A concordance therapy to help older people self-manage type 2 diabetes

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Article points

1. The authors piloted a "concordance therapy" to support diabetes self-management in a sample of older adults with inadequately controlled type 2 diabetes.
2. Results indicate significant improvements in blood glucose following therapy as well as improvements in depression, anxiety and understanding of diabetes.
3. Further research is needed to evaluate concordance therapy with larger samples, including younger people and those with type 1 diabetes. A randomised controlled trial design would provide a more rigorous test of intervention effects.

Key words

- Cognitive behavioural therapy
- Concordance
- Motivational interviewing
- Self-management

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Active self-management of diabetes is essential for reducing the risk of serious complications. However, research indicates that many people with diabetes struggle to adhere to complex self-management regimens. Here, the authors describe the development of an intervention – a "concordance therapy" – to support diabetes self-management. The approach uses techniques from cognitive behavioural therapy and motivational interviewing to help people with diabetes and healthcare professionals work together to develop self-management regimens that are realistic and that work for the individual. Following development work, the intervention was piloted with a sample of older adults who had inadequately controlled type 2 diabetes. The authors' findings are presented, along with their considerations for future work in the area.

Approximately 80% of the annual NHS diabetes bill goes on the cost of treating complications that in many cases could have been prevented. The human cost is also significant – people with diabetes are 50% more likely to have a heart attack than the general population and are also at greater risk of amputation, stroke, kidney failure and blindness (Hex et al, 2012).

A major task for diabetes care providers is to support people with the condition to perform self-care behaviours necessary to reduce these risks; this involves not only educating individuals, but also addressing psychosocial factors limiting their capacity to self-manage (Peyrot and Rubin, 2007; Keen, 2010). This paper describes the development of a novel intervention which utilises evidence-based methods to support patient self-management.

Background

Management of diabetes

Effective management of diabetes necessitates a close collaboration between the person with the condition and healthcare team. In addition to blood glucose control, targets for diabetes management include blood pressure and blood lipid control, smoking cessation, maintenance of body weight and activity levels, drug therapy to delay kidney damage, foot care to prevent ulcers, retinal screening for early detection of eye damage, and symptomatic treatments for various types of nerve damage (Royal College of Physicians, 2008; NICE, 2009).

Adherence to diabetes treatment regimens

Given the complex and multifaceted nature of diabetes management, it is not surprising that many people struggle to adhere to treatment regimens (Hinder and Greenhalgh, 2012). Research indicates that adherence to one regimen component may be unrelated to adherence to other components; adherence rates for antidiabetes medication tend to be higher than for lifestyle changes, and adherence to dietary advice is superior to that for exercise (Delamater, 2006).

A substantial literature exists (reviewed by Delamater [2006]) that documents factors associated with non-adherence, including:

- Demographic factors (ethnic minority; low socioeconomic status; and low level of education).
- Psychological factors (lack of confidence in the efficacy of treatments; perceptions of diabetes as a "mild" condition; underestimating the

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1. While research focusing on adherence has helped to identify barriers to diabetes self-management, the concept of concordance may be more useful for developing interventions to address these barriers.
2. Concordance incorporates the notion that patients and healthcare professionals are equals, that the values patients assign to the risks and benefits of different treatments may differ from those assigned by clinicians and that patients have the right to decide whether to take medications.

risk of complications; psychological problems such as anxiety, depression and eating disorders; stress; and maladaptive coping).
- Social factors (low levels of social support; and family conflict).
- Factors associated with the healthcare provider or medical system (dissatisfaction with the doctor–patient relationship; and inadequate support or monitoring by the healthcare team).

The concept of concordance in diabetes care

While research focusing on adherence to treatment has helped to identify barriers to diabetes self-management, the concept of concordance may be more useful for developing interventions to address these barriers (Bell et al, 2007). This concept was introduced to shift the focus of attention, and attribution of blame, away from the behaviour of patients, focusing instead on the nature of the therapeutic relationship (Horne et al, 2005; De las Cuevas, 2011).

Concordance incorporates the notion that patients and healthcare professionals are equals, that the values patients assign to the risks and benefits of different treatments may differ from those assigned by clinicians and that patients have the right to decide whether to take medications (Bell et al, 2007). Hence, the goal of healthcare interactions is not only to reinforce instructions relating to treatments, but also to develop agreement between the patient and clinician through a shared decision-making process in which treatment options are discussed openly and the patient's beliefs and preferences are respected (Bissell et al, 2004).

The concordance model has been described as a "relative ideal" for diabetes care since openness in consultations will lead to clearer understanding, in terms of the understanding by the person with diabetes of the condition and treatment options, and the clinician's understanding of his or her attitudes and beliefs (Chatterjee, 2006). However, it has for some time been recognised that both patients and clinicians are accustomed to a directive model of care (in which the clinicians are the experts, always making the decisions and instructing the patients) and that more work is needed to incorporate concordance into routine practice (Bissell et al, 2004; Chatterjee, 2006).

Aims

We aimed to develop a concordance intervention with the potential to be used in routine diabetes care. The intervention is based on an approach called "concordance therapy" (CCT), which was originally designed to overcome barriers to antipsychotic medication adherence (Scott and Tacchi, 2002). CCT is written down in the form of a manual that guides healthcare professionals through the process of identifying the patient's illness beliefs and stance towards treatment, providing information as appropriate to the individual's needs, considering advantages and disadvantages of treatment options in light of the individual's values and goals, and working with the patient to develop realistic treatment plans (Scott and Tacchi, 2002; Higgins et al, 2004).

Methods

Development of the intervention

An existing CCT manual developed and tested in the context of medication adherence of older people with depression (Higgins et al, 2004) was used as a template. Development work was undertaken by a team of experts (academics, clinicians, people with diabetes and their carers or family members) to revise the manual, in order to: incorporate relevant evidence and theory, including theories of illness representations, coping and health-related behaviour change; and reflect the wide range of self-management behaviours relevant to diabetes, as opposed to simply taking medication.

The intervention was then piloted with a sample of older adults with type 2 diabetes. Self-management is challenging in this group owing to a high prevalence of comorbidities and a tendency to attribute health problems to "normal ageing" (Mooradian et al, 1999). Furthermore, because of the insidious onset of hyperglycaemia, many people with type 2 diabetes will not immediately experience symptoms and therefore perceive no subjective benefits from improved glucose control.

Content of the intervention

CCT uses techniques from cognitive behavioural therapy (CBT; Beck, 1995) and motivational

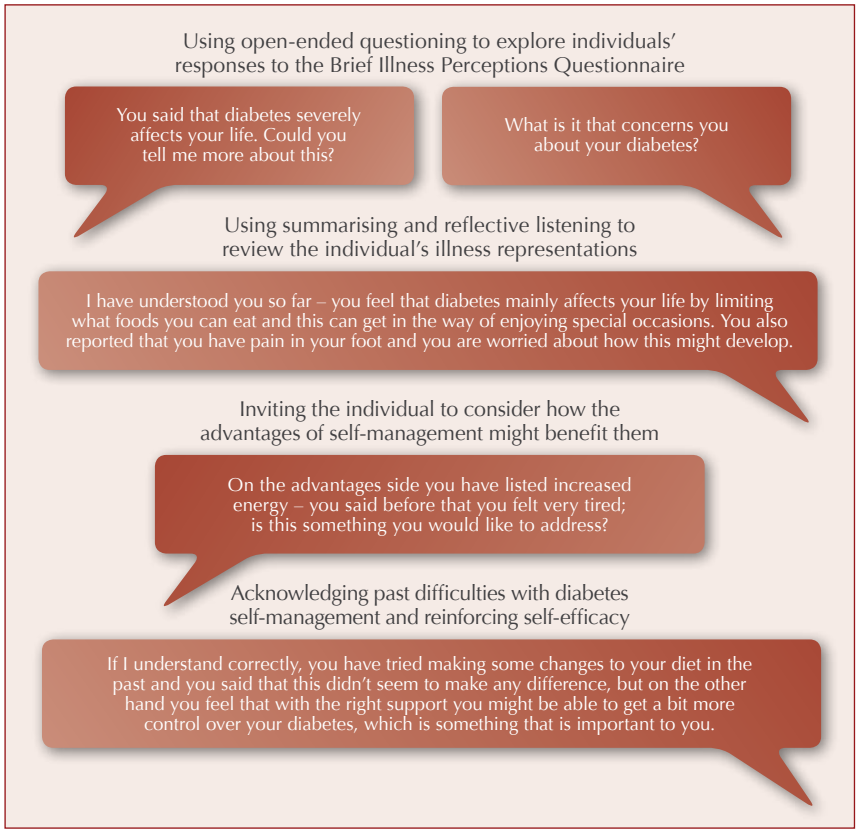

Figure 1. Example dialogue from the intervention described by the authors.

interviewing (Miller and Rollnick, 1991) in a three-phase process, summarised below. Example dialogue is shown in *Figure 1* (see the therapy manual for further details [Hamilton-West et al, 2010]).

Phase 1: Eliciting the patient's stance towards self-management

Like CBT, CCT involves, in general, identifying negative beliefs contributing to the patient's difficulties and supporting the individual to develop more adaptive patterns of cognition and behaviour. CBT uses "bottom-up" methods to identify negative thoughts, such as recording thoughts in a diary. In contrast, CCT identifies dysfunctional illness perceptions – beliefs about diabetes preventing active self-management – using the Common Sense Model (Leventhal et al, 1992) as a framework. According to this model, people form cognitive and emotional representations of illness which guide the methods used to cope. These include: perceptions of the illness's identity, cause, consequences and timeline; coherence (understanding of the illness); concern; control, including personal control and treatment control; and emotional impacts. In CCT, illness perceptions are assessed using a brief validated self-report measure known as the Brief Illness Perception Questionnaire (Brief IPQ; Broadbent et al, 2006) – in which responses to items such as "how much does diabetes affect your life?" are scored on a scale ranging from 0 (e.g. "no effect at all") to 10 (e.g. "severely affects my life") – and open-ended questions are used to probe further. Reflective listening and regular summarising are used to check on understanding.

Phase 2: Exploring ambivalence towards self-management

Motivational interviewing involves identifying and resolving ambivalence towards changing health-related behaviour. Consistent with this approach, the second phase of CCT – in the context of type 2 diabetes, as discussed here – involves working with the person with the condition to draw up a "balance sheet" listing advantages and disadvantages of self-management. The individual is invited to consider how these advantages might benefit them, such as by improving troubling symptoms. Those who are unsure about the benefits, or unclear what self-management involves, are provided with written information which is reviewed and discussed with

them. Direct benefits, including the reduced risk of serious complications, and indirect benefits, such as increased "energy" or independence, are highlighted. Past difficulties are acknowledged empathetically and non-judgementally, while statements reflecting self-efficacy (confidence in one's ability to self-manage) are reinforced. The healthcare professional emphasises that improved glycaemia has benefits even if the person with diabetes does not notice any change in the way they feel.

Consistent with CBT, people with diabetes are asked to see their beliefs about self-management as hypotheses to be tested. For example, an individual who believes that making dietary changes will not make any difference can test this belief by changing his or her diet and monitoring blood glucose. Practical aids can be suggested to help with daily self-management – for example, ticking off tasks on a calendar or using electronic reminders. If appropriate, the involvement of the individual's spouse or other family members may be suggested as a way of supporting the person to manage the condition. The emphasis is on personal choice and responsibility, leading to the development of self-management regimens that work for the individual.

Phase 3: Highlighting the need to maintain active self-management

This phase, in the context of type 2 diabetes, considers the need to maintain active self-management over the long term. The healthcare professional acknowledges that there is a natural tendency to decrease efforts to maintain health when one feels well, but that long-term maintenance is essential for reducing the risk of future health problems. The person with diabetes is helped to identify the consequences of worsening glycaemia, such as foot ulcers or neuropathy. The goal is to enable the individual to recognise when his or her current regimen, whether previously effective or not, requires changing. It is emphasised that diabetes is a progressive condition and that the need to change medications or self-management regimens in the future does not indicate failure on the part of the person with the condition. The analogy of an insurance policy can be used to highlight the role of active self-management in reducing the risk of future complications.

Evaluation study procedure

Following NHS ethics and R&D approval, information sheets and expression-of-interest forms were sent to all people meeting study inclusion criteria from among those on the registers of practices in the Kent area engaging in the pilot. The inclusion criteria were: age 55 years or over; a diagnosis of type 2 diabetes; inadequate blood glucose control, defined as an HbA_{1c} level >69 mmol/mol (8.5%); and an absence of severe comorbidities, such as dementia, which would have prevented participation. Individuals were identified and eligibility-screened by their primary care medical practice. The researcher contacted respondents to explain study procedures and obtain informed consent. Therapy sessions were conducted by a trainee health psychologist at weekly intervals on a one-to-one basis at the participant's home or the medical centre (according to patient preference), with the initial session lasting 50 minutes and subsequent sessions 30 minutes. The number of sessions ranged from two to six (and thus the length of the intervention period ranged from 1 to 5 weeks), depending on the individual's needs. Participants were permitted to withdraw at any point without giving a reason and were debriefed at the end of the study.

Design and outcome measures

A within-subjects design was used, with assessments taken before and 3 months after the conclusion of therapy. The primary outcome was HbA_{1c} level. Illness representations were assessed using the Brief IPQ, described above. Depression and anxiety were also assessed, using the Hospital Anxiety and Depression Scale (HADS; Zigmond and Snaith, 1983). This includes separate scales for anxiety (seven items, such as "I feel tense or wound up") and depression (seven items, such as "I feel as if I am slowed down"). Scores for each scale range from 0 to 21, with scores between 8 and 10 indicating possible clinical disorder and those between 11 and 21 probable clinical disorder. Previous research reported adequate internal consistency

Page points

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for both subscales (Cronbach's alpha of 0.93 for anxiety and 0.90 for depression [Moorey et al, 1991]).

The statistical methods for the analyses in the study are provided in *Box 1*.

Results

Participants

A total of 314 people were identified as meeting study inclusion criteria; of these 40 returned expression-of-interest forms, 34 provided consent and 28 completed the intervention and provided outcome data (individuals declined or withdrew for a range of reasons, including illness, care-giving and moving house, but since participants were able to withdraw without giving a reason, data are not formally presented on this). The sample comprised 13 males and 15 females aged 55–84 years (mean, 67.3 years [SD, 8.9]). Most participants attended four sessions (generally concentrating on areas of lifestyle change that they found difficult, with the focus being guided by themselves).

Glycaemic control

There was a statistically significant improvement ($P<0.05$) in HbA_{1c} from a mean of 74.6 mmol/mol (8.98%) at baseline to a mean of 64.2 mmol/mol (8.02%) at 3 months after therapy. There was a mean difference of 7.9 mmol/mol (0.72%), for which the 95% confidence interval (CI) was 0.9–14.8 mmol/mol (0.08–1.35%).

Psychological outcomes

Mean HADS depression scores improved from 5.07 to 3.69 (mean difference, 1.18 [95% CI, 0.001–2.37; $P<0.05$]). The number of depression "cases" (a term used in the study for probable clinical disorders) was also reduced from three (10.7%) to one (3.6%; $P<0.05$ for difference). Mean anxiety scores did not change significantly, although there was a significant reduction in the number of anxiety "cases", from five (17.9%) to one (3.6%; $P<0.01$ for difference). In the study,

Box 1. The statistical methods applied in the study.

Variables were checked for assumption of parametric tests. Those that were normally distributed or could be transformed to normality were analysed using paired *t*-tests. Those that could not were analysed using Wilcoxon matched pairs signed-rank test with 95% confidence intervals generated using Hodges–Lehmann estimates. For depression and anxiety, change in the number of "cases" (probable clinical disorder) from baseline to follow-up was evaluated using Chi-square tests – the Hospital Anxiety and Depression Scale provides three categories for both anxiety and depression: negative, borderline and case. The authors ran 3x3 contingency tables using Fisher's exact test.

Cronbach's alpha was 0.82 for anxiety and 0.74 for depression.

In relation to illness perceptions, there was a significant increase in understanding of diabetes (coherence scores), from a mean of 5.68 to a mean of 7.16 (mean difference, 1.50 [95% CI, 0.50–2.50; $P<0.01$)]. The remaining illness perception dimensions did not change significantly (see *Table 1*, overleaf).

Conclusions

Previous research, in people with bipolar disorder who had lithium non-adherence, indicates that CCT has the capacity to improve patient outcomes, with the fostering of closer collaboration between the patient and healthcare team a likely mechanism (Scott and Tacchi, 2002). We aimed to adapt this approach to improve self-management in people with diabetes. Findings of the preliminary evaluation, focusing on older adults with inadequately controlled type 2 diabetes, are promising: blood glucose levels improved significantly following therapy, and understanding of diabetes and psychological wellbeing also improved.

We acknowledge, however, that these findings are based on a small sample without a control group and more work will be needed to test the intervention, ideally in the context of a randomised controlled trial. It will also be important to determine whether CCT benefits younger people or those with type 1 diabetes. In addition, future research should consider impacts on long-term outcomes and determine factors influencing implementation in practice, such as cost, fit with current practice, training, expertise and resources required to deliver the intervention (Glasgow et al, 2001). Alternative modes of delivery, such as group interventions, could also be considered.

It is evident that many people struggle with diabetes self-management and that diabetes-related complications represent a significant burden both to the individual and to the health service. We encourage further research to determine whether the approach described here can help people with diabetes and healthcare professionals to work together to improve self-management and reduce the risk of serious complications. ■

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Table 1. Comparison of primary outcome measure (HbA_{1c}) and secondary outcome measures at baseline and follow-up.

	"Cases"	Baseline, n (%)	Follow-up, n (%)	Chi-square statistic
	Depression	3 (10.7%)	1 (3.6%)	12.03*
	Anxiety	5 (17.9%)	1 (3.6%)	16.25†
	Variable	**Baseline mean (SD) [n]**	**Follow-up mean (SD) [n]**	**Mean/median difference (95% CI)‡**
	HbA_{1c} (primary), %§	8.98 (1.48) [28]	8.02 (1.61) [24]	0.72 (0.08 to 1.35)*
	HADS depression score	5.07 (2.73) [28]	3.69 (2.99) [25]	1.18 (0.01 to 2.37)*
	HADS anxiety score	7.32 (2.64) [28]	6.73 (2.24) [24]	0.54 (-0.23 to 1.31)
Illness Perceptions Questionnaire	Consequences	3.96 (2.90) [28]	4.16 (2.23) [24]	0.00 (-1.25 to 1.25)
	Timeline	9.37 (2.00) [27]	9.83 (0.48) [25]	0.00 (0.00 to 0.00)
	Personal control	5.21 (2.81) [28]	5.76 (2.33) [25]	-0.60 (-1.89 to 0.69)
	Treatment control	8.07 (1.88) [28]	7.56 (2.62) [25]	0.48 (-0.51 to 1.47)
	Identity	3.89 (3.02) [28]	3.72 (2.98) [25]	0.52 (-0.68 to 1.72)
	Concern	6.96 (3.46) [28]	6.20 (2.94) [25]	-1.50 (-2.50 to 0.00)
	Coherence	5.68 (2.67) [28]	7.16 (2.93) [25]	1.50 (0.50 to 2.50)†
	Emotional representations	3.26 (3.22) [27]	3.64 (2.89) [25]	0.17 (-1.36 to 1.70)

*Statistically significant at the 0.05 level. †Statistically significant at the 0.01 level. ‡Statistical comparisons could only be conducted for people with complete data at time 1 (t_1) and time 2 (t_2) – the mean difference indicates the difference between the t_1 and t_2 mean for these people. The means reported in the text are for all participants at t_1 and t_2. Concern and coherence were non-normally distributed and analysed using Wilcoxon matched pairs signed-rank test. §IFCC-standardised values provided in text.

CI=confidence interval; HADS=Hospital Anxiety and Depression Scale; SD=standard deviation.

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