

# Role of Health Literacy and Motivational Interviewing in Building Insight for Self-management of Diabetes Mellitus

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## Abstract

**Background:** Health literacy in simple words is defined as the “degree to which an individual can obtain, understand, process and apply the basic health information, required to make appropriate health decisions”. Health literacy is an independent, but a very powerful predictor of health status and behaviour moreso than race and education. Poor health literacy is associated with poor self-care, increased disease incidence, poor use of resources and health services and negative impacts on health. Health literacy is as important for clinicians as it is for patients as it helps to bridge the gap between the health information provided and its practical implementation. For this we need health care professionals who can speak the language of their patients and understand their culture. Common reasons for poor health literacy are ethnic, racial, geographical and age-related factors. Working as a primary care physician entails a huge responsibility for educating people and increasing health access and supporting self-management in the community.

**Methods:** A prospective study was carried out on 10 patients with type 2 diabetes mellitus (T2DM), registered at a local primary health care practice in South Lanarkshire, Scotland, UK to see if motivational interviewing (MI) and improving health literacy can help in building insight into self-management of chronic conditions like T2DM. The study was conducted over 4 a month period with regular patient feedback after each visit.

**Results:** As per patient feedback, the results were positive and encouraging. All patients felt they had a better understanding and insight into management of their T2DM than before and were more engaged and involved towards self-management of diabetes.

**Conclusion:** Health is complex and requires proper understanding, motivation and skills. Doctors need good communication skills to be able to share the complex medical information in a clear manageable way, which should be tailored according to individual patient needs and skills. People can be very literate but still can have low health literacy so as primary care physicians we have responsibility to communicate in ways that enable people to make informed choices about their own health.

**Key words:** health literacy, diabetes mellitus, motivation

## Introduction

Diabetes is a common metabolic condition world-wide. In the UK, there are an estimated 4.5 million people affected by diabetes including both type 1 and type 2. Around 3.5 million have been diagnosed with diabetes and 1 million still do not know they are affected by it as they have not been diagnosed yet(1)(2). This represents around 6% of the UK population or in other words 1 in every 16 people in the UK have diabetes both diagnosed and undiagnosed. Diabetes prevalence in the UK will rise to 5 million by the year 2025(2)(3).

T2DM is growing very fast world-wide and now is the world's most common chronic health condition. There is an increase in prevalence in T2DM among young people with an accelerated course of diabetes related complications among the young population(4). Management of diabetes requires extensive self-care and diabetes education and better understanding is effective in improving self-management behaviours(5). Limited understanding and poor health literacy are associated with poor diabetes outcomes as people often have worse diabetes knowledge. Self-management is the cornerstone of diabetes care and those affected by diabetes need to perform multiple self-management activities on a day to day basis to prevent long term complications and adverse outcomes(6)(7).

Literacy in simple words means to read, write, understand and speak a language. Health literacy is a measure of patients' ability to read, understand, comprehend and act on medical instructions given for medical conditions and ailments. Common reasons for poor health literacy are ethnic, racial, geographical and age-related factors. Inadequate health literacy leads to increased burden of disease related problems among disadvantaged populations causing poor self-rated health and higher use of services(8)(9). Lower health literacy rate is common in people with diabetes and is associated with poor glycaemic control, lower self-care activities, less knowledge of diabetes, poor communication with health care professionals and lower self-efficacy. Because of this health literacy is rising as a crucial issue world-wide and is considered an important determinant of health outcomes in people with diabetes(10). Health literacy is built around the idea that both health and literacy are necessary and vital for everyday living. It is a complex system involving individuals, families, communities and health systems. Within this complex system are patients, health care professionals, consumers and lay people(9).

For doctors and other health professionals, delivering health literacy offers many challenges which include different learning styles, levels of communication, acknowledgement and support for people with low health literacy as well as with high health literacy. From the patients' perspective, health literacy is understanding and using the wide range of options and information relevant to their condition, understanding medical terms and jargon, developing and adoption of skills to manage their own health within the context of their work, family and community life(11).

Unfortunately, most of the management of diabetes happens only in outpatient clinics and the information provided to patients is poorly taken and understood by patients and does not involve their individual life circumstances and values(6)(12). Other common approaches provided to patients for self-management include telephone counselling(13)(14), group visits and education(15) and online based programs(6)(14).

T2DM is a lifelong disease and requires special emphasis on diet to control disease, reduce symptoms and minimise complications(16)(17). Regulating the dietary pattern is the main treatment for patients with T2DM. This is associated with better glycaemic control, lipid regulation and body weight control(18). Intensive education about nutrition has excellent effects on controlling blood sugar levels in late middle-aged adults with type 2 diabetes. Nutritional education cultivates better dietary habits and increases physical activity which play an important role in patients with diabetes. Intensive education about nutrition is effective in better diabetes control in a 30-day period(19).

Motivational interviewing (MI) is a psychotherapeutic approach which helps to move a person away from a state of uncertainty and indecision towards motivation to help them make positive decisions and achieve better targets and accomplish established goals. MI works on facilitating and encouraging internal motivation to bring changes in behaviour. It has recently become an area of great interest in the diabetes behaviour field(20). MI is an effective way to improve diabetes self-management outcomes, quality of life outcomes and self-efficacy outcomes(21). A study done in African American women with diabetes over a period of two years showed diabetes related clinical and dietary self-care outcomes were improved following MI intervention and motivation played an important part in self-care management(22). The effects of MI on T2DM outcomes showed promising results in view of dietary behaviours and were most favourable for weight management as well(23).

## Materials and Methods

### Study Design:

A prospective study was carried out aiming at delivering dietary advice and health education to patients with T2DM, to enhance and promote their understanding of the condition and to try to introduce a positive health behaviour change, leading to improved self-management of diabetes through motivational interviewing. This was accomplished through building insight and strengthening personal motivation and commitment towards diabetes self-management. The long-term benefits would be promoting a patient centred approach leading to better outcomes in chronic disease management, something that will evolve over a longer time period and cannot be demonstrated within the limited time frame of this project.

Secondly, this project also involved getting critical feedback and analysis from patients over the whole process; how did they feel about it and if the process made any changes

in their understanding and approach towards their chronic condition which would help them in achieving better outcomes and results in the long term.

### Study Population:

Ten patients with T2DM registered at a local primary health care practice in South Lanarkshire, Scotland, UK, were selected. Patients were chosen with specific selection criteria from the annual diabetes review clinic. The selection criteria were,

1. All patients had a confirmed diagnosis of T2DM.
2. All were taking oral hypoglycaemic agents for at least one year or more. Patients on combination of injectables (Insulin or GLP-1 analogues) with oral hypoglycaemic were excluded in order to keep the study simple.
3. Patients had their HbA1c done recently in the last couple of weeks and were scheduled to re-attend the diabetic clinic for their annual reviews.
4. Blood results showed a rise in HbA1c levels as compared to previous results, in last one year despite being on oral hypoglycaemic agents regularly for at least one year.
5. Those who identified their diet as the main reason behind HbA1c rise and could be improved and were willing to discuss it further. These were the patients who identified some potential areas in their diet that could be addressed and improved.

From all those patients who attended for their annual diabetes review, ten patients were selected who met all above inclusion criteria and were followed up over a period of 4 months, i.e from March 2017 to July 2017.

### Study Method:

All the patients booked for annual diabetic review clinic had their recent blood results sent in post a week before their attendance to prepare their questions and to discuss their blood results, diet and diabetes control in detail. Each patient was allocated a twenty minute appointment slot to discuss their results and future strategy in detail. Patients were given the chance to discuss their difficulties with self-management of diabetes, diet wise. Special emphasis was given to dietary and lifestyle changes. Patients were assessed for their preferred learning styles and were educated accordingly.

### Study Instrument:

Different educational platforms were used according to individual learning preferences and styles. The learning styles were identified by asking patients about their own preferred method. Different platforms used were,

- 1- Online resources, three common ones [www.diabetes.org.uk](http://www.diabetes.org.uk), [www.diabetes.co.uk](http://www.diabetes.co.uk) & [www.diabetes.ca](http://www.diabetes.ca) (DASH Diet Plan).
- 2- Patient information leaflets printed either from online resources(24)(25) or using local NHS Lanarkshire information leaflet(26).
- 3- Online videos including YouTube (<http://www.diabetes.co.uk/diet/nhs-diet-advice.html>) (25).

4- Open option to call back the physician and discuss, if required, any advice or input.

5- Option to be referred to community-based diabetes specialist dieticians if patient believed they would need more detailed, regular and closer follow ups with dieticians in the community.

6- NHS Lanarkshire offers a STEP program (<https://www.nhslanarkshire.scot.nhs.uk/services/diabetes/>), which is a three week long structured interactive program, patients can self-refer and can bring a friend or family member as well (27)(28)(29).

Patients were advised to return for further consultations every three to four weeks with a list of questions they had made from previous consultations and the resources they had used in between. This was to help them further in clearing any doubts and promote a better understanding on regular basis. Multiple consultations were done during a 4 month study period, depending on individual patient' needs and requirements. At the end of each consultation, patients were asked to fill out two different types of feedback forms so that regular feedback could be obtained to enhance and restructure the future consultations accordingly.

First, Care Measure Tool (Appendix-1) was used, providing feedback about the consultations, learning, things they found best and least helpful and what they would like to change for next time. Second, Change-Plan Worksheet (Appendix-2) was used to get an assessment, if a successful health behaviour change was introduced and if the patients felt more motivated in self-management of their diabetes. Reasons for the feedback were,

- 1- To get a critical analysis of the consultations from patients. If a patient centred approach was applied and if the patients felt their concerns were addressed appropriately and to self-analyse and evaluate their own learning needs and methods.
- 2- To analyse if the concepts and principles of motivational interview in improving health literacy were applied appropriately in a professional context.
- 3- If a positive behavioural change was successfully introduced and if the patients felt more motivated to work on their diet for improvements in blood sugar and HbA1c levels.

### Ethical Considerations:

Researchers obtained ethical approval as per the local NHS policy. Patients written and signed consents were taken.

## Results

Overall results were very good and encouraging. The feedback received from the patients was positive. The Care Measure Tool (Appendix-1) had six areas for marking starting from Poor all the way up to Excellent and then Does Not Apply. Patients felt they were at ease, had a good chance to discuss their issues, as evident from their feedback. They felt they were given a good chance to speak and get involved. Patients also liked the idea of being offered the option to call back and discuss things

over the phone if needed, although none of them made any phone calls in between the clinic consultations over 4 months period. Patients felt that an agreed management plan was made according to their individual needs, work and family commitments. All marked Excellent in domain 3 (Really listening) on the Care Measure Tool. None of them marked Poor, Fair or Does Not Apply at all. All domains were marked between Good to Excellent. All patients agreed to attend the clinic on a regular basis between 2 to 4 weeks to monitor further progress.

Results from Change-Plan Worksheet (Appendix-2) were again very encouraging. Patients expressed the changes they wanted to bring to their diet and lifestyle, reasons behind those changes and how they were planning to achieve them. This again showed their positive attitude, encouragement and more involvement towards self-management of diabetes, which was another aim of this project. They were more aware of different support options available. This indicated that patients were in the process of initiating positive behavioural change towards management of their long-term condition but whether these changes would sustain in the future for a long period could not be defined within the limited time frame of the project.

## Discussion

Building insight to strengthen personal motivation and commitment towards diabetes self-management could be achieved through a series of hard work. After various consultations over the period of 4 months, it was evident that all patients felt more motivated and encouraged towards the self-care and management of their T2DM. They were more aware of local options and resources available and had better choices to make. It was proven that increasing health literacy through motivational interviewing and promoting better understanding leads to better patient involvement in management of long-term conditions giving better results and outcomes, something which was out of the limited scope of this project to calculate but can be monitored with further future studies. This of course requires a long-term contact between the patient and health care professional, building rapport, assessing individual patients for their own learning styles and methods depending on their background, and their literacy rates and then adopting accordingly, delivering information accordingly and keep on following regularly, going through different episodes of motivational interviewing with regular follow up and feedback to ensure that there was better patient understanding of their condition. Initiation of change ideally should continue in the right direction and sustain for the long term for better results and outcomes. The idea of encouraging patients and educating about self-management of diabetes is not straight forward but does has its positive implications and advantages.

Usually, the common barriers and obstacles faced in delivering health education are appointment time restrictions, loss of continuity of care by not seeing the

same physician at every visit and changing health centres on a frequent basis. We need to realise that as health care professionals we see patients in a limited time period (10-20 minutes usually) during which we have to build a quick rapport and relationship, find out patients own understanding of the condition, find out their ideas, concerns and expectations (famous ICE), find out their priorities, the physical and psychological impact the disease has on their daily life, come up with a shared and agreed management plan that suits their needs and they are willing to engage in and ensuring that they are happy with the plan and will be willing to come back and see the same health care professional in future to maintain the continuity of care.

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Appendix 1: Taken from <http://www.caremeasure.org/CAREEng.pdf>**CARE Patient Feedback Measure for**

\*\*\* Type name of Practitioner here \*\*\*

Please write today's date here:

		/			/		
D	D		M	M		Y	Y

Please rate the following statements about today's consultation.

Please mark the box like this  with a ball point pen. If you change your mind just cross out your old response and make your new choice. Please answer every statement.

How good was the practitioner at ...	Poor	Fair	Good	Very Good	Excellent	Does not apply
1) Making you feel at ease (introducing him/herself, explaining his/her position, being friendly and warm towards you, treating you with respect; not cold or abrupt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) Letting you tell your "story" (giving you time to fully describe your condition in your own words; not interrupting, rushing or diverting you)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) Really listening (paying close attention to what you were saying; not looking at the notes or computer as you were talking)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4) Being interested in you as a whole person (asking/knowing relevant details about your life, your situation; not treating you as "just a number")	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5) Fully understanding your concerns (communicating that he/she had accurately understood your concerns and anxieties; not overlooking or dismissing anything)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Showing care and compassion (seeming genuinely concerned, connecting with you on a human level; not being indifferent or "detached")	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) Being positive (having a positive approach and a positive attitude; being honest but not negative about your problems)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8) Explaining things clearly (fully answering your questions; explaining clearly, giving you a adequate information; not being vague)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) Helping you to take control (exploring with you what you can do to improve you health yourself; encouraging rather than "lecturing" you)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) Making a plan of action with you (discussing the options, involving you in decisions as much as you want to be involved; not ignoring your views)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments: If you would like to add further comments on this consultation, please do so here.

Appendix 2

# Change-Plan Worksheet

<b>Changes I want to make:</b>	
<b>How important is it to me to make these changes? (1-10 scale)</b>	
<b>How confident am I that I can make these changes? (1-10 scale)</b>	
<b>The most important reasons I want to make these changes are:</b>	
<b>The steps I plan to take in changing are:</b>	
<b>How other people can help me:</b>	
<b>Person</b>	<b>Kind of help</b>
<b>I will know my plan is working when:</b>	
<b>Some things that could interfere with my plan are:</b>	

Taken from [https://smartrecovery.org/wp-content/uploads/2017/03/Change\\_Plan\\_Worksheet-1.pdf](https://smartrecovery.org/wp-content/uploads/2017/03/Change_Plan_Worksheet-1.pdf)