories.

We have identified that 22 of the techniques within MI are unique and do not appear to have any overlap with behavior change techniques in existing taxonomies. The majority of

the unique MI techniques can be found in the engaging and evoking phases of MI that seek to establish a rapport between client and practitioner and seek to increase client-change talk and confidence for change respectively. The other techniques identified as unique to the existing taxonomy are those that are relational and seek to reduce sustain talk and develop discrepancy between current behavior and goals and emphasize collaboration, acceptance, and client autonomy. The relational techniques of MI identified in the current research could feasibly pave the way for a systematic evaluation of the effects of the relational techniques alongside content-based techniques to determine how the techniques act together to bring about health behavior change. For example, open-ended questions can be used 'to engage the client', but can also be used to explore past experiences, explore possible reasons for wanting to change (or not) and as a way of delivering almost any intervention whether MI or not. These relational techniques could also be used in any behavior change interventions regardless of its theoretical persuasion.

Our current analysis focused on the identification of MI techniques rather than mechanisms of change. Future work should further explore the mechanisms of change in MI, and identify the likely candidate mediators. Such mediators are likely to include self-efficacy, development of discrepancy, increased client change talk, reduced client sustain talk, autonomy, relatedness and commitment. We expect our current work to pave the way for research that taps these mechanisms. The development of experimental or intervention research that uses factorial designs to systematically test the effect of the presence or absence of isolated techniques from MI on health behavior, and the psychological factors that mediate the effect, will move the field forward in providing mechanistic explanations.

In terms of future research using the proposed set of identified MI techniques, it should be made clear that an MI intervention does not need to use every technique that has been isolated in the current analysis Further, it is important that authors explicitly mention all

of the isolated MI techniques adopted in an intervention as the techniques used can only be coded using the taxonomy when they are explicitly mentioned in the intervention description. Failure to list the techniques used in an intervention explicitly would impair the ability to researchers to identify the specific MI techniques used in the intervention and, as a consequence, inhibit efforts to compare and contrast the techniques of different MI interventions.

Conclusion, Strengths, and Limitations

Behavior change interventions adopting MI are usually complex and a description of its components via a simple 'absent' vs. 'present' distinction is inadequate and prevents the identification of the effective components and processes by which the intervention leads to behavior change. Such limited descriptions hinder the advancement of behavioral interventions. We propose that descriptions of MI interventions should identify the unitary techniques that comprise the interventions. Based on current findings, such a description should entail both content and relational components, that is, individual techniques that relate it to what is included in an intervention and how it is delivered. Our proposal is that MI comprises multiple techniques that can be content or relational. Behavior change technique taxonomies are generally silent on techniques that relate to the style of delivery of behavior change intervention content. Such techniques have been excluded from existing BCT taxonomies as only techniques that target the key behavior are coded. The study reports important findings showing that there are additional techniques that should be specified in addition to behavior change techniques, if we are to fully describe interventions. The effectiveness of MI in changing behavior is likely the result of interactions between content and relational techniques. Isolating the components of MI into multiple standalone techniques (Table 1) represents an initial step toward the identification of a 'MI taxonomy'. If the techniques of MI responsible for behavioral engagement and change can be isolated, then

more efficient MI-based interventions that are likely to be effective in bringing about behavior change can be developed. We also anticipate that the relational techniques identified in our analysis could have wider appeal and be adopted in a broad spectrum of behavior change interventions using other 'content' based behavior change techniques.

The analysis presented here is not without limitations. First, our analysis relies on one source of MI (Miller & Rollnick, 2013) and could have been derived from further sources, although Miller and Rollnick's (2013) conceptualization of MI is drawn from updates in research and practice. Another limitation is that our analysis is not a definitive account and other interpretations may exist. We do not see our analysis as being definitive on the issue of the classification of MI techniques. Rather, we view our classification as one that is flexible and modifiable, that can be reviewed and updated as MI progresses and changes with practice. However, we have attempted to offer a credible account of MI techniques through using multiple experts and a rigorous consensus process.

We encourage researchers to use our analysis of MI techniques to develop intervention studies with factorial designs using specific techniques from MI in isolation and in combination. For example, the effectiveness of content-related behavior change techniques alone or in combination with relational techniques would assist in identifying which techniques, or combination of techniques, is most effective. The development of an evidence base will also have important implications for practice, particularly in assisting practitioners using MI to adopt the appropriate isolated techniques likely to be most effective in changing behavior (Douaihy et al., 2014).

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Table 1

Summary of Motivational Interviewing Techniques

Technique Number	Technique	Definition	Example of Technique	Techn define Conte Relati
	ENGAGING TECHNIQUES:			
1.	Open-ended questions	The counsellor asks questions that cannot be answered with a limited response (i.e., yes, no, maybe, twice).	"What have you tried before to make a change?" and "How can I help with xxx?"	Relati
2.	Affirmation	The counsellor provides a statement of affirmation that acknowledges the client's difficulties, efforts and self-worth.	"I've enjoyed talking with you today"	Relati
3.	Reflective Statements	The counsellor paraphrases client comments by repeating back what the client has said.	Simple reflections: "It sounds like you…" or "The message I'm getting is that…"	Relati
4.	Summary Statements	The counsellor pulls everything together that the client has said and offers a summary.	"So on the one hand you feel that xxx and on the other xxx"	Relati
	FOCUSING TECHNIQUES:			
5.	Agenda Mapping	The counsellor prompts the client to consider the way ahead and which behavior they are motivated to discuss.	"I usually talk to people in a situation like yours about diet, exercise, that sort of thing. Which of these do you feel you would like to talk about?"	Relati
6.	Review a Typical Day	A prompt from the counsellor to build rapport while collecting information.	"Can we spend the next 5 minutes going through a typical day for you from beginning to end, and where (behaviour) fits in?"	Relati
7.	Permission to provide information and advice	The counsellor obtains the permission of the client before providing information or advice.	"Would it be helpful if I tell you what has worked for other people or what they have found useful?"	Relati
8.	Elicit-Provide-Elicit	The counsellor first elicits the client's understanding and need for information, then provides information in a neutral manner, followed by eliciting what this information might mean for the client.	"Tell me what you already know about type II diabetes? " (counsellor elicits) "I'd like to share with you some information about what diabetes is and how it can be most effectively managed. Would that be ok with you?" (counsellor seeks to provide)	Conte

	EVOKING TECHNIQUES:			
9.	**Running Head Start**	A strategy for eliciting client motivational talk in which the counsellor asks open questions to first explore the perceived "good things" about the status quo, in order to then query the "not so good things "about the status quo.	"What are the good things about (the status quo)?" "What are the not so good things about (the status quo)?" "What are the not so good things about changing (behavior)?"	Conte
10.	Importance Ruler	The counsellor asks open questions, using an importance ruler to explore the client's motivation in terms of how important it is to make a behavior change. A scale (typically 0-10) is often used to ask clients to rate the importance of making a particular change.	"How important would you say it is for you to xxx?" On a scale of 0 to 10, where 0 means not at all important and 10 means 'the most important thing for me right now', how important would you say it is for you to xxx?"	Conte
11.	Confidence Ruler	The counsellor asks open questions, using a confidence ruler to explore the client's motivation in terms of how confident they are to make a behavior change. A scale (typically 0-10) is often used to ask clients to rate their confidence in making a particular change.	"Again if 0 stands for not at all confident and 10 stands for very confident, what number would you give yourself and why?"	Conte
12.	DARN Questions	The counsellor uses DARN questions (open-ended questions) that seek to elicit four subtypes of client motivational talk. These four subtypes are: Desire, Ability, Reason and Need.	"What do you hope our work together will accomplish" (D) "How would you do it if you decided to" (A)	Conte
13.	**Looking Forward**	The client is prompted to envision two possible futures. The first 'future' is if they continue on the same path without any changes where they might be five or ten years from now. The second future is if they decide to make a change, what their future might look like.	"If you were to change what would it be like?" How would you feel? How would things be different?"	Conte
14.	Looking Back	The client is prompted by the counsellor to talk about what life was like 'before'. The goal is for the client to observe how they have changed over time which may enhance motivation to return to a previous way of being.	A client may say: "I wasn't always this way" and the counsellor may say: "It sounds like things have changed over time. Tell me about your eating habits back then".	Conte
15.	Hypothetical thinking	The counsellor prompts the client to adopt hypothetical thinking to elicit ideas about behavior change.	"Suppose that you did decide to change (behavior) how would you go about it?"	Conte
16.	**Query Extremes**	A technique used to evoke change talk by asking clients to imagine best consequences of change or worst consequences of status quo.	"Suppose you did not change, what is the WORST thing that might happen?"	Conte
17.	**Identify Past Successes**	The counsellor prompts the client to think about previous successes at behavioral changes to build confidence for change.	"What have you learnt from previous attempts to change?"	Conte

18.	**Identify Strengths**	The counsellor prompts the client to draw out their strengths and the relevance of these strengths to making successful behavioral changes.	"What are your key strengths?"	Conte
19.	Brainstorming	The counsellor prompts the client to generate a menu of options.	"What are your ideas about how you could change (behavior)?"	Conte
20.	**Troubleshooting**	The counsellor prompts the client to think about potential barriers and identify ways of overcoming them in order to strengthen motivation.	"Suppose that this one big obstacle weren't there. If that obstacle were removed, then how might you go about making this change?"	Conte
21.	**Values Exploration (open or structured)**	The counsellor prompts the client to explore his or her values and how the behavior fits in with these values. The counsellor may ask the client to describe their main goals and values in life. For structured values exploration, see Appendix A.	"What things are most important to you?" or "What do you most want in life?" and "How do your eating practices fit in with your goals and values?"	Conte
22.	**Reframing**	A counsellor reflective statement that invites the client to consider a more positive and motivational interpretation of what has been said.	"I can't do it" to "So you find it difficult to …"	Conte
23.	Double- sided Reflection	The counsellor provides a double sided reflection to capture client ambivalence and communicate to the client that the counsellor heard their reasons both for and against change.	"On the one hand, you would like to change XX, but on the other hand changing XX would mean giving up Xx" or "you are torn about changing xx"	Relati
24.	Emphasise autonomy	The counsellor provides a statement that directly expresses motivational support, acknowledging the client's ability for choice and self-determination.	"Do you have any ideas on how we may resolve this dilemma?"	Relati
25.	Overshooting	Overshooting is a motivational technique provided by the counsellor to argue against change by exaggerating the benefits of or minimizing the harm associated with a risky behavior.	"So you see no benefit in changing XX" or "XX is all positive for you". The counsellor, by arguing against change can exhaust the client's negativity.	Relati
26.	Undershooting	A reflective statement, provided by the counsellor that understates slightly what the client has offered. By slightly understating the expressed intensity of emotion, the client is more likely to continue exploring and telling the counsellor about it.	The client says "I'm out of breath even walking up the stairs" and the counsellor responds with: "You're beginning to notice that everyday activities are more difficult"	Relati
27.	Coming Alongside	A counsellor response to persistent resistance talk or discord in which the counsellor accepts and reflects the client's resistance.	"Perhaps now is not the right time to be thinking about change?"	Relati
28.	Shifting Focus	A counsellor responds to discord and low level of motivation by redirecting attention and discussion to a less	"Since you've been forced to come here, what would you like to do with the time we have left together	Relati

		contentious topic or perspective.	today"	
29.	Agreement with a Twist	A reflection whereby the counsellor reframes a negative comment by the client into a more positive response.	"I have no will power" to "So you're saying that you have little confidence"	Relati
30.	**Normalizing**	The counsellor communicates to clients that having difficulties while changing is not uncommon.	"Many people report feeling like you do. They want to lose weight, but find it difficult"	Conte
	PLANNING TECHNIQUES:			
31.	**Explore Change Expectations**	The counsellor prompts the client to identify the outcomes that the client expects to achieve based on the changes that they are motivated to make.	"Thinking about the benefits of (behavior) that you've just been describing, what kinds of changes to your current level of (behavior) are you prepared to make?	Conte
32.	Consider Change Options	The counsellor prompts the client to consider change options in a neutral and supportive manner.	"How might you go about xxx?	Conte
33.	**Develop a Change Plan (CATs)** C= Commitment A= Activation T= Taking steps	The counsellor prompts the client to develop a specific change plan that the client is motivationally ready to accept.	"What do you intend to do specifically?" © "What would be a good first step?" (A) "When and how will that step be taken?" (T)	Conte
34.	**Goal attainment Scaling**	A way to specify degrees of change towards the goal and focus motivation using a -3 to +3 scale where 0 is the status quo at the outset. The counsellor prompts the client to rate their goals on a scale ranging from the best possible outcome to the worst possible outcome.	Rate a weight loss goal on a scale ranging from -3 (most unfavorable outcome): gain 5kg in one month to +3 (most favorable outcome): lose 5kg in one month where 0 is the status quo (remain at current weight)	Conte
35.	**Support Change/ Persistence**	The counsellor functions as a partner or companion, collaborating with the client's own expertise.	"How can I best support you?"	Relati
36.	**Offer Emotional support**	The counsellor offers reassurance, to the client.	"I appreciate how difficult this is"	Relati
37.	**Review Outcome goal**	The counsellor asks the client how they are progressing with their goals.	"How are you progressing with your goal?"	Conte
38.	**Summarise the Plan**	The counsellor summarises the change plan including the specific behavioral goals, the reasons for making the change, the specific steps to be taken, the outcome goals and coping planning for relapse prevention.	"So you've decided you are going to …This is because…" "Specifically, you are going to…You will know if the plan is working if…"	Conte

Note. Techniques in bold typeface overlap with techniques from BCTTv1.

Appendix A

Table of Motivational Interviewing Techniques

Technique Number	Technique	Definition	Example of Technique	Technique defined as Content or Relational	Exis Mic taxo defi
	ENGAGING TECHNIQUES:				
1.	Open-ended questions	The counsellor asks questions that cannot be answered with a limited response (i.e., yes, no, maybe, twice). *Elaboration* is also a technique used within MI that uses open-questions to ask for additional detail, clarification or an example related to motivational talk. *Testing the water* is another technique where the counsellor asks the client open questions to explore how willing and motivationally ready the client is to make a decision.	"What have you tried before to make a change?" and "How can I help with xxx?" Example of elaboration: "When you think about needing more exercise, what kinds of exercise do you see yourself doing?" Or in response to a client saying "I probably need to change how I eat", the counsellor may seek elaboration by asking: "What kinds of change Example of testing the water include: "So what's the next step for you?" "What do you think you might do?"	Relational	Non
2.	Affirmation	The counsellor provides a statement of affirmation that acknowledges the client's difficulties, efforts and self-worth. Counsellor affirmations comment on something good about the client.	"I've enjoyed talking with you today" "Your intention was good even if things didn't turn out as you would like" Your intention was good even if things didn't turn out as you would like" "You handled that situation very well"	Relational	Part 15.1 abou

				"You got really discouraged this week and you still came back .You're persistent!"		
	3.	Reflective Statements	The counsellor paraphrases client comments by repeating back what the client has said. Different types of reflective statements and more complex reflections have been separated into distinct techniques.	Simple reflections provided by the counsellor include: "It sounds like you…" or "The message I'm getting is that…"	Relational	Non
	4.	Summary Statements	The counsellor pulls everything together that the client has said and offers a summary. *Recapitulation* is a particular type of summary provided by the counsellor that collects and selectively emphasizes the client's motivational talk.	"This is what I've heard. Tell me if I missed anything" or "so on the one hand you feel that xxx and on the other xxx" Example of a Recapitulation: "So you mention several reasons for working on healthy eating and meal planning, including being able to reduce the number of medications you're on for taking diabetes. You are frustrated by previous attempts to work on your weight, but you have had some success in the past. I would like to help you develop a plan that will work for you"	Relational	Non
		FOCUSING TECHNIQUES:				
	5.	Agenda Mapping	The counsellor prompts the client to consider the way ahead and which behavior they are motivated to discuss.	"I usually talk to people in a situation like yours about diet, exercise, that sort of thing. Which of these do you feel you would like to talk about?"	Relational	Non
	6.	Review a Typical Day	A prompt from the counsellor to build rapport while collecting information.	"Can we spend the next 5 minutes going through a typical day for you from beginning to end" Then could you	Relational	Non

				also tell me where your (behavior) fits in?		
7.		Permission to provide information and advice	The counsellor obtains the permission of the client before providing information or advice.	"Would it be helpful if I tell you what has worked for other people or what they have found useful?" "There are usually not one, but many possible courses of action. I can tell you what has worked for other people, if you think that would help you at all?"	Relational	Non
8.		Elicit-Provide-Elicit	The counsellor first elicits the client's understanding and need for information, then provides new information in a neutral manner, followed by eliciting what this information might mean for the client. MI practitioners avoid trying to persuade clients with pre-digested health messages and instead allow clients to process information and find what is personally relevant for them. The process that begins and ends with exploring the client's own perceptions to frame whatever information is being provided to the client. The following is an example of the elicit-provide-elicit strategy in practice.	"Tell me what you already know about type II diabetes? " (counsellor elicits) "I'd like to share with you some information about what diabetes is and how it can be most effectively managed. Would that be ok with you?" (counsellor seeks to provide) "I've given you a lot of information about diabetes and about managing it. What thoughts or questions do you have about what I have said" (counsellor elicits)"	Content	Part info heal
		EVOKING TECHNIQUES:				
9.		**Running Head Start**	A strategy for eliciting client motivational talk in which the counsellor asks open questions to first explore the perceived "good things" about the status quo, in order to then query the "not so good things "about the status quo. The counsellor then asks open questions to explore the cons of changing	"What are the good things about (the status quo)?" "What are the not so good things about (the status quo)?" "What are the not so good things about changing (behavior)?"	Content	Pros 9.2: to id reas (pro to (c beha 'Dec

			the behavior and the benefits of change.	"What would be the good things about changing (the status quo)?"		
	10.	Importance Ruler	The counsellor asks open questions, using an importance ruler to explore the client's motivation in terms of how important it is to make a behavior change. A scale (typically 0-10) is often used to ask clients to rate the importance of making a particular change. Once the client has responded with a number, the counsellor continues to ask open questions to understand the reasons for the score and to seek the elicitation of change talk.	"How important would you say it is for you to xxx?" On a scale of 0 to 10, where 0 means not at all important and 10 means 'the most important thing for me right now', how important would you say it is for you toxxx?" "You gave yourself a score of x. Why are you an x and not (a lower number)?.."What stops you from moving up from an x (lower number) to a y (higher number)?"	Content	Non
	11.	Confidence Ruler	The counsellor asks open questions, using a confidence ruler to explore the client's motivation in terms of how confident they are to make a behavior change. A scale (typically 0-10) is often used to ask clients to rate their confidence in making a particular change. Once the client has responded with a number, the counsellor continues to ask open questions to understand the reasons for the score and to seek the elicitation of change talk	"If you decided right now that you wanted to xxx, how confident do you feel about succeeding with is? "Again if 0 stands for not at all confident and 10 stands for very confident, what number would you give yourself and why?" "You gave yourself a score of x. Why are you an x and not (a lower number)? ...What stops you from moving up from an x (lower number) to a y (higher number)?	Content	Non
	12.	DARN Questions	The counsellor uses DARN questions (open-ended questions) that seek to elicit four subtypes of client motivational talk. These four subtypes are: Desire, Ability, Reason and Need.	"What do you hope our work together will accomplish" (D) "How would you do it if you decided to" (A) "Why would you want to make this change?" (R)	Content	Non

				"How important is it for you to lose weight and why" (N)		
13.		**Looking Forward**	The client is prompted by the counsellor to envision two possible futures and in doing so builds motivation for change. The first 'future' is if they continue on the same path without any changes where they might be five or ten years from now. The second future is if they decide to make a change, what their future might look like.	"If you were to change what would it be like?" How would you feel? How would things be different?" "Suppose that you did succeed. And were looking back on it now. What most likely is it that worked? How did it happen?" "If you decide that now is not the time for you to change and we meet up in a couple of years, what would things be like for you? What about that concerns you the most? "What may happen if things continue as they are?"	Content	Con of fu 9.3: the i com outc vers beha
14.		Looking Back	The client is prompted by the counsellor to talk about what life was like 'before'. The goal is for the client to observe how they have changed over time which may enhance motivation to return to a previous way of being.	A client may say: "I wasn't always this way" and the counsellor may say: "It sounds like things have changed over time. Tell me about your eating habits back then".	Content	Non
15.		Hypothetical thinking	The counsellor prompts the client to adopt hypothetical thinking to elicit ideas about behavior change.	"Suppose that you did decide to change (behavior) how would you go about it?" "If you had given up smoking and were looking back on it now, how might that have happened "	Content	Part 15.2 of su perf
16.		**Query Extremes**	A technique used by the counsellor when the client has expressed little	"Suppose you did not change, what is the WORST thing that	Content	Sali Con

			motivation for change. The counsellor seeks to evoke change talk by asking clients to imagine best consequences of change or worst consequences of status quo.	might happen?" "What is the BEST thing you could imagine that could result from change"		5.5: awa expe regr perf unw
	17.	**Identify Past Successes**	The counsellor prompts the client to think about previous successes at performing the behavior or making other behavioral changes to build motivation and confidence for behavioral change.	"What have you learnt from previous attempts to change?" "Is there anything that you found helpful in any previous attempts to change"	Content	Focu 15.3 abou succ the l it)
	18.	**Identify Strengths**	The counsellor prompts the client to draw out their strengths and the relevance of these strengths to making successful behavioral changes.	"What are your key strengths?"	Content	Valu 13.4 to w ratin cher pers mea pers of a strat affir
	19.	Brainstorming	The counsellor prompts the client to generate a menu of options without initially critiquing them as a motivational tool.	"What are your ideas about how you could change (behavior)? "	Content	Non
	20.	**Troubleshooting**	The counsellor prompts the client to think about potential barriers and identify ways of overcoming them in order to strengthen motivation.	"Suppose that this one big obstacle weren't there. If that obstacle were removed, then how might you go about making this change?" Together we could brainstorm some possible solutions and then explore which might work best: What do you think?"	Content	Prob 1.2: pron anal influ beha or s incl barr incr (inc Prev 'Co
	21.	**Values Exploration (open or structured)**	The counsellor prompts the client to explore his or her values and how the behavior fits in with these values as a strategy to build intrinsic motivation for change. The counsellor may ask the client	"What things are most important to you?" or "What do you most want in life?" and "How do your eating practices fit in with your goals and values?"	Content	Valu 13.4 to w ratin cher pers

			to describe their main goals and values in life. The same strategy can also be applied by using a set of cards, each of which describes a characteristic such as 'conscientious' or 'shy'. The client is asked to sort them into 5-9 piles ranging from "very unlike me" to "very much like me" to explore the client's top 5-10 values and help the client to see the link between their behavior and values.	"Which of these (refer to a list of values, attributes, goals) are most important to you…what connection, if any, do you see between your current health behavior and your ability to achieve these goals or to live out these values?"		mea pers of a strat 'Sel
22.		**Reframing**	A counsellor reflective statement that invites the client to consider a more positive and motivational interpretation of what has been said.	"I can't do it" to "So you find it difficult to …"	Content	Refi 13.2 deli pers pers (e.g orde cogn abou beha 'Cog
23.		Double- sided Reflection	The counsellor provides a double sided reflection to capture client ambivalence and communicate to the client that the counsellor heard their reasons both for and against change; that the counsellor understands the decision is complex.	"On the one hand, you would like to change XX, but on the Other hand changing XX would mean giving up Xx" or "you are torn about changing xx"	Relational	Non
24.		Emphasise autonomy	The counsellor provides a statement that directly expresses motivational support, acknowledging the client's ability for choice and self-determination.	"Do you have any ideas on how we may resolve this dilemma?"	Relational	Non
25.		Overshooting	Overshooting is a motivational technique provided by the counsellor to argue against change by exaggerating the benefits of or minimizing the harm associated with a risky behavior.	"So you see no benefit in changing XX" or "XX is all positive for you". The counsellor, by arguing against change can exhaust the client's negativity. In response, clients will often then reverse their course, and start to argue for change.	Relational	Non

	26.	Undershooting	A reflective statement, provided by the counsellor that understates slightly what the client has offered. By slightly understating the expressed intensity of emotion, the client is more likely to continue exploring and telling the counsellor about it.	The client says "I'm out of breath even walking up the stairs" and the counsellor responds with: "You're beginning to notice that everyday activities are more difficult"	Relational	Non
	27.	Coming Alongside	A counsellor response to persistent resistance talk or discord in which the counsellor accepts and reflects the client's resistance.	"Perhaps now is not the right time to be thinking about change?"	Relational	Non
	28.	Shifting Focus	A counsellor responds to discord and low level of motivation by redirecting attention and discussion to a less contentious topic or perspective.	"Since you've been forced to come here, what would you like to do with the time we have left together today"	Relational	Non
	29.	Agreement with a Twist	A reflection whereby the counsellor reframes a negative comment by the client into a more positive response.	"I have no will power" to "So you're saying that you have little confidence"	Relational	Non
	30.	**Normalizing**	The counsellor communicates to clients that having difficulties while changing is not uncommon. Normalizing is not intended to make clients feel comfortable with not changing; rather it is to help them understand that many people experience motivational difficulties when they attempt to change a behavior.	"Most people report both good and less good things about changing their [target behavior]" or "Many people report feeling like you do. They want to lose weight, but find it difficult"	Content	Soci 6.2: othe allo the perf *bein* *does* *mea* *com* *taki*
		PLANNING TECHNIQUES:				
	31.	**Explore Change Expectations**	The counsellor prompts the client to identify the outcomes that the client expects to achieve based on the changes that they are motivated to make.	"Thinking about the benefits of (behavior) that you've just been describing, what kinds of changes to your current level of (behavior) are you prepared to make? "What do you think would happen if you did try that option?"	Content	Goa 1.3: goal a po wan

				"If you did xxxx how long do you think it will be before you start to notice changes and what kind of things do you think you will see first?"		
	32.	Consider Change Options	The counsellor prompts the client to consider change options in a neutral and supportive manner that consciously avoids guiding a client toward one particular choice and instead explores all the available options.	"How might you go about xxx? "What are the things you could do?"	Content	Part Acti
	33.	**Develop a Change Plan (CATs)** C= Commitment A= Activation T= Taking steps	The counsellor prompts the client to develop a specific change plan that the client is motivationally ready to accept.	What do you intend to do specifically?" (C) "Is that what you intend to do"(C) "How ready are you to do that?" (C) "What are you willing or ready to do?" (A) "What would be a good first step?" (A) "When and how will that step be taken?" (T)	Content	Acti 1.4: plan perf beha at le freq inter be e (phy inter emo
	34.	**Goal attainment Scaling**	A way to specify degrees of change towards the goal and focus motivation using a -3 to +3 scale where 0 is the status quo at the outset. The counsellor prompts the client to rate their goals on a scale ranging from the best possible outcome to the worst possible outcome.	Rate a weight loss goal on a scale ranging from -3 (most unfavorable outcome): gain 5kg in one month to +3 (most favorable outcome): lose 5kg in one month where 0 is the status quo (remain at current weight)	Content	Rev goal 1.5: goal pers mod beha strat achi lead sam char setti inste addi no c
	35.	**Support Change/ Persistence**	The counsellor functions as a partner or companion, collaborating with the client's own expertise.	"How can I best support you?"	Relational	Soci (uns 3.1:

36.	**Offer Emotional support**	The counsellor offers reassurance, to the client.	"I appreciate how difficult this is" "If I was experiencing what you are, I can imagine that I would feel the same way"	Relational	
37.	**Review Outcome goal**	The counsellor asks the client how they are progressing with their goals.	"How are you progressing with your goal?"	Content	
38.	**Summarise the Plan**	The counsellor summarises the change plan including the specific behavioral goals, the motivational reasons for making the change, the specific steps to be taken, the outcome goals and coping planning for relapse prevention. The overarching aim of the summary is to strengthen commitment to change and establish a clear plan of action. The following elements would be used by the counsellor in summarizing a change plan and these elements may be written down using pen and paper for the client to take away.	"So you've decided you are going to …" "This is because…" "Specifically, you are going to…" "You will know if the plan is working if…" "Some of the things which might get in the way of your plan include xxx and you will deal with this by…"	Content	

Note. Techniques in bold typeface overlap with techniques from BCTTv1.

Appendix B

Rationale for Maintaining Key Motivational Interviewing Techniques as Independent of Existing Behavior Change Techniques

MI Technique[a]	Matched BCT[b]	Rationale[c]
Elicit-provide-elicit	Information on health consequences	The elicit-provide-elicit technique was considered to encompass more than mere information about consequences because it included eliciting personal meaning and personal relevance of the consequences. Therefore, the technique is more than an exercise in recognizing consequences (c.f., the 'information on health consequences' technique from the existing BCTTv1). Elicit-provide elicit is also concerned with making meaning of consequences and the evaluation of information about consequences. Finally once information has been provided, the practitioner elicits the client's response to the information. As such, the elicit-provide-elicit is different from either 'instruction on task' or 'information on health consequence' and has been coded as a technique unique to MI.
Affirmations	Verbal persuasion about capability	However in MI, statements of affirmation from the counsellor are not only related to capability but can also be used to acknowledge the client's strengths and efforts.
Hypothetical thinking	Mental rehearsal of successful performance	Hypothetical thinking is not confined to imagining successful performance; it can also be concerned with envisioning how one might change. For example, the MI facilitator might ask the client: "If you had given up smoking and were looking back on it now, how might that have happened?" We therefore opted to classify hypothetical thinking as a technique unique to MI.
Consider change options	action planning	Michie et al.'s (2013) definition of action planning is to "prompt detailed planning of performance of the behavior" (p. 12, supplemental material) and it has been defined as identifying when, where, and how a behavior will be performed (Hagger & Luszczynska, 2014; Schwarzer, 2008) and does not highlight the neutrality of approach or the exploration of available options equally as in the case of MI.

Note. MI = Motivational interviewing; BCT = Behavior change technique. [a]Candidate technique flagged during expert coding process, [b]BCT from existing taxonomies purported to be matched with the MI technique during the expert coding process, [c]Rationale behind retaining the MI technique as unique and independent of the existing BCT.