Motivational interviewing and people with diabetes

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Summary

Motivational interviewing (MI) is an evidence-based method of counselling which is used to enhance intrinsic motivation for change by exploring and resolving ambivalence. Research has shown that it is effective when used to treat substance abuse and a number of other health behaviours. It has also emerged as a useful technique when used for patients with chronic illness, such as diabetes.

The present paper serves to provide an overview of the theory and principles of MI practice and to evaluate its effectiveness as an intervention for patients with diabetes. The results of several recent randomised controlled trials are outlined and the mixed findings suggest that MI can be used as an effective way of enhancing diabetes treatment but that it appears most effective when targeted to one specific behavioural outcome (such as weight loss or dietary adherence). Barriers still exist which restrict its effectiveness and therefore the successful implementation of MI into health care settings. Key issues are discussed such as the importance of standardised training and ensuring treatment integrity. Further research is needed to establish the active underlying mechanisms which are driving change and to ascertain the longer-term benefits of MI to both patients and practitioners. This would help facilitate the successful integration of MI skills and/or practice into routine diabetes care.

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Key words

motivational interviewing; diabetes; glycaemic control; behaviour change

Introduction

Extensive research has shown that effective glycaemic control can prevent long-term complications in diabetes patients.[1,2] Achieving optimal glycaemic control in diabetes can be problematic since the condition is highly self-managed and requires the patient to adhere to recommended lifestyle alterations concerning diet, exercise, alcohol consumption, smoking and drug treatment. Successful management is dependent on the patient and is thus open to complications by the ongoing interaction of psychosocial factors influencing patient behaviour. This has led practitioners to consider the importance of motivation for health behaviour change and prompted research within the past decade to focus on how to enhance patient motivation.[3] Although recent meta-analyses have shown that the exact effect of psychological treatment on glycaemic control in both type 1 and type 2 diabetic patients is yet to be established,[4,5] studies have made some headway using an intervention based around the techniques of motivational interviewing (MI)[6–8] causing it to become a topic of great interest within this field.

This article is designed to provide an overview of MI, outline some of the findings to date showing how it can be applied to diabetes management in a variety of patient sub-groups, and also discuss some of the key issues which have arisen so far.

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What is MI?

Motivational interviewing refers to a communication method first described by Miller in 1983.[9] It was originally conceived as a brief intervention for problem drinkers[10] and was later developed into a coherent theory by Miller and Rollnick in 1991.[11] In this paper, the authors define the practice as a 'directive client-centred counselling style for eliciting behaviour change by helping clients to explore and resolve their ambivalence'. The overall goal is to increase the client's intrinsic motivation so that change arises from within rather than being imposed from external forces. The 'spirit' of MI is an important aspect of the technique and assumes that no person is completely unmotivated and that each person should be allowed the opportunity to make their own behavioural choices.[12]

Theoretical framework

The MI approach was inspired by a number of theoretical models. Prochaska and DiClemente's 'Transtheoretical' or 'Stages of Change' model[13] explains how, for most people, change is a gradual process which involves cycling through a number of phases

repeatedly before establishing a permanent change. The cycle begins with the phase of 'pre-contemplation' then moves to 'contemplation', then to 'planning' and on to 'action' and finally 'maintenance'. Different phases require different skills and aims for the practitioner. It is therefore important that the practitioner identify the client's stage of change when treatment begins so they can tailor their approach accordingly.

Another theory linked to the spirit and method of MI is Bem's self-perception theory[14] which asserts that clients continuously monitor their speech for clues about their attitudes and intent to change such that, if they are aware of themselves arguing in favour of change, they may be more likely to persuade themselves to comply with the required behaviour. This is why it is important for practitioners to attempt to elicit 'change-talk' from clients and reflect it back to them when it occurs.[15]

A number of social cognition models also support aspects of the MI approach. For example, the Health Belief Model,[16] the Health Action Process Approach[17] and the Theory of Planned Behaviour[18] recognise the value of strengthening factors or processes that prompt behaviour change (for example, self-efficacy). The Theory of Self Regulation suggests that personal beliefs influence self-management behaviours so if patients believe 'no symptoms equals no problem' then they will act accordingly.[19] Such personal beliefs therefore need to be addressed using MI centred techniques.

MI principles

A core aspect of the MI approach is the counselling tradition which holds that the patient and practitioner collaborate in partnership to work through the client's barriers to behaviour change. The practitioner must provide a non-judgemental, open and warm environment, demonstrate empathy and place value on the patient's perspective. This is achieved by the use of four key strategies: open questions, affirmations, reflections and summaries, commonly known as the 'OARS'.[20] Asking open-ended questions invites the patient to explore their own reasons for how and why they might change. Affirmations, reflections and summaries act as important listening skills which express empathy, encourage the patient to elaborate and are often the best way in which to respond to patient resistance. The practitioner can also provide information to the patient, but only if the patient shows a need for it and only once the practitioner has asked for permission. The main aim is to increase the amount of 'change-talk' from the patient which can be categorised using the acronym 'DARN' (desire, ability, reason and need) and, at the same time, limit the amount of 'counter-change talk'. Bundy[21] outlines the five core principles which underlie successful MI practice (see Table 1).

- **'Expressing empathy'.** This is a way of demonstrating a real, informed understanding of the patient's predicament and of what maintains their ambivalence
- **'Avoiding argument'.** The practitioner must avoid challenging the patient's perspective by actively listening to their reasons for not changing. Confrontation would result in defensive 'counter-change' talk which is detrimental
- **'Supporting self-efficacy'.** This refers to the patient's belief in their ability to make a change and uphold it. The practitioner can support this by encouraging the patient to make overt positive statements that reflect their self-belief
- **'Rolling with resistance'.** This involves avoiding any confrontation with the patient's perspective and instead attempting to guide them towards an understanding of the discrepancy between where they are presently and where they want to be
- **'Developing discrepancy'.** As mentioned above, this involves making an effort to increase the patient's awareness of the difference between their current behaviour and their core values (which will usually comply with the need for change)

Table 1. The five core principles which underlie successful motivational interviewing practice (Bundy C. *J Roy Soc Med* 2004;44:43–7)[21]

MI places the client in the role of the expert in that they must decide how to interpret and integrate the information that is received. This is in contrast to traditional approaches which place the practitioner in the 'expert' role and place the client in the position of simply accepting the advice or resisting directly or indirectly through lack of treatment adherence.[3]

The use of MI with diabetes patients

There is substantial evidence to indicate the efficacy of MI when used to treat problem drinking and smoking.[22] MI has also proved particularly useful within health care settings where patients face the psychological burden of chronic illness as well as an increased demand to be actively involved with managing complex medical regimens.[21] In the case of type 2 diabetes, for example, patients can be asked to make radical lifestyle changes and are often ambivalent about doing so.[19] MI has been shown to outperform traditional advice giving in relation to lifestyle change in clinical health care settings,[23] and several research studies have shown how it is suitable for use with a diabetic population.

Engaging poorly controlled young people with diabetes with psychological treatment remains a clinical challenge. Channon *et al.*[8] (n=60) examined the impact of MI on glycaemic control and psychosocial functioning in adolescents with type 1 diabetes when compared with a control group receiving support visits. The results indicated that the group receiving MI treatment showed significant improvement in glycaemic control and that this effect was maintained a year after completing the intervention. They also found the MI group had better overall psychosocial functioning than the control group, signified by higher life satisfaction and lower life worry. In addition, the MI group perceived their diabetes to be more serious and placed greater importance on controlling it while perceiving it to have a smaller degree of impact on their lives.

Ismail *et al.*[6] (n=344) ascertained further benefits of using MI with type 1 diabetic patients. The researchers compared a group of patients receiving usual care to those receiving nurse-delivered motivational enhancement therapy or 'MET' (an adaptation of MI limited to four sessions) and those receiving MET plus cognitive behavioural therapy (CBT). Results indicated the combined therapy resulted in a modest improvement in HbA_{1c} levels at 12 months, compared to patients receiving usual care. However, the MET alone failed to have a positive effect on glycaemic control.

Motivational interviewing has also been successfully used to enhance weight loss in women with type 2 diabetes (n=217).[7] This is important since individuals with type 2 diabetes are often overweight and greater weight loss has been shown to improve metabolic functioning.[24]

West *et al.* established that adding MI to a behavioural weight control programme delivered by a multidisciplinary team led to greater and more stable weight loss when compared to a control group and that this effect was sustained at 6, 12 and 18 months of follow up.[7] Glycaemic control was also significantly improved for patients in the MI group at 6 month follow up. However, this effect was not maintained at 18 months when HbA_{1c} levels increased again and so were no longer significantly lower than at baseline. Analysis showed that weight loss was mediated by treatment adherence; in other words, the MI group were more engaged in the programme, submitting their self-monitoring diaries more often and in greater detail.

On a similar note, studies have demonstrated that dietitians trained in MI can induce lower patient intake of saturated fat,[25] and that an intervention using key features of MI, such as patient participation in goal setting and selecting personalised strategies to overcome barriers, can improve patient satisfaction and programme acceptance in attempts to manage eating behaviour and physical activity.[26]

In addition, MI has been used successfully in studies intending to lower the risk of onset of type 2 diabetes. For example, Penn *et al.*[27] lowered the cumulative incidence of type 2 diabetes by 55% in a group of patients with impaired glucose tolerance using a behavioural intervention consisting of regular individual advice from a dietitian and physiotherapist trained in the MI process. Furthermore, a recent randomised controlled trial (RCT) was able to modify diabetes risk by helping people achieve a 5% weight-loss target after receiving 11 individual sessions of MI from 'health-promotion counsellors' trained in MI (but not employed by the UK NHS).[28] These findings are consistent with other trials of MI which have produced significant weight loss and significant increases in physical activity.[7,29]

Several 'MI tools' have proven to be particularly useful when addressing lifestyle change in diabetic patients. Murphy and Kinmonth[19] highlighted the point that patients vary greatly in their perceptions of diabetes. They suggest that a better understanding of the patient's perspective could help minimise the conflict and frustration which can materialise when confronted with the topic of behaviour change. Channon *et al.*[30] followed this suggestion and achieved positive results with teenagers managing type 1 diabetes by using several MI-congruent tools. These included:

- Agenda-setting.
- Focusing on advantages and disadvantages of behaviour change.
- Allowing patients to describe a 'typical day' managing their diabetes.
- Discussing the 'journey of change' and assessing the patient's level of importance and confidence when thinking about making specific changes.

Agenda-setting can be a particularly useful technique which requires the practitioner to invite the patient to select an issue or behaviour that they are most able to tackle. A shared and explicit agenda can help structure consultations and incorporate the patient's personal goals, leading to a more concrete action plan.[30] For diabetes patients, these goals may include immediate lifestyle benefits and prompt the practitioner to reframe their thinking about the benefits of tight glycaemic control.[31] Evidence has shown that GPs trained in such MI-based techniques are able to positively affect patients' understanding of diabetes, their beliefs regarding treatment aspects, and their motivation for behaviour change.[32]

Not all trials of MI with diabetes patients have yielded such positive

results. An RCT comparing MI-based education and structured diabetes education (SDE) in type 1 adolescent patients found that SDE was more effective than MI in decreasing HbA_{1c} (n=44).[33] Although this study suffered from a small sample size and therefore limited generalisability, these results have been replicated in larger trials. For example, Heinrich *et al.*[34] (n=584) conducted a cluster RCT in which nurses were trained in MI techniques to be used in standard quarterly consultations with type 2 diabetic patients. The researchers found that the MI-based counselling strategy failed to significantly influence outcome measures of self-management behaviours and clinical parameters (including BMI, blood pressure, HbA_{1c}, fasting cholesterol and triglycerides). The intervention did significantly increase knowledge scores and decrease chance health locus of control, but was unable to influence other process outcomes which would have indicated a positive effect on patient empowerment.

Finally, Welch *et al.*[35] (n=234) compared MI-based diabetes self-management education (DSME) with traditional patient-centred DSME in type 2 diabetic patients and found that the MI-based intervention was not shown to be associated with improvement in blood glucose control. The experiment in fact resulted in an opposite effect with the non-MI condition eliciting greater improvements in HbA_{1c} than the MI condition. The MI intervention also failed to influence potential behavioural mechanisms such as self-efficacy. The researchers concluded that the MI-based strategy did not offer an advantage over usual care.

Barriers to overcome

On balance, these mixed findings suggest that applying the principles of MI can have a beneficial impact on diabetes outcomes, but that a number of barriers persist which continue to inhibit its effectiveness and which require further work to be resolved.

Treatment limitations

Firstly, although many of the above findings are in favour of using MI to help treat different subgroups of patients suffering from both types of diabetes, it remains difficult to establish the critical components driving change within the MI process. Miller and Rollnick[36] have speculated about possible therapeutic mechanisms including faith/hope effects, counsellor effects (e.g. empathy) and change-talk, but there is little direct evidence to suggest that adaptations of MI actually work by enhancing motivation or readiness for change.[37]

Abraham and Michie[38] argue that this is because there is no existing standardised vocabulary that defines intervention components. Their paper highlighted the complexity of intervention designs and how much they can differ in content. The authors therefore call for changes in the way in which researchers clarify their intervention method, perhaps by using their definitive list of 23 'behavioural change techniques' (BCTs), which could help to pinpoint potential change mechanisms.

It is also important to consider occasions when MI would not be a suitable method to use, for example, in health care clinics when there is limited time to consult patients. In contrast to specialist counselling settings, most encounters in public health settings are brief, perhaps 7–10 minutes, which does not leave a lot of time to apply the MI technique effectively.[3] However, models have been developed which can adapt the intervention method to fit within limited timeframes and studies have shown them to be useful when directed at heavy drinkers[39] and smokers.[40]

Social context is another key issue when considering behaviour change since poverty, unsafe living circumstances and unemployment can all limit the amount patients are able to change. Emmons[41] advocates broadening MI strategies to incorporate an array of behavioural and social contextual concerns. In addition, individuals with multiple health behaviour issues may be less receptive to the impact of MI treatment. This is why it is important to break down the potentially overwhelming burden of health concerns and focus on one problem at a time using techniques such as goal setting to involve the patient and provide direction.[42]

Training

The developers of this method have given increasing emphasis to the underlying 'spirit' of MI which they argue may be the key to behaviour change.[12] They argue that MI cannot be taught in a 'step-by-step' fashion nor as a set of techniques to be applied to each patient but is more of an interpersonal style which requires skill and practice.[43]

The study by Ismail *et al.*[6] found it was possible to train nurses to competently deliver diabetes specific psychological treatments by training six nurses over three months using an introductory workshop followed by self-directed learning from a transcription of recorded sessions alongside reading material, audio-visual feedback and weekly group and individual supervision. The nurses trained using a caseload of 10 patients with type 1 diabetes and they did not take on study participants until they were competent in MET and CBT skills according to the quality assurance criteria.

Research is continually exploring optimal methods for helping practitioners to develop proficiency

in the clinical method of MI. In an evaluation of an expert two-day workshop, Miller and Mount[44] found that clinicians showed modest but statistically significant increases in MI-congruent practice, but unfortunately not enough to make a difference to how their clients responded. A subsequent trial confirmed that the addition of learning tools (proficiency feedback from practice tapes and six expert telephone coaching consultations) improved post-workshop aptitude.[45] The clients of these participants also demonstrated increases in change-talk and commitment language. A recent systematic review concluded that the best practice of MI training is to use a combination of a workshop plus supervision with ongoing coaching.[46] Such study findings suggest that continual supervision and follow-up sessions are essential for trainees to consolidate and refine their counselling skills and to enable their transfer from training to clinical practice.

The efficacy of MI is largely dependent on the level of competency and proficiency of the practitioners who are applying the method. Not all health care practitioners may possess the skills and patience required to deliver 'true' MI practice.[46] The difficulty of establishing treatment integrity in the delivery of MI has been addressed by the development of two behavioural coding systems. The Motivational Interviewing Skill Code (MISC) was developed to assess the quality of MI utilised by identifying active components (e.g. reflections), examining both the client and clinician's behaviour and the interaction between the two.[47] Secondly, the Motivational Interview Treatment Integrity (MITI) code was designed as a simpler alternative to the MISC and involves assessing 10 elements of MI by focusing on the performance of the clinician only.[48] Both methods were recently used by Welch *et al.*[35] to assess MI skills in the training phase of their RCT and exposed a significant difference between MI trained educators and non-MI trainees on dimensions such as reflective listening, producing 'change-talk' and integrating aspects of the MI 'spirit'. The use of this coding method achieved satisfactory inter-rater reliability.

MI and cognitive behavioural therapy

Finally, it is important to differentiate MI from CBT which is used to address maladaptive cognitive styles. CBT is designed to help correct erroneous patient beliefs and CBT practitioners must apply expert knowledge and skills to help restructure faulty cognitions. MI is used to elicit existing motivation for change and therefore is not suited to patients who are presumed to be 'lacking' in something such as coping skills, conceptual education about how behaviour is learned or environmental contingencies.[43]

In Ismail *et al.*'s study[6] outlined earlier, the initial effects on glycaemic control were equally small for both interventions integrating MI skills but increased over time in the MET plus CBT group. This could indicate that the effects were due to techniques specific to CBT (although this was not tested). The authors note that their results support past studies which show that CBT is most effective when patients are motivated to change their behaviour. It is therefore reasonable to conclude that elements of both types of therapy are required in order to instigate and prolong behaviour change in diabetes patients and that MI-based therapy can be used as an effective prelude to CBT. Using CBT techniques to identify and address unhelpful health beliefs held by patients would be appropriate for diabetes nurses who are continually faced with intrinsic barriers such as 'psychological insulin resistance'.[49]

Conclusion

Research has indicated that MI exists as an effective way of enhancing diabetic treatment through helping patients to address their barriers to behaviour change, and that MI can be used as a preventative intervention as well as a treatment method.[27,28] Although not all studies have shown positive effects, several controlled trials have demonstrated that it can be used strategically to help diabetic patients improve glycaemic control,[8,50,51] increase physical activity,[7] decrease weight[7,52] and engage in dietary changes.[25,26] Researchers are also in agreement that it is possible for health care practitioners to achieve the required standards of proficiency in MI practice with adequate training and supervision.[45]

It is possible that the current pressure on researchers to show an effect on 'glycaemic control' (indicative of maximum clinical benefit) is obstructing the amount of evidence demonstrating the effectiveness of MI skills. It is important to remember that optimal glycaemic control requires a number of substantial changes to lifestyle and deeply ingrained habits. It may be the case that using MI alone is not sufficient to show consistent improvements in HbA_{1c} over time, but that it is most effective when targeted to one specific aspect of behaviour change (i.e. weight-loss or fat intake).

Therefore, in the future it may be more fruitful to focus on process outcomes and other clinical markers such as lipids, which are more amenable to changes in diet and levels of physical activity.

Reviews show that there are still difficulties to overcome when adapting MI to health care settings[3] and

Jansink *et al.*[53] highlight the importance of embedding MI in an implementation strategy rather than just relying on training primary care nurses in the process. Many questions remain to be answered, including establishing the long-term benefits to both patients and practitioners if MI were to be implemented as part of routine care. However, if we can learn to accept its limitations, there is sufficient evidence to presume that MI can provide health care practitioners, and particularly nurses, with an additional resource in their psychological toolkit to be used when the existing model of treatment falls short of what is needed.

In conclusion, using MI as an adjunct to traditional biomedical management for diabetes is helpful for patients and a useful skill for the nurses involved in their care to acquire.

Those interested in gaining more information about research findings and training opportunities in MI skills can use the website sponsored by the Motivational Interviewing Network of Trainers (MINT) (www.motivationalinterviewing.org) as a starting point of reference.

Declaration of interests

There are no conflicts of interest declared.

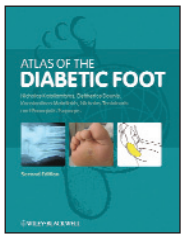
References

References are available via EDN online at www.onlinelibrary.wiley.com.

Book reviews

Atlas of the diabetic foot

By N Katsilambros, E Dounis, K Makrilakis, N Tentolouris and P Tsapoga



ISBN: 9781405191791
Copyright 2010, published by Wiley-Blackwell (www.wiley.com)
Price: £89.99

This book is a comprehensive text on the diabetic foot. It covers all of the important aspects and is richly illustrated by quality photographs. It is characterised by tables and further reading sections with references and text which are up to date. It describes diabetic neuropathy with a good section on foot deformities and the anatomical risk factors for diabetic foot ulceration. There is a fully illustrated account of neuropathic ulcers, and ischaemic and neuro-ischaemic foot ulcers. In a further supplementary chapter it describes the contribution of foot related risk factors to the development of diabetic foot problems.

There are very good chapter on the skin and systemic diseases with manifestations in the feet. Very importantly, there is a whole chapter devoted to heel ulcers which are a constant source of frustration to many health care professionals involved in the management of the diabetic foot.

All aspects of the Charcot foot are covered in one chapter and the book concludes with excellent chapters on methods of prevention, methods of ulcer healing and amputations.

Overall, this is an extremely valuable text to all health care professionals who come into contact with patients with diabetes and foot problems.

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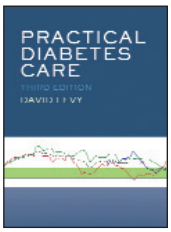
Practical Diabetes Care

By David Levy



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Copyright 2011, published by Wiley-Blackwell (www.wiley.com)
Paperback, price: £29.99

This book is intended to be a concise yet systematic practical guide to type 1 and type 2 diabetes.

Each chapter has an attractive structure, beginning with a 'key points' box followed by a general introduction. Text for each clearly defined topic is kept to a minimum. The references section to each chapter also contains suggestions for further reading and useful websites.

The book tends to be more management rather than problem based, with coverage of all the recent major changes including new medications, clinical trials, and the move from DCCT-aligned HbA_{1c} to IFCC measurement. There is discussion on the effects and lessons to be learnt from recent changes including withdrawn medications and the controversy over rosiglitazone.

Parts of the book which are interesting or useful include trials to prevent progression of impaired glucose tolerance to diabetes, the limitations of screening, the timeline of new drugs in diabetes and the contrasting differences between diabetic ketoacidosis and hyperglycaemic hyperosmolar state. The information on the causes, classification and management of hypoglycaemia is useful, especially in the context of the current interest in this effect. This book has much to commend it for medical and nurse clinicians.

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