

Empowerment, diabetes and the National Service Framework: A systematic review

Lorraine Henshaw

Article points

1. Traditional models of diabetes care depended upon individual 'compliance' that could often be difficult for the individual and could lead to poor glycaemic control. This led to a reconsideration of the traditional model and the development of the empowerment approach.
2. Possible barriers to the empowerment of individuals have been identified in many studies.
3. Healthcare professionals need to explore the possible barriers to the process of empowerment and break them down.

Key words

- Empowerment
- Systematic review
- Self-efficacy

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Over the last few years new policies to modernise the NHS have emphasised the importance of the role of the individual within health care. The National Service Framework (NSF) for diabetes' standard 3 (Department of Health, 2001a) is concerned with empowering people with diabetes and sets out a framework to achieve this and to encourage them to become the principal care givers. The NSF for diabetes recommends the use of some key interventions: structured models of education, personalised care plans and patient-held or accessible records to facilitate individual empowerment. If healthcare professionals are to meet these standards and aid the empowerment of individuals then evidence is needed that such interventions actually work and do not just instruct and dictate based upon the wants and needs of the healthcare professional rather than those of the individual. A systematic review was undertaken to examine the interventions that have been identified by the NSF for diabetes as providing empowerment for individuals with diabetes. This article presents and discusses the results of the systematic review.

Traditional models of diabetes care depended upon individual 'compliance' that could often be difficult for the individual and could lead to poor glycaemic control (Walker, 2000). This led to a reconsideration of the traditional model and the development of the empowerment approach (Funnell et al, 1991).

The empowerment model of care is a patient-centred approach, as illustrated here:

'[A patient-centred approach gives] the individual the skills, the knowledge and, therefore, the power to enable them to play a leading part in their own management.' (Shillitoe, 1994)

There are also many other definitions of

empowerment of the person with diabetes:

'Patients are empowered when they have the knowledge, skills, attitudes and self awareness necessary to influence their own behaviour and that of others in order to improve the quality of their lives.' (Funnell et al, 1991)

'Empowerment involves nurturing and facilitating the growth of another person.' (Klawuhn, 1997)

'Empowerment can be understood as a process whereby a person attains the authority to make decisions for managing his or her own life.'

(Allgot, 2001)

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1. Despite a lack of standardisation, definitions of empowerment all relate to a process that gives people more control of their own lives thereby increasing their quality of life.
2. Empowerment has many related variables and terms. A 'patient-centred', or 'collaborative care', approach is one in which the healthcare professional and the individual make decisions together.
3. 'Self-management education' involves the teaching of strategies for problem solving and the sharing of information and knowledge to allow successful management of the individuals' own lives alongside their diabetes.
4. One of the main concepts within self-management is 'self-efficacy', which is an element of empowerment; it can be described as the confidence that a person has to make decisions and carry out self-management.

Despite an obvious lack of standardisation, these definitions of empowerment all relate to a process that gives people more control of their own lives thereby increasing their quality of life.

Empowerment has many related variables and terms. A 'patient-centred', or 'collaborative care', approach is one in which the healthcare professional (HCP) and the individual make decisions together (Bodenheimer et al, 2002). 'Self-management education' involves the teaching of strategies for problem solving and the sharing of information and knowledge to allow successful management of the individual's own life alongside his or her diabetes. One of the main concepts within self-management is 'self-efficacy', which is an element of empowerment; it can be described as the confidence that a person has to make decisions and carry out self-management. Bandura defined self-efficacy as:

'The belief in one's capabilities to organise and execute the sources of action required to manage prospective situations.' (Bandura, 1982)

In both patient-centred care and self-management the key factor is empowerment. Self-efficacy of the individual increases when he or she is empowered (Bandura, 1997; Tones and Tilford, 2001). The emphasis is on the person with diabetes as the principal caregiver. The HCP uses his or her expertise to inform and facilitate, the result being a person who feels confident enough to take on the management of his or her condition, with support from the HCP.

A review of the literature, by the author, in this field identified that much of the evidence in support of empowerment strategies was on descriptive research and that no systematic review had been undertaken. Such would allow clarification of the evidence and would highlight any weaknesses.

A comprehensive review of the impact of diabetes education, upon the person with the condition, by Glasgow and Osteen (1992) concluded that viewing diabetes education primarily in terms of knowledge transfer is inadequate and inconsistent. They suggested that diabetes education must move beyond knowledge improvement and metabolic control. In their conclusion Glasgow and Osteen commented that:

'The past decade has [...] witnessed a dramatic shift from knowledge/attitude/belief models of education to focus on patient-centred perspectives, self-efficacy, self-management and empowerment issues.'

It is accepted that diabetes education is a vital component of good management but is not empowerment (Brown, 1988).

Aims and objectives

The aim of this systematic review was to examine the evidence for the previously mentioned key interventions identified by the NSF for diabetes, and their ability to help in achieving empowerment for people with diabetes and to identify, if they are shown to be effective, what their fundamental components are. Identified possible barriers to empowerment were also explored. The knowledge of these barriers would be vital in the planning of any empowerment strategy.

Methods

The studies analysed for inclusion in this review were randomised controlled trials (RCTs) and clinical controlled trials with study populations of adults with type 1 or type 2 diabetes, in any clinical setting. Interventions were identified as those made explicit in standard 3 of the NSF for diabetes: structured education, personalised care plans, and patient-held or accessible records. To be included in the review, studies had to report on individual empowerment using a validated empowerment-based score, a measure of self-efficacy or a measure of individual satisfaction with self-care.

The full title of the review question was 'the effectiveness of interventions aimed to empower people with type 1 and type 2 diabetes'. This question was broken down into key concepts and each of these was then developed to extend its scope and defined to increase precision. This resulted in a list of synonyms and related terms. These were then used as key words within the search strategy. An example of the final search strategy is set out in *Table 1*.

The studies included in this review were selected after consideration of the inclusion criteria and after going through a study selection

process as described in the Centre for Reviews and Dissemination's report number 4 (Centre for Reviews and Dissemination, 2001). The guidance from this report was also used to assess methodological quality of the included studies.

Results

Based upon the inclusion criteria 13 studies were included in the final review. *Table 2* shows the characteristics of all 13, including population details, primary intervention, outcome measures of interest, results and this author's comments. The studies evaluated a number of interventions targeting people with diabetes in, mostly, community settings. Only one study was set within the inpatient setting (Bott et al, 2000). No studies meeting this review's inclusion criteria were found that evaluated patient-held records or care plans. The different outcome measures used by the included studies make it impossible to assess the effect of study size or to make direct comparisons of the interventions evaluated; this was a reason as to why a meta-analysis was not carried out.

Discussion

There are many differences between the studies identified for this review, such as primary intervention, participant characteristics, setting and outcome measures. However, there are some common elements between the studies that allowed some judgements, with regard to the effectiveness of the interventions, to be made.

Although only one of the studies, that of Keers and colleagues (2002), attempted to identify the processes involved, a central theme emerged in all of the interventions that demonstrated an increase in some measure of empowerment. Despite the setting, mode of delivery or content, they all have a core philosophy consisting of personal and individualised goal setting, and teaching problem solving techniques and coping strategies (Anderson et al, 1995; Bott et al, 2000; Keers et al, 2002).

In three of the studies the intervention evaluated is an adaptation of the functional insulin therapy (FIT) programme (Langewitz et al, 1997; Bott et al, 2000; Howorka et al, 2000). All three demonstrated a positive increase in

the measure of empowerment used. Structured education for FIT consistently affects individuals' perceived control over their diabetes (Howorka et al, 2000). These three studies demonstrate that the intensive nature allows the individual to learn to self-treat; as patient-centred strategies these programmes allow greater freedom from the everyday constraints of diabetes, such as restrictive meal times and restrictive meals.

It could be argued that many other forms of structured intensive education could be effective in empowering individuals. Unfortunately, however, only a very small minority of studies have measured any form of empowerment. This can be seen by the relatively small number of studies identified in this review and is corroborated in the work of Glasgow and Osteen (1992).

The training of HCPs in patient-centred care has been shown to be effective at increasing doctor-patient communication (Kinmonth et al, 1998). The results of that study showed no direct increase of perceived control over diabetes, as could have been expected. This may have been because the study was underpowered or the technique used to measure empowerment was inappropriate. It could, however, be that

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3. Despite the setting, mode of delivery or content, they all have a core philosophy consisting of personal and individualised goal setting, and teaching problem solving techniques and coping strategies.

Table 1. An example of the finalised key word search strategy used to search the Ovid database (<http://gateway.uk.ovid.com/gw1/ovidweb.cgi> [password required; accessed 19.04.2006]).

Search period: 01.01.1991–30.06.2003
Search terms
1. 'Diabetes'
2. 'Self efficacy' or 'self care' or 'patient-centred care'
3. 'Health professional-patient relations'
4. 'Physician-patient relations' or 'nurse-patient relations'
5. 'Patient-nurse partnership' or 'patient-physician partnership'
6. 'Patient education'
7. 'Patient training'
8. 'Self-management'
9. 'Empowerment'
10. 'Patient-led'
Search strategies
A. 2 OR 3 OR 4 OR 5 OR 8 OR 9 OR 10
B. 1 AND A
C. 6 OR 7
D. B AND C
E. D AND 'clinical trial'

Table 2. Characteristics of the studies included in the systematic review.

Reference	Population details	Intervention	Outcomes of interest	Results	This author's comments
Howorka et al (2000)	N=32, type 1, F/U 4 weeks, mean age 36 years	Functional insulin therapy (FIT)	Perceived control over diabetes	Positive locus of control ¹ change for intervention arm ($P=0.0007$)	Well-performed, moderate-quality RCT. Went on to become a long-term study
Bott et al (2000)	N=83, type 1, F/U 18 months, mean age 35, inpatient	Five-day FIT programme	Self-efficacy, locus of control ¹	Positive increase for self-efficacy ($P<0.001$)	Good-quality pre- and post-intervention study. Study population very specific group of poorly controlled patients. Generalisability ²
Langewitz et al (1997)	N=43, type 1, F/U 12 months, mean age 33 years	FIT programme: evening sessions over 6 weeks	Locus of control ¹ , doctor-patient relationship	Positive change in locus of control and in doctor-patient relationship ($P<0.05$ and $P<0.001$, respectively)	Not an RCT. Comparison of intervention made to small group of usual care patients. Of good quality
Keers et al (2002)	N=58, type 1 or 2 not specified, F/U 10 weeks, mean age 49 years	Multidisciplinary intensive education programme, 12 group sessions and individual counselling	Locus of control ¹	Positive change for locus of control ($P<0.05$)	Longitudinal pre- and post-intervention test design. Good quality. Observational
Sadur et al (1999)	N=185, types 1 and 2, F/U 12 months, mean age 56 years	Multidiscipline nurse-led in a cluster visit setting versus usual care. Monthly 2-hour sessions	Ten-point self-efficacy scale	Nine out of 10 subscales improved positively, three out of 10 subscales showed significant positive change ($P<0.05$)	RCT wait-list design. Attrition rate fairly high at 28%
Miller et al (2002)	N=98, type 2, F/U 10 weeks, mean age 73 years	Ten 2-hour weekly group sessions of nutritional education based on a combination of theoretical concepts	Self-efficacy	Intervention group shows positive increase in self-efficacy ($P<0.001$)	Randomised pre-test, post-test control group design. Of good quality
Anderson et al (1995)	N=64, types 1 and 2, F/U 18 weeks, mean age 50 years	Patient empowerment programme, one session per week for 6 weeks	Patient empowerment scale	Between groups intervention showed positive improvement ($P<0.05$)	RCT wait-list design. F/U short. Method of randomisation unclear
Glasgow et al (2002)	N=320, type 2, F/U 12 months, mean age 59 years	Telephone F/U or community resources enhancement based upon problem solving and coping strategies versus usual care	Self-efficacy	Positive improvement in self-efficacy at 12 months ($P<0.001$); at 6 months' F/U no significant differences	Moderate-quality RCT. 2 x 2 factorial design
Piette et al (2000)	N=248, type 2, F/U 12 months, mean age 54 years	Automated telephone disease management calls with nurse, F/U by phone. Based on patient's priorities	Self-efficacy	Positive increase in self-efficacy ($P=0.006$)	RCT. Good quality
Cooper et al (2003)	N=89, type 2, F/U 2 years, mean age 58 years	'Diabetes Look After Yourself Programme'	Patients perspectives of the intervention based on a combination of theoretical educational concepts	Intervention was effective but only in the short-term	RCT with qualitative outcome measures

¹ 'Locus of control': defined as the degree to which individuals believe that their health is controlled by external or internal factors (Rotter, 1966) – it is frequently used to evaluate a health education programme's success (Wallston et al, 1978).

² 'Generalisability': refers to the fact that the study population is such that the findings cannot be transferred to other settings or populations.

Key to abbreviations. F/U, follow-up; RCT, randomised controlled trial.

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Reference	Population details	Intervention	Outcomes of interest	Results	This author's comments
Rickheim et al (2002)	N=70, type 2, F/U 6 months, mean age 52 years	Group versus individual diabetes education	Satisfaction of control scale	Both groups increased level of 'satisfaction they can control diabetes' ($P<0.01$)	Good-quality RCT
Kinmonth et al (1998)	N=250, type 2, F/U 12 months, mean age 57 years	Training in patient-centred care for nurses and doctors. Patients received usual care including education-trained doctor or nurse	Perceived control over diabetes	Similar measures in both groups. No significant differences	Parallel-group design RCT. Good quality
Kidd et al (2004)	N=202, types 1 and 2, F/U 3 months, mean age 47 years	Patient-focused interventions for training in participation in consulting with doctor	Self-efficacy	Immediately post-intervention: positive increase in self-efficacy for intervention group ($P<0.01$). Non-significant increase at 3 months	Good-quality RCT

Key to abbreviations. F/U, follow-up; RCT, randomised controlled trial.

the individuals did not ultimately have more control, but, in fact, they were 'allowed' better communication with the HCP, because of the training the HCPs had received to encourage this. This does not, in the author's opinion, result in empowerment.

Interventions aimed at preparing the individual for a more active role in the consultation process did increase self-efficacy (Kidd et al, 2004). This effect was only short term with the results apparent immediately post-intervention. They did not result in long-term behavioural change. There is a possibility that the interventions used to prepare the participants were too brief and not grounded in the key elements that have so far shown to be effective. However, the notion of equipping individuals to play a more active and equal role, with more confidence and assertiveness in any interaction with an HCP is a very interesting one. There has been research performed in this area such as the work of Thompson and colleagues (1990) and Greenfield and colleagues (1985) but more research is necessary to investigate the effectiveness of such interventions.

The evidence within the studies of the evaluation of telephone and automated telephone disease management and computer-based interventions was not sufficient to suggest that the method of delivery for the intervention was

instrumental in empowering individuals (Piette et al, 2000). The use of computer-aided support and telephone follow-up did produce an increase in all the outcomes assessed, including self-efficacy. Therefore, this author believes that the application of information technologies in any healthcare intervention warrants more investigation.

Possible barriers to the empowerment of individuals were identified in many of the studies. The power relationships between individuals and HCPs are challenged when individuals develop knowledge, which together with experiential learning compromises their usual passive roles. It is felt that there is a need for a culture change that can develop individual and professional expertise and allow individuals to be more actively involved in their care. This is substantiated by the work of Kinmonth and colleagues (1998) and Rayman and Ellison (1998).

Conclusion

Despite empowerment being a key issue in many recent Department of Health (DoH) initiatives such as *The NHS Plan* (DoH, 2000) and *The Expert Patient* (DoH, 2001b), there is still only a small collection of evidence from randomised studies of the effectiveness of empowerment interventions in people with diabetes.

There has, however, been much more work in

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1. A consensus should be reached to agree a standardised measure and a standardised definition for empowerment. This will allow future studies to be directly comparable to each other.
2. Empowerment as a concept is based on the assumption that individuals, if given the freedom to choose and the opportunity to reflect, would be able and willing to select appropriate diabetes goals.

this area in the form of observational studies that reinforce the findings of this systematic review (Golin et al, 1996; Street et al, 1993; Williams et al, 1998). Some also offer arguments against the empowerment process: Paterson (2001) discusses the 'myth of empowerment'. She argues that if HCPs adopt the discourse of empowerment, without critical review, this may lead us into a false sense of security, that all people with a chronic disease are able to participate fully in empowerment, if the practitioner only extends an invitation.

However, there is a central theme developing within this evidence base and it can provide us with a good foundation on which to build future interventions and strategies for empowerment. The findings of this review show that interventions that effectively empower individuals were based upon solid theoretical constructs. Individual-focused goal setting, coping skills and problem solving strategies were identified as key components of the effective empowerment interventions. Future strategies of care within diabetes should ensure that these components are included in any educational programme plans.

The author was disappointed to find that there was little evidence available and the evidence was limited to only a small selection of interventions. The use of information technology needs to be formally assessed and the empowerment potential thoroughly explored. There need to be larger, longer-term RCTs that evaluate empowerment to explore areas such as differing ethnic groups and socio-economic status.

The evidence for the use of patient-held records and care plans was limited. There have been RCTs performed to evaluate their effectiveness and implementation in other areas such as palliative care (Drury et al, 2000). No studies that met inclusion criteria at the time of writing this review were identified within diabetes care.

The attitudes of HCPs to the whole process of empowerment and the autonomy that this affords individuals requires further research. HCPs need to explore the possible barriers to the process and develop strategies to break them down. Many of the preconceptions are formed because of years of tradition within medicine and its teaching, and achieving a culture change within this

environment will not be easy (Tattersall, 2002).

More studies should measure empowerment. Currently there is no standard definition of empowerment and this in itself leaves the concept open to misinterpretation, leading to the possibility of inappropriate evaluation. A consensus should be reached to agree a standardised measure and a standardised definition for empowerment. This will allow future studies to be directly comparable to each other.

Empowerment, as a concept, is based on the assumption that individuals, if given the freedom to choose and the opportunity to reflect, would be able and willing to select appropriate diabetes goals. This assumption has been tested in the work of Anderson and colleagues (1995), but there needs to be more investigation of this assumption in future research. Unless individuals are willing to take on the responsibility that empowerment allows them, the whole concept would be ineffectual.

The debate in this area has led to a number of studies being undertaken that should be analysed if the review were to be repeated. At the time of writing, analyses from the study Expert Patient Education versus Routine Treatment (X-PERT) were unavailable. These should be included in any future review.

To summarise, although there is a strong evidence base for effective empowerment interventions, there is still a need for further research. The evaluation of many interventions could include a measure of empowerment to inform practice without much more work being involved. A standardised measure should be developed and used to assess empowerment and allow for between-study comparisons to be made. The attitudes of HCPs should be explored and strategies to change pre-conceived ideas of patient-doctor relationships developed. Finally, it is important for HCPs to question their own assumptions of empowerment and the effectiveness of any interventions. ■

This article is based on a systematic review undertaken as the author's dissertation for an MSc in Health Services Research at the University of Nottingham in 2003.

- Allgot B (2001) Empowerment and how it can be implemented: the role of diabetes associations. *Diabetes Voice* **46**: 48–51
- Anderson RM, Funnell MM, Butler PM, Arnold MS, Fitzgerald JT, Feste CC (1995) Patient empowerment. Results of a randomized controlled trial. *Diabetes Care* **18**(7): 943–9
- Bandura A (1982) Self efficacy mechanism in human agency. *American Psychologist* **37**(2): 122–47
- Bandura A (1997) *Self-efficacy: The exercise of control*. WH Freeman, New York
- Bodenheimer T, Lorig K, Holman H, Grumbach K (2002) Patient self-management of chronic disease in primary care. *Journal of the American Medical Association* **288**(19): 2469–75
- Bott U, Bott S, Hemmann D, Berger M (2000) Evaluation of a holistic treatment and teaching programme for patients with Type 1 diabetes who failed to achieve their therapeutic goals under intensified insulin therapy. *Diabetic Medicine* **17**(9): 635–43
- Brown SA (1988) Effects of educational interventions in diabetes care: a meta-analysis of findings. *Nursing Research* **37**(4): 223–30
- Centre for Reviews and Dissemination (2001) *Undertaking Systematic Reviews of Research on Effectiveness*. 2nd edition. Centre for Reviews and Dissemination, University of York
- Cooper HC, Booth K, Gill G (2003) Patients' perspectives on diabetes health care education. *Health Education Research* **18**(2): 191–206
- Department of Health (DoH; 2000) *The NHS Plan. A plan for investment. A Plan for reform*. DoH, London
- DoH (2001a) *National Service Framework for Diabetes: Standards*. DoH, London
- DoH (2001b) *The Expert Patient. A new approach to chronic disease management for the 21st century*. DoH, London
- Drury M, Yudkin P, Harcourt J, Fitzpatrick R, Jones L, Alcock C, Minton M (2000) Patients with cancer holding their own records: a randomised controlled trial. *British Journal of General Practice* **50**(451): 105–10
- Funnell MM, Anderson RM, Arnold MS, Barr PA, Donnelly M, Johnson PD et al (1991) Empowerment: an idea whose time has come in diabetes education. *The Diabetes Educator* **17**(1): 37–41
- Glasgow RE, Osteen VL (1992) Evaluating diabetes education. Are we measuring the most important outcomes? *Diabetes Care* **15**(10): 1423–32
- Glasgow RE, Toobert DJ, Hampson SE, Strycker LA (2002) Implementation, generalization and long-term results of the "choosing well" diabetes self-management intervention. *Patient Education and Counseling* **48**(2): 115–22
- Golin CE, DiMatteo MR, Gelberg L (1996) The role of patient participation in the doctor visit. Implications for adherence to diabetes care. *Diabetes Care* **19**(10): 1153–64
- Greenfield S, Kaplan S, Ware JE Jr (1985) Expanding patient involvement in care. Effects on patient outcomes. *Annals of Internal Medicine* **102**(4): 520–8
- Howorka K, Pumprla J, Wagner-Nosiska D, Grillmayr H, Schlusche C, Schabmann A (2000) Empowering diabetes out-patients with structured education: short-term and long-term effects of functional insulin treatment on perceived control over diabetes. *Journal of Psychosomatic Research* **48**(1): 37–44
- Keers JC, Blaauwweikel EE, Hania M, Bouma J, Scholten-Jaegers SM, Sanderman R, Links TP (2002) Diabetes rehabilitation: development and first results of a Multidisciplinary Intensive Education Program for patients with prolonged self-management difficulties. *Patient Education and Counseling* **52**(2): 151–7
- Kidd J, Marteau TM, Robinson S, Ukoumunne OC, Tydeman C (2004) Promoting patient participation in consultations: a randomised controlled trial to evaluate the effectiveness of three patient-focused interventions. *Patient Education and Counseling* **52**(1): 107–12
- Kinmonth AL, Woodcock A, Griffin S, Spiegel N, Campbell MJ (1998) Randomised controlled trial of patient centred care of diabetes in general practice: impact on current wellbeing and future disease risk. The Diabetes Care From Diagnosis Research Team. *British Medical Journal* **317**(7167): 1202–8
- Klawuhn G (1997) Learning to empower patients: a journey in, a journey out. *The Diabetes Educator* **23**(4): 457–62
- Langewitz W, Wosmer B, Iseli J, Berger W (1997) Psychological and metabolic improvement after an outpatient teaching program for functional intensified insulin therapy (FIT). *Diabetes Research and Clinical Practice* **37**(3): 157–64
- Miller CK, Edwards L, Kissling G, Sanville L (2002) Evaluation of a theory-based nutrition intervention for older adults with diabetes mellitus. *Journal of the American Dietetic Association* **102**(8): 1069–81
- Paterson B (2001) Myth of empowerment in chronic illness. *Journal of Advanced Nursing* **34**(5): 574–81
- Piette JD, Weinberger M, McPhee SJ (2000) The effect of automated calls with telephone nurse follow-up on patient-centered outcomes of diabetes care: a randomized, controlled trial. *Medical Care* **38**(2): 218–30
- Rayman KM, Ellison GC (1998) When management works: an organizational culture that facilitates learning to self-manage type 2 diabetes. *The Diabetes Educator* **24**(5): 612–7
- Rickheim PL, Weaver TW, Flader JL, Kendall DM (2002) Assessment of group versus individual diabetes education: a randomized study. *Diabetes Care* **25**(2): 269–74
- Rotter JB (1966) Generalized expectancies for internal versus external control of reinforcement. In: GA Kimble, ed. *Psychological Monographs* (Number 609). American Psychological Association, Washington
- Sadur CN, Moline N, Costa M, Michalik D, Mendlowitz D, Roller S et al (1999) Diabetes management in a health maintenance organization. Efficacy of care management using cluster visits. *Diabetes Care* **22**(12): 2011–7
- Shillitoe R (1994) *Counselling People with Diabetes (Communication & Counselling in Health Care)*. BPS Blackwell, Oxford
- Street RL Jr, Piziak VK, Carpentier WS, Herzog J, Hejl J, Skinner G, McLellan L (1993) Provider-patient communication and metabolic control. *Diabetes Care* **16**(5): 714–21
- Tattersall RL (2002) The expert patient: a new approach to chronic disease management for the twenty-first century. *Clinical Medicine* **2**(3): 227–9
- Thompson SC, Nanni C, Schwankovsky L (1990) Patient-oriented interventions to improve communication in a medical office visit. *Health Psychology* **9**(4): 390–404
- Tones K, Tilford S (2001) *Health Promotion: Effectiveness, Efficiency and Equity*. 3rd edition. Nelson Thornes, Cheltenham
- Walker R (2000) 'The dotted line'. *Practical Diabetes International* **17**(3): 69
- Wallston KA, Wallston BS, DeVellis R (1978) Development of the Multidimensional Health Locus of Control (MHLC) Scales. *Health Education Monographs* **6**(2): 160–70
- Williams GC, Freedman ZR, Deci EL (1998) Supporting autonomy to motivate patients with diabetes for glucose control. *Diabetes Care* **21**(10): 1644–51

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