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## Motivational Approaches for Improving Diabetes Management

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## **Abstract**

Effective diabetes management requires both good clinical care, and good self-management by the person with diabetes to achieve optimal health outcomes. Both diabetes specific behaviours, and lifestyle behaviours need to be addressed. Self-management is challenging, due to the characteristics of diabetes, a condition which can be unpredictable, variable over the lifespan, lifelong, and often psychologically demanding, requiring knowledge, confidence, motivation and behaviour change skills to maintain optimal control.

Health professionals can support people to self-manage more effectively if they have psychological skills to promote motivation and to support behaviour change. This review summarises some of the skills needed by people with diabetes and health professionals to support self-management, including person-centred working and 'MAP' motivational, action and prompting behaviour change techniques. The review takes a critical look at motivational and behavioural interventions and their outcomes, in the wider context of the process of behaviour change. We look at evidence for effectiveness of motivational approaches – from the perspective of the patient outcomes and health practitioner training required. We also evaluate behaviour change interventions which use 'action-based' approaches, followed by suggestions for longer term, sustainable models of training.

## **Key Points**

- Effective diabetes self-management can be psychologically demanding. The person with diabetes can achieve better health outcomes where they are intrinsically motivated and supported to manage diabetes-specific tasks and lifestyle behaviours such as healthy eating and physical activity.
- Motivational methods including motivational interviewing provide a helpful approach to develop people's intrinsic motivation. However, delivering MI effectively requires a high level of practitioner skill, intensive training, practice and supervision.
- Behaviour change approaches which focus on MAP techniques, including 'motivation', 'action' and prompts and cues are effective ways of supporting lifestyle behaviour change which can be delivered by health professionals as part of clinical care, and are promising in terms of health outcomes.

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## **Introduction**

Motivation is a psychological construct. This review will discuss how motivation is related to diabetes self-management, and summarise recent evidence regarding interventions to improve motivation for people with diabetes, including interventions to train health professionals to support people's self-management in the context of diabetes care. We also discuss more recent behaviour change interventions focusing on action and prompting techniques.

## **Diabetes Self-management**

Effective diabetes self-management leads to better health outcomes, not only in terms of HbA1c, but also improved mental health and physical well-being, better quality of life, and reduced healthcare costs<sup>1</sup>. Although people may attend their GP practice or hospital clinic for treatment or diabetes care, they manage diabetes themselves, 24 hours a day, 52 weeks a year. Many people cope very well with having diabetes, but for some it is challenging to live with a long-term condition that requires constant management, and many people with either type 1 or type 2 diabetes struggle to maintain good control. Many factors affect how successfully people self-manage diabetes. They include type of illness or treatment, and psychosocial factors – the person's 'psychology' and social context. Supportive friends, family, colleagues and environments can help<sup>2</sup>. The role of the health and social care professional (HP) as a knowledgeable, empathic and empowering source of support is crucial. It is important that HPs have competencies in patient-centred care and health behaviour change skills to provide this.

## **Why is changing diabetes self-care behaviour difficult?**

Living with diabetes can be uncomfortable, distressing and feel relentless. People can feel embarrassed or stigmatised (e.g. for blood testing or injecting) or feel blamed for being overweight. To change requires mental effort, confidence, desire and a feeling that it's important enough to do something about. Self-management of diabetes includes carrying out a complex set of monitoring tasks and lifestyle adjustments that include combining diabetes-specific tasks with generic 'lifestyle' behaviours that have an impact on diabetes. Box 1 below provides examples.

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BOX 1 HERE

*Box 1: Diabetes Specific and General Lifestyle Behaviours related to Diabetes Self-Management*

<b>Diabetes Related behaviours</b>	<b>'Lifestyle' behaviours</b>
Blood glucose self-monitoring*; Including finger pricking, using a meter Medication; Including calculating insulin dose, injecting insulin, taking tablets Attending medical appointments; including GP surgeries, hospital clinics, pharmacies, podiatry, eye checks etc., Checking feet Problem-solving* Maintaining hypo-awareness, Checking ketones	Healthy eating*: Including checking labels, food purchasing, food preparation, portion control, calorie counting, carbohydrate counting; Substance use; Including alcohol consumption, smoking illicit drug use, over-the-counter drug use Physical activity*; Including walking, gym, sports, housework, gardening, reducing sedentary behaviours, screen use Maintaining good sleep patterns
*Key behaviours identified by <i>American Association of Diabetes Educators</i> <sup>3</sup>	

For the HP, it can be difficult to understand why someone would seemingly choose to risk poor health by not adhering to advised health behaviours. For the person with diabetes, developing and sustaining motivation to self-manage is crucial.

### **What affects motivation?**

Efforts by health professionals to improve the person's diabetes management often focus on increasing motivation. A common assumption is that low motivation is a result of a lack of knowledge of risks of poorly managed diabetes. However, although knowledge is important to manage diabetes it's not sufficient for effective diabetes self-management<sup>2</sup>.

We can think of motivation as the degree of 'wanting', 'desiring' or intending to carry out actions in relation to specific goals. Our health-related motivation is underpinned by psychological factors, including knowledge, beliefs and attitudes towards health and health care, specific conditions, behaviours, or their outcomes. We develop these attitudes throughout life, from our learning, values, and experiences. Motivation can be self-generated (what we want to do - intrinsic) or other-generated (what others want us to do - extrinsic), and is influenced by the social, cultural and economic context and environment we live in<sup>4</sup>. More intrinsic motivation is associated with better self-management - for

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example this was a key psychological predictor of adherence to regime in a review of adolescents with type 1 diabetes<sup>5</sup>.

#### *BOX 2: Example: How can Psychological Factors influence motivation*

*Case 1: I **believe** that type 2 diabetes is a 'mild' version of diabetes, is easily **controlled** by taking tablets, so it's not likely it will get worse (**risk** of developing complications is low). I **think it was caused** by eating too many sweet things so it will be easier to control if I eat less sugary food. Lots of my family have type 2 diabetes (**it feels 'normal'**) and they haven't had any major problems, so I don't think I'm particularly **at risk**.*

*My **motivation** to make changes to my self-management behaviour is **low**.*

*Case 2: I'm a very **conscientious** person and always take double-check everything. I'm responsible for looking after my 2 kids so really need to **look after my own health – its my own responsibility**. I think having diabetes is something **I can keep on top of** if I look after myself. I don't know anyone else with diabetes – but I've had it so long it just **feels like part of my life**. My friends don't know I have diabetes, so whenever I go out I'm really careful that it won't spoil my evening.*

*My **motivation** to make changes to my self-management behaviour is **high**.*

#### **Are 'scary warnings' motivational?**

It is often assumed that that people are motivated by warnings of future damaging or aversive consequences – for example that poor control will lead to serious complications, including loss of sight or amputation. Evidence is mixed about the effectiveness of 'scary warnings' or fear appeals. Fear can be counter-productive, leading to avoidance or denial, and worsening in health behaviours and are much more effective where the person has control, so there are clear strategies to cope with the perceived risk. Overall, promoting confidence (self-efficacy), coping strategies, active self-management, and resilience are more effective motivators than fear<sup>6</sup>.

#### **What are motivational approaches?**

*"Motivational interviewing is more of an interpersonal style than a distinct 'technique'. Health Foundation, 2011, p4 <sup>7</sup>."*

The '**motivational interview**' (MI) was developed in the 1990s in the addictions field<sup>8</sup>, based on ideas from counselling, and theories that saw change as a process with different stages from 'pre-contemplation' to 'maintenance'<sup>9</sup>. Central is the idea that people need to want, intend, or to be 'ready' to make changes for change strategies to be effective, but

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recognising we are more often somewhat ambivalent or resistant to changing the way we live. For example, we might think we ought to eat a healthy diet, and avoid high calorie foods, but recognise how much we enjoy a pizza with friends on a Friday night.

There are key stages of communication involved in MI – including engaging with the client via collaboration, focusing on their own goals and agenda, evoking ‘change talk’, and developing plans for change, all delivered in an empathic and supportive interpersonal context, where the counsellor is a non-judgmental ally. MI uses a series of questions to elicit the person’s own attitudes, goals and values, challenging ambivalence, guiding people towards balanced decisions to make changes which are important to them. This is a patient-centred approach, developing ‘intrinsic’ motivation. It helps people to work out what is most important to them personally, identify goals that are important to them and plans to carry them out, making enactment of goals more likely.

In diabetes management, this helps people to increase confidence to manage diabetes themselves. A four-session version of MI – called **Motivation Enhancement Therapy (MET)**<sup>10</sup> (Miller et al 2004) developed for use in alcohol counselling has been used in diabetes. It includes 5 principles:

- Express Empathy (via reflective listening, open questioning) ,
- Develop discrepancy (between actual and desired state),
- Avoid argument,
- ‘Roll with resistance’
- Support Self-efficacy’.

MET is sometimes used in conjunction with other therapies to increase motivation – for example, one study of Type 1 patients with suboptimal HbA1c<sup>11</sup> found combined MET and cognitive behaviour therapy significantly improved HbA1c whereas neither treatment alone were significant – perhaps reflecting the complex nature of psychosocial problems experienced by people with Type 1 diabetes.

### **How effective are Motivational Approaches for Diabetes?**

MI has been applied to a wide range of behaviours in health, including physical activity, weight management, pain management and mental health. A systematic review of the effectiveness of MI in chronic diseases, including diabetes<sup>12</sup> found a positive impact for MI on both psychological well-being and diabetes control (HbA1c), and lifestyle behaviours across conditions. The diabetes studies showed significant positive effects on HbA1c, although they were criticised for small samples. However, there are some problems with MI approaches<sup>13</sup>. Evidence for efficacy of MI in health care settings is mixed, depending on the condition, target health outcome, health care context, what behaviours are being changed, and mode of delivery – what type of professional is delivering, for how many sessions, in what context, face-to-face, online, via telephone etc. and for how long<sup>7</sup>. A recent review of reviews on MI in health and social care highlighted that although small benefits can be

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recorded for some behaviours, the methodological quality of studies is often poor so it is difficult to draw firm conclusions<sup>14</sup>.

A recent diabetes-specific review and meta-analysis of MI interventions<sup>15</sup> found a small improvement (0.17%) in HbA1c for MI interventions, with significant positive effects on diet and physical activity (PA). Outcomes are more positive for Type 2 than Type 1, and for adolescents with type 1<sup>16</sup>. There is little evidence for effectiveness of MI interventions with children and/or parents. MI approaches have shown better outcomes for healthy eating<sup>17</sup> and PA interventions than for diabetes-specific behaviours or HbA1c<sup>18</sup>. It may seem counter-intuitive, but it may be more effective to focus on improvements to lifestyle, overall quality of life, and psychological well-being rather than diabetes outcomes, since this improves overall confidence to carry out changes and achieve diabetes goals long-term.

### **Delivery of MI Interventions**

People with diabetes often have contact with a wide range of people as part of routine care, so it is important that professionals have skills to deliver interventions to support self-management. Encouragement to 'Make Every Contact Count' (MECC)<sup>19</sup> in the UK emphasises that any contact with a health and social care professional is an opportunity to have a health promoting conversation. MI methods are very useful in this context. The way that HPs interact with people with diabetes can have a huge impact on health outcomes. Interactions which involve fear appeals, didactic ('telling') methods, and time based ultimatums reduce the person's own control over diabetes so can be disempowering<sup>4,6</sup> whereas using effective communication skills, MI techniques and behaviour change techniques enhance control, confidence and well-being, improving outcomes. However, MI is an intensive, highly skilled method, and it can be difficult to train health professionals to adapt MI approaches for people with complex emotional and clinical needs during routine clinical care<sup>7</sup>.

### **Some problems with MI Approaches**

What constitutes an MI intervention is not always well-defined. Terminology can be confusing, since this term is also applied to 'health coaching' 'self-management education', 'person-centred approaches' and other behavioural interventions. Advanced MI training may only be appropriate and effective for staff who see people on a regular basis and have time for long appointments. Delivering MI with fidelity needs intensive training, supervision and coaching, and some health professionals find it challenging to become sufficiently skilled in MI to reliably deliver this type of intervention as part of a clinical role<sup>7</sup>. For example, an RCT<sup>20</sup> delivered by GPs was successful in enhancing patients' attitudes and confidence around self-management, but required 1.5day residential course with follow-up.

Longer is not necessarily more effective in terms of diabetes management. The MI dose can vary considerably. For example, 'MET' may involve several counselling sessions, with long-term follow-ups. Shorter sessions have also been shown to have a positive effect<sup>21</sup> as have brief interventions, or those including MI as an adjunct to other interventions<sup>16</sup>. However,

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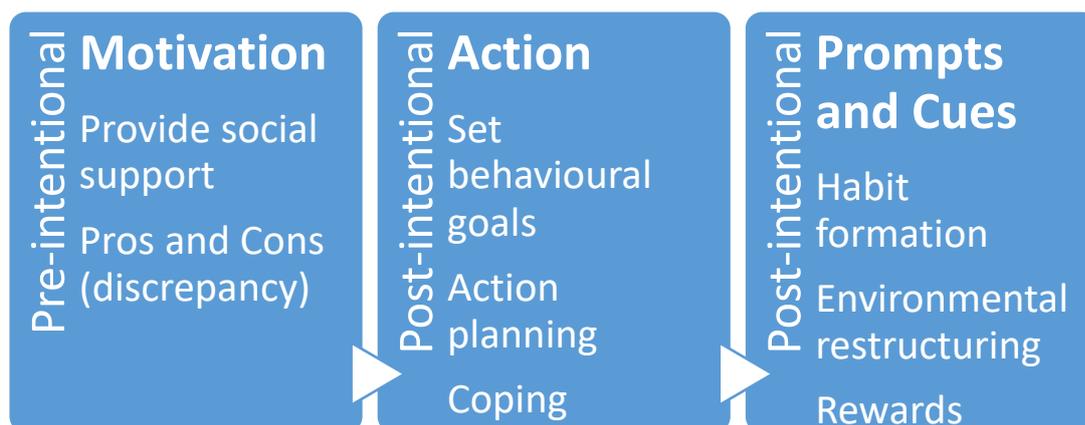
selectively using MI techniques in or a mix and match approach makes it difficult to conclude which techniques are effective, at which dose, for which patients in which context. Measurement tools used to assess fidelity often assess the ‘spirit’ of MI rather than focusing on what specific techniques are used, and with what level of expertise.

### **The intention-behaviour Gap - Focus on Behaviour Change Techniques**

We know that motivation alone does not guarantee a shift in behaviour. The relationship between people’s intentions to manage lifestyle behaviours and doing so is tenuous – The ‘intention-behaviour gap’ (the fact that most of us do not reliably do what we intend to do in relation to health behaviours) requires ‘post-intentional’ theories and explanations for how people manage their health. We need to learn how to support people to translate motivation into action, and how to maintain actions (behaviours) over time when problems arise.

Recent advances in behavioural science help us to understand how specific behaviour change techniques (BCTs) derived from psychological understandings of behaviour can be used to reliably support people to make changes to health, and HPs can understand what to use at what stage in the process from motivation to action (See Figure 1 below). Reviews of evidence tell us what techniques are helpful to change specific behaviours for which patients under specific conditions. These techniques can be broadly categorised into a ‘MAP’ of behaviour change, reflecting motivational, action, and prompted or cued techniques.

FIGURE 1 ABOUT HERE



**Figure 1 : The MAP of Behaviour change: Examples of pre-intentional and post-intentional behaviour change techniques**

The MAP approach is based on the groupings of BCTs in the Health Behaviour Change Competency Framework, developed by Dixon and Johnston 2010<sup>23</sup>. The MAP broadly

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reflects the process of behaviour change recognising that motivation normally precedes behaviour (action), and reflects the 'dual processes' of thinking by considering prompting and cueing routes to change.

### **Planning, Prompts and Cues**

A key focus is on the role of planning to initiate and maintain 'action'. Health professionals who use plans are more likely to achieve their goals to implement behaviour change in their day-to-day practice<sup>24</sup>. Planning includes effective goal setting by identifying outcomes (what you want to achieve) and behaviours (what you need to do to achieve it), and development of action plans which specify when, where and how you will carry out the behaviour. Adding in 'coping plans', which identify potential barriers and solutions in advance, and using problem solving techniques, makes it more likely that people carry out plans<sup>25</sup>.

Part of the explanation for the intention-behaviour gap is that behaviours aren't only determined by deliberative 'rational' decision making, but also by 'automatic' less conscious influences. These include external or internal prompts or cues, or reminders - for example, the smell of tobacco, food, or coffee; the sound of a sizzling burger, or bottle being uncorked, or the sight of a chocolate wrapper can prompt undesired behaviours. Habits can support or hinder attempts to change behaviours (for example, routinely checking blood before a meal, or before driving, so it becomes 'automatic' is a 'good' habit; having a cigarette every night before bed, is less good). Bypassing intentions in this way is very efficient, requiring less thought and planning, but works for both positive and negative health behaviours. These prompts and cues 'can be incorporated into interventions to support behaviour change for people with diabetes, and for health professionals, by identifying how to best support 'good' habits - for example by rehearsing and repeating healthy behaviours<sup>24</sup>, or changing the environment to deter negative ones.

### **How effective are interventions using MAP BCTs for people with diabetes?**

Several recent reviews have highlighted the benefit of including clearly specified BCTs in self-management interventions for diabetes. However, as with MI interventions, most of the evidence regarding use of BCTs for diabetes self-management focuses on lifestyle behaviours rather than diabetes-specific behaviours<sup>2</sup>. Nevertheless, including BCTs can positively impact on HbA1c and other outcomes. One review found that using BCTs including rehearsal and action planning reduced body weight by 3.7kg at follow up, with 0.3% reduction in HbA1c<sup>27</sup>. BCTs including action planning and coping planning (problem solving) also reduced HbA1c for people with poorly controlled Type 2 diabetes, in conjunction with improved knowledge and confidence<sup>28</sup>.

### **Training health professionals in behaviour change techniques**

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Training staff to use comprehensive MAP models of health behaviour change, focusing on motivation, action and prompts can be more effective in bridging the intention-behaviour gap than focusing on motivation alone, but as with MI, both the 'what' (content) and the 'how' (mode of delivery) are important<sup>29</sup> to ensure consultations are empowering, patient centred and action-focused.

Our MAP diabetes training has been successfully delivered to over 200 health professionals providing diabetes care in Scotland, and has shown positive outcomes in intention to utilise BCTs in clinical practice, and successful use of planning techniques<sup>30</sup>. However, just as people with diabetes can struggle to make changes to familiar behaviours, health professionals often find it difficult to change the way they work. One intensive RCT carried out in 44 primary care practices in the UK trained HPs to deliver BCTs to diabetes patients, focusing on behavioural outcomes; education, medication use, foot care, healthy eating and physical activity<sup>31</sup>. Although practitioners reported successfully using BCTs, only small changes were observed at 1 year follow-up using practice and patient-level data. It is important to understand what facilitates a successful behaviour change into routine clinical practice. Interventions for better diabetes care need to pay attention to enhancing sustainability by 'normalising' changes into day-to-day practice<sup>32</sup>.

## Conclusions

Diabetes can be a psychologically demanding long-term condition requiring motivation and behaviour change skills for effective outcomes. The role of the health professional is important to support motivation and empower people to self-manage effectively, but motivation alone is not always sufficient for behaviour change.

Including 'post-intentional' processes such as action planning or coping planning in interventions for people with diabetes, and in HP training programmes can increase effectiveness. There is evidence for a positive impact of both motivational and MAP interventions using BCTs on diabetes control (HbA1c) healthy eating and PA behaviours for people with Type 2 diabetes, but less evidence in Type 1 diabetes and for diabetes-specific behaviours.

When we deliver training, HPs tell us that day-to-day working in modern health services is always time-pressured, involving an ever-increasing number of clinical and administrative tasks. This mirrors challenges faced by people with diabetes who struggle to incorporate change into their existing routines. Supporting practitioners by providing skills practice, supervision, coaching and ongoing training to 'normalise' this approach is crucial to development of skills in patient-centred, collaborative ways of working with people with diabetes.

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