

Coaching for Behaviour Change in Chronic Disease: A Review of the Literature and the Implications for Coaching as a Self-management Intervention

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Self-management is a necessary aim in the treatment of chronic illnesses, such as diabetes, heart disease, arthritis, lupus, and chronic obstructive pulmonary disease. Although the effective treatments are available for these serious conditions, the rate of adherence to medication, dietary changes, physical activity, blood monitoring, or attendance to regular medical screenings is reported to be approximately only 50%. The role of health professional support in effective self-management of chronic illness has been recently acknowledged. Furthermore, numerous studies on professional support for self-management of chronic illness have focused on the health professional as a “coach”. Coaching has been defined as an interactive role undertaken by a peer or professional individual to support a patient to be an active participant in the self-management of a chronic illness. A review of the literature revealed a limited number of empirical studies on coaching, with these focusing on one of three areas: disease-related education; behaviour change strategies; or, psychosocial support. Due to the small number of research investigations, only tentative support can be given to the efficacy of the different coaching approaches. However, it was apparent that education-based interventions have a significant role in self-management, but that these were not sufficient by themselves. The role of behaviour change-focused coaching was also shown to be an important factor. However, not all patients are ready for change, and therefore the need for coach interactions that move a patient to a stage of action were evident, as was the need to consider the emotional state of the patient. The challenges for future research is to investigate the relative strengths of these coaching approaches for the support of patient self-management of chronic illness, and the means to effectively integrate these approaches into routine health care, through a wide range of health professional groups.

Key words: Health coaching, Health professional patient support, Chronic illness, Self-management, Adherence

Chronic diseases, such as heart disease and diabetes, pose significant concerns for western societies (Sabate, 2002). Cardiovascular disease has been identified as a major cause of death in the western world (Mathers, Vos, Stevenson, & Begg, 2000; National Heart Foundation, 1999; Rich-Edwards, Manson, Hennekens, & Buring, 1995), and diabetes has been reported to affect approximately 150 million people world-wide (King, 1999).

Positive health outcomes for chronic illness require both effective treatments and adherence to these treatments (Haynes, 2001). In fact, Dunbar-Jacob et al. (2000) reported that adherence was a major factor in treatment effectiveness. However, a review by Haynes found that adherence to treatment for a chronic medical condition was generally only 50%. Furthermore, adherence to health-related lifestyle changes has also been found to be less than satisfactory (Myers & Midence,

1998).

Research has suggested that interventions aimed to improve adherence to medical treatment of chronic illness, based on self-management strategies, have been found to improve the health status of the patient and reduce the costs and usage of health services (e.g., Massanari, 2000; Valenti, 2001; Wahl & Nowak, 2000).

The role of professional support in the self-management of chronic illness has more recently been investigated (e.g., Doherty, Hall, James, Roberts, & Simpson, 2000; Reda & Makhoul, 2003). Numerous studies on professional support for self-management of chronic illness have focused on the health professional as a “coach” (e.g., Axelrod, Zimbardo, Chetney, Sabol, & Ainsworth, 2001; Samarel & Fawcett, 1992). Wilkie, Williams, Grevstad, and Mekwa (1995) defined coaching “as a method of patient education that guides and prompts a patient to be an active participant in

behavior change” (p. 9). They stated that coaching involves an interactive approach with the patient that helps identify impediments to behaviour change, and methods of teaching and modelling behaviour that empower the patient to achieve improved health status. Specifically, these authors claimed that coaching utilises cognitive behavioural approaches to teach the patient skills to manage their health. Additionally, the notion that coaching should have a “teaching” component was proposed by Vale, Jelineck, Best, and Santamaria (2002), who stated that coaching was “a method of training the patient to take responsibility for the achievement and maintenance of the target levels for their particular modifiable risk factors” (p.246). Vale et al. (2003) outlined coaching for patients with coronary disease to include assessment of the patient’s knowledge and practice of lifestyle and drug treatments, education of treatment requisites to achieve treatment goals, encouragement for the patient to discuss target goals with their practitioner, and setting targets to be achieved before the next coaching session. Axelrod et al., (2001) defined coaching in terms of “life coaches”. They described the role of coaches, in their study on disease management for children with asthma, as being that “life coaches assist children and their carers in making lifestyle and behavior changes to improve their health status” (p.38).

These definitions of coaching appear to emphasise a teaching or instructional role for the coach. In contrast, Hunt Joseph, Griffin, Hall, and Doherty Sullivan (2001) claimed that “coaching differs from teaching in that the coach is not placing emphasis on imparting new ideas but rather focusing on supporting others in their efforts to reach a new goal” (p. 704). This definition identifies the notion that the patient is actively selecting and pursuing the new goals and that the coach is supporting that process. Hunt Joseph et al. identified the establishment of peer coaching in the teaching profession in the 1980s, which aimed to develop and refine teacher behaviour. This type of coaching involved the pairing of a teacher with an expert peer who, through observation, modelling, feedback, and assistance, supported the paired teacher to implement new skills. Similarly, in a study that investigated the development of a cancer support group with coaching, Samarel and Fawcett (1992) stated that “coaching involves a caring partner providing feedback, reassurance,

praise, and reinforcement” (p.5). It is noted that this last study was focused on partner coaches as opposed to the previous definitions of profession coaches.

The definitions of coaching presented above cover a range of different styles of interaction with a patient that aim to improve health status. The aim of the present review is to investigate the specific components or techniques used in coaching and the reported effectiveness of these approaches to the improvement of patient self-management of chronic illness and health status. The current systematic review of the literature followed the procedure outlined by Chow, Turney, and To (2001) who systematically searched the literature to identify Level II studies, which are randomised controlled trials and controlled clinical trials, and Level III studies, which are controlled trials without randomisation such as cohort, case-control, and analytic studies; and multiple time series studies, such as pre-test and post-test investigations. The current search was also broadened to not only capture randomised controlled trials, but also to include quasi-experimental and non-experimental designs (Chambless & Hollon, 1998; Glasgow, McKay, Piette, & Reynolds, 2001; Norris, Engelgau, & Narayan, 2001). Specifically, a literature search of Medline, CINAHL, Psych Info, Cochrane Library, Ebsco Host, Science Direct, Academic Search Elite, and the Health Academic Reference Centre using the keywords of “coaching”, “telephone coaching”, “health coaching”, “self-management”, “behavio(u)r change”, “lifestyle change”, “chronic disease”, “chronic illness”, “empowerment”, “stages of change”, “motivational interviewing”, and “self-management education” revealed only 25 research articles that investigated coaching or health care professional support for the self-management of chronic illness. Broadly, these studies presented investigations of support-based interventions for the illnesses of heart disease, diabetes, asthma, and chronic obstructive pulmonary disease. The specific term of “coaching” was used in the majority of studies, but a few studies (e.g., De Busk et al., 1994) that referred to “supportive counselling” were also included in the following review.

The studies focused on professional or peer coach interventions aimed at patient chronic disease self-management. In summary, the range of components of coaching outlined in these

research studies covered three areas: disease-related education; behaviour change strategies; and psychosocial support. The research literature will be reviewed from these areas of coaching focus.

Disease-related education-focused coaching

Disease-related education programs, such as are common for diabetes, cover the nature of the disease, the required medical and lifestyle treatments, and the consequences of the disease if it is not controlled (Schechter & Walker, 2002). The focus of these interventions is on educating clients about their condition, with an expectation that this will lead to behaviour change. Two systematic Cochrane reviews in diabetes self-management have revealed that disease education is beneficial but that behavioural education is better, and that altering approaches to incorporate behavioural techniques is required (Vale et al., 2001; Watson, Briganti, Skinner & Manning, 2003). Researchers have proposed that behaviour change coaching complements disease education coaching programs, which are considered vital but alone do not necessarily translate into successful self-management strategies (Deakin, Cade, & Williams, 2003; Watson et al., 2003).

Greenfield, Kaplan and Ware (1985) and Greenfield, Kaplan, Ware, Yano & Frank (1988) employed a different approach in which health care professionals coached patients in their consultations with the medical practitioner. Two patient groups, one with diabetes and the other with stomach ulcers, were taught how to read medical records and were coached to ask questions, and identify pertinent decisions and management concerns that could require further discussion with their medical practitioner. In the diabetes study, Greenfield et al. found that following the coach-intervention the mean HbA1c decreased significantly, in addition to reductions in the complexities of the treatment routines for the diabetes sufferers. Furthermore, coached participants reported a significant improvement in quality of life and greater situational control in diabetes in comparison to the non-coached group of diabetes sufferers. In the other study, Greenfield et al. randomly assigned 23 patients with stomach ulcers to an intervention group and 22 patients to a "usual treatment" group of participants. The intervention group received a 20-minute session

before their regularly scheduled visit with their medical practitioner. During the coaching sessions patients were helped to read their medical record and coached to ask questions and negotiate medical decisions with their medical practitioner. Research findings revealed that, six to eight weeks after the trial, participants in the intervention group reported fewer limitations in physical and role-related activities, and preferred a more active role in decision-making compared to the usual treatment group. However, no differences were found between the groups on satisfaction with their health care. Although these findings indicated a positive effect in terms of medical decision-making, they were based on a relatively small sample of participants from a specific disease group. Additionally, as the researchers acknowledged, the study did not specifically assess a full range of health outcomes. Further research needs to comprehensively assess the role of patient-practitioner interactions and education programs on a range of health outcomes with larger samples from a wide variety of chronic diseases.

Behaviour change-focused coaching

Coaching has been considered as a means of improving patient self-management of chronic illness through the provision of medium to long-term support via evidence-based behaviour change models (Doherty et al., 2000). Recently, a number of large studies, with a coaching emphasis on behaviour change, have shown positive findings in both the prevention of disease progression and reduction of risk factors associated with chronic illness (Glasgow, Boles, McKay, Feil, & Barrera, 2003; Jones et al., 2003; The Diabetes Prevention Program Research Group, 2002; Vale et al., 2002). These studies are supported by the earlier work on behaviour change interventions for cancer, childbirth, lung conditions, cardiac surgery, diabetes, and stomach ulcers (e.g., Gortner & Jenkins, 1990; Greenfield et al., 1988; Greenfield, et al., 1985; Samarel & Fawcett, 1992; Wilkie et al., 1995).

Behaviour change-focused coaching research has used a "goal orientated" approach or a "readiness to change" approach. A major body of research that has investigated a goal-focused coaching intervention has come out of Stanford University (Lorig, 1996; Lorig & Gonzalez, 2000; Lorig, Sobel, Ritter, Laurent, & Hobbs, 2001; Lorig

et al., 1999). These programs, developed by Kate Lorig and her colleagues, are based on goal setting and self-efficacy building techniques, and utilise peer educators in chronic disease self-management. The programs have indicated significant improvements in self-management of chronic illness. Concurrent with the emphasis on specific behaviour change strategies, Lorig et al. (2001) have stressed the need to develop a patient's self-efficacy. This involves both confidence in the value of the specific strategy and confidence in the patient's ability to execute the strategy (Bandura, 1997). De Busk et al. (1994) undertook a behavioural intervention where the main focus was on improving the client's self-efficacy for managing and modifying health problems that were amenable to change. Specifically, these researchers reported a significant modification of cardiac risk factors following a nurse-led case management program with counselling in nutrition and drug therapy for hyperlipidemia, smoking, and physical activity. All parameters assessed in this study were found to improve significantly compared with a usual care group of individuals.

Another goal-focused coaching program was undertaken by Vale et al. (2002), who investigated improvements in cardiovascular health, using a randomised trial methodology. Specifically, the coaching was aimed to assist patients in achieving a target total cholesterol level less than 4.5 mmol/L. The program used a five-step process: establishing attitudes, knowledge and beliefs; explanation and rationale of treatment; assertiveness training; goal setting; and, reassessment. The coach intervention operated over six months. Although 42 of 75 (56%) of coached patients reported a fall in total cholesterol from baseline to six months assessment, compared to 32 of 71 (45%) of the usual care patients, this difference was not statistically significant. However, the clinical significance of the decrease in total cholesterol was evident in that 31% of the coached patients achieved a total cholesterol level of less than 4.5 mmol/L compared to only 10% of non-coached patients. A strength of this study was the inclusion of the specific health outcome index of cholesterol levels. Although other studies of self-management of chronic illness have assessed the satisfaction of the patient with the coaching interaction, and health behaviour changes such as amount of physical activity, weight, or frequency

of doctor's appointments, many have not included the relevant health goal, such as lower cholesterol levels, glucose control, or reduced blood pressure. Identification of statistical and clinical changes in health-related outcomes are necessary to evaluate the effectiveness of disease management-related interventions.

In those patients who have not internalised a need for change, an immediate focus on goals for change may not be the optimal approach. A number of studies found in the literature review used a "readiness to change" behaviour change-focused coaching used the theoretical frameworks of the Transtheoretical Model of Change (TTMC: Prochaska & Velicer, 1997). The constructs of the TTMC include five temporal stages of change. The stages of change are related to an individual's readiness to change, where a person in the pre-contemplation stage of change has no active intention to change. The contemplation stage of change describes a person's intention to not change within the next six months, whereas a person in the preparation stage of change has an intention to change within the next six months, and is likely to be engaging in activities that could be identified as preparing for action. The action stage of change is when a person is undertaking the target behaviour, such as quitting smoking, or daily blood glucose monitoring, and the maintenance stage of change is when an individual has carried out the target behaviour for the past six months.

The model proposes that interventions aimed to achieve health behaviour change need to be appropriate to the patient's readiness to make the required change. This view has been supported by Mau, Glanz, Severino, and Grove (2001) who suggested that "tailoring a lifestyle intervention to a person's stage of change may enhance its effectiveness in changing diet and exercise behaviors" (p.1774), and the development of stage-matched interventions has been shown to increase adherence behaviour for patients with a chronic illness (Miller, Hill, Kottke, & Ockene, 1997) including diabetes (Doherty et al., 2000; Hunt Joseph et al., 2001; Mau et al., 2001; Sullivan & Joseph, 2000).

Jones et al. (2003), in a study involving 1029 participants, found a significant effect of a telephone counselling intervention, developed from the TTMC, multiple self-management behaviours for diabetes. Participants, randomly

selected for the intervention group, were provided with a list of health behaviours requiring change. They were more likely to move from one of the pre-action stages of change to the action stage of change when one or two health behaviours were listed as requiring change compared to a “treatment as usual” group of diabetes sufferers. However, no differences were found between groups when participants were required to change more than two health behaviours. Jones et al. reported that achieving the action stage for the behaviours of healthy eating and monitoring blood glucose had the added benefit of improving metabolic control with significant decreases in HbA1c.

The interaction style of Motivational Interviewing (MI: Rollnick, Heather, & Bell, 1992) was often used concurrently with the TTMC. “Motivational Interviewing is a directive, client-centred counseling style for eliciting behavior change by helping clients to explore and resolve ambivalence” (p. 325, Rollnick & Miller, 1995). MI is a focused and goal-directed counselling approach that aims to help clients identify and address their ambivalence to change. Researchers have proposed that MI can enhance self-management of chronic illness because it helps patients overcome their reluctance to adopt the health care changes that have come with the diagnosis of the chronic disease. Support for the use of MI techniques in coaching has come from Clark and Hampson (2001), who found that diabetes patients allocated to a MI-intervention group reported greater recommended lifestyle changes than patients in the usual care group.

Psychosocial-focused coaching

An alternate model of coaching involves the provision of psychosocial support for the patient. Research has indicated that socially isolated diabetes patients do not manage their disease effectively (Alberti, 2001), and that social isolation could be as powerful a risk factor for heart disease as smoking, lack of physical activity, hypertension, and high cholesterol (Bunker et al., 2003). Dealing with chronic illness, such as diabetes, can be a “lonely” process (Joseph, Griffin, Hall & Sullivan, 2001). Often the disease of diabetes has no obvious physical manifestations, so others could be unaware of the profound influence it can have on an individual’s long-term health (Goodheart & Lansing, 1997). The provision of personalised

coaches for people with chronic disease could be considered a means of fortifying support networks, and improving client abilities to cope with psychosocial factors. Furthermore, Weinger and Jacobson (2001) found that coaches could provide emotional support for diabetes sufferers. They assessed data from 55 participants who had presented at a diabetes clinic with type 1 diabetes. These individuals reported an improvement in emotions and blood glucose levels following an intervention program that provided them with weekly telephone contact with a coach. The researchers reported that emotional distress was a barrier to self-management of glycaemic control for these participants, and that the regular social connection with the health care professional alleviated some of this distress. The research indicated that a common factor inhibiting adherence in treatment of chronic diseases was depression. Evidence for the role of depression in chronic illness self-management comes from a meta-analysis carried out by DiMatteo, Lepper, and Croghan (2000) on 12 articles that measured the relationship between depression and treatment adherence to medication not prescribed for depression. These researchers found that depressed individuals were three times more likely to be non-compliant with treatment recommendations than non-depressed individuals. Therefore, it appears that there is evidence that the “coach” role of a health care professional should include a focus on emotional distress in those with chronic illness.

Another psychosocial approach to coaching was developed by Thorne and Paterson (2001), who emphasised the importance of patient communication strategies with the health care professional, and the development of the decision-making expertise of the patient. They proposed that coaching in the rehearsal of interactions with health providers is one way of helping to improve self-management behaviour in patients with chronic illness. Thorne and Paterson claimed that patients who feel that their concerns have been understood by their practitioner can feel more in control of their treatment regime.

Summary

Coaching through educational, behaviour change or psychosocial-oriented approaches appear to have a significant role to make in the improvement of self-management of chronic illness. It is clear

that there is insufficient research available to make strong statements concerning the relative efficacy of the three broad approaches. However, it does appear that education, while important, is not sufficient in its own right for the development of long-term behaviour change required in those with chronic illness. A focus on behaviour change and strategies to achieve this also seems to be required. However, not all individuals will be ready for immediate behaviour change, and so a focus on determining the individual's stage of change and counselling approaches to move individuals to the action stages received support in the literature. Attention to the emotional status of individuals, as outlined in the psychosocial approaches, is also important given that emotional status has been demonstrated to inhibit the individual's ability to implement and maintain the required behavioural changes. Coaches have been shown to play an important role in all of these aspects of achieving long-term positive behaviour change associated with the treatment of chronic illness. It is not possible, at present, to determine the relative importance of the various components of coaching. Given this, it would seem prudent to include each of the components in current coaching activities, and to emphasise that future research needs to investigate the relative importance of the different components of coaching.

Modes of delivery of coaching

Different modes of delivery of coaching have been investigated for the support of self-management of chronic illness, including face-to-face, telephone and Internet coaching. Glasgow et al. (2003) undertook a controlled trial on self-management in patients diagnosed with type 2 diabetes using Internet or face-to-face coaching modalities. The Internet coaches administered dietary recommendations to participants twice a week over the duration of the intervention, and achieved a moderate success with dietary changes that was at least comparable to the results of the face-to-face coaching intervention. A decrease in cholesterol levels was also reported for the Internet group of participants. This finding was positive considering that cholesterol levels would generally be expected to rise in this age group without medication. Over the 10-month period, the intervention showed promising improvements across three behavioural and psychosocial variables that could possibly

translate into positive biological change for these individuals.

A combined face-to-face and telephone coaching intervention was undertaken by Axelrod et al. (2001), who investigated a disease management program utilizing "life coaches" for children with asthma. The coaches worked with 294 children and their families to incorporate lifestyle and behaviour changes to improve the child's health status. The coaches were available for 24 hours, seven days per week with monthly follow-up calls for one year or until self-management was achieved. The findings revealed a decrease in hospital and emergency department visits (45% and 17%, respectively). In addition, visits to primary health providers decreased by 19%, and the medication ratio of β_2 agonist to anti-inflammatory fell by 20%. These outcomes were reported to contribute to a substantial cost saving of approximately \$490,000.

While insufficient research exists, it does appear that coaching not involving face-to-face contact is of value and possibly as efficacious as face-to-face approaches.

Conclusions

Although research into coaching for self-management of chronic illness is limited, with reports found on only a handful of randomised trials, the data that do exist suggest that coaching is effective in the self-management of chronic illness. The value in support systems such as coaching for chronic illness self-management is particularly relevant considering the current ageing populations in western societies. Chronic illnesses, such as type 2 diabetes, heart disease, and osteoporosis, are more prevalent in older populations, and with the increased number of older people in our society, there will be a greater burden on the health care system financially, and for demands on resources.

The range of coaching delivery modes makes it flexible across populations and conditions, and through the use of technology it could have extensive reach. Problems associated with the delivery of health care in rural and remote regions have been well documented (Greene, Smith, Hullett, Kratt, & Kennard, 1999; Mueller, Ortega, Parker, Patil, & Askenazi, 1999). The issues related to distance, limited resources, and excessive

caseloads for general practitioners and allied health professionals place non-metropolitan individuals with health concerns, such as chronic illness, in a less-than-optimal position in comparison to their city counterparts. Telephone contact has been proposed as a means of increasing health care behaviour related to adherence (Kaplan & Simon, 1990). Haynes (2001) recommended the use of telephone coaching with patients to engage them in better managing their health care treatment goals, and that this could be the simplest and most cost-effective strategy to improve adherence behaviour.

Chronic disease coaching programs to date have almost all featured nurse case managers as the major health professional member in the collaborative care team (Glasgow et al., 2001). However, a patient with chronic illness might have contact with a range of allied health professionals, such as dietitians, physiotherapists, podiatrists, psychologists, etc., all of whom could play a substantial role in assisting patient self-management. Therefore, research needs to investigate the effect on health outcomes of self-management coaching undertaken by a wide range of health professionals. Coaching is gradually being validated as a means of overcoming the many problems confronting patients in the self-management of chronic illness. Difficulties for a patient could be associated with the inadequacies of an acute care system that is not designed for a "chronic disease world" (Donaldson, 2001). Bugas and Silberschatz (2000) claimed that people will, generally, strive toward achieving control of adverse health conditions, but in terms of chronic

disease, the health care system is not currently providing the long-term consistent behaviour change support that assists this innate drive. Coaching is beginning to address these concerns through "interactions that are focused on the patient concerns and in which the patient is listened to and helped to work through issues" (Glasgow et al., 2001).

Self-management intervention to reduce morbidity and mortality related to chronic illness might involve a range of coaching styles for different age groups, gender, and personal qualities of the patient. A coaching style focused on a "readiness to change" paradigm acknowledges the complexities of treatment for many chronic diseases, where individuals are not always "enthusiastic" about adhering to all treatment recommendations. Therefore, a patient could benefit from coaching that was accurately directed at the person's stage of change, particularly for the ambivalence to change at pre-action stages of change, and the specific behavioural techniques to maintain health behaviour change.

It is clear from this review that coaching has great potential in enhancing self-management in chronic illness. However, the literature is limited. Future research needs to address the mechanisms that make coaching successful (including the focus of the intervention, the mode of delivery, and the characteristics of the coach), providing guidelines for evidence-based practices, and facilitating its integration into routine health care through a wide range of health professional groups.

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References

- Alberti, G. (2001). Diabetes attitudes wishes and needs study. Retrieved, 2001, from <http://www.dawnstudy.com/view.asp?ID=3>
- Axelrod, R., Zimbro, K., Chetney, R., Sabol, J., & Ainsworth, V. (2001). A disease management program utilising life coaches for children with asthma. *Journal of Clinical Outcome Management*, 8, 38-42.
- Bandura, A. (1997). *Self-efficacy: the exercise of control*. New York: W.H. Freeman.
- Bugas, J., & Silberschatz, G. (2000). How patients coach their therapists in psychotherapy. *Psychotherapy*, 37, 64-70.
- Bunker, S., Colquhoun, D., Esler, M., Hickie, I., Hunt, D., Jelinek, M., Oldenburg, B., Peach, H., Ruth, D., CC, T., & Tonkin, A. (2003). "Stress" and coronary heart disease: psychosocial risk factors. *Medical Journal of Australia*, 178, 272-276.
- Chambless, D., & Hollon, S. (1998). Defining Empirically supported therapies. *Journal of Clinical and Consulting Psychology*, 66, 7-18.

- Chow, T., Turney, S., & To, E. (2001). The role of coaching in patient care: A systematic review of the medical literature. Unpublished preliminary review.
- Clark, M., & Hampson, S. E. (2001). Implementing a psychological intervention to improve lifestyle self-management in patients with type 2 diabetes. *Patient Education and Counseling*, *42*, 247-256.
- De Busk, R. F., Miller, N. H., Superko, R., Dennis, C. A., Thomas, R. J., Lew, H. T., Berger, W. E., Heller, R. S., Rompf, J., Gee, D., Kraemer, H. C., Bandura, A., Ghandour, G., Clark, M., Sha, R. V., Fisher, L., & Taylor Barr, C. (1994). A case management system for coronary risk factor modification after acute myocardial infarction. *Annals of Internal Medicine*, *120*, 721-729.
- Deakin, T., Cade, J., & Williams, D. (2003). Group based self management strategies in people with type 2 diabetes mellitus. (Protocol for a Cochrane review). In: *The Cochrane Library*(1).
- DiMatteo, M. R., Lepper, H. S., & Croghan, T. W. (2000). Depression is a risk factor for noncompliance with medical treatment: meta analysis of the effects of anxiety and depression on patient adherence. *Archives of Internal Medicine*, *24*, 2101-2107.
- Doherty, Y., Hall, D., James, P. T., Roberts, S. H., & Simpson, J. (2000). Change counselling in diabetes: the development of a training programme for the diabetes team. *Patient Education and Counseling*, *40*, 263-278.
- Donaldson, L. (2001). *The Expert Patient: A new approach to chronic disease in the 21st century*. London: Department of Health.
- Dunbar-Jacob, J., Erien, J. A., Schlenk, E. A., Ryan, C. M., Sereika, S. M., & Doswell, W. M. (2000). Adherence in chronic disease. *Annual Review Nursing Research*, *18*, 48-90.
- Glasgow, R. E., McKay, G. H., Piette, J. D., & Reynolds, K. D. (2001). The RE-AIM framework for evaluating interventions: what can it tell us about approaches to chronic illness management. *Patient Education and Counseling*, *44*, 119-127.
- Glasgow, R. E., Hiss, R. G., Anderson, R. M., Friedman, N. M., Hayward, R. A., Marrero, D. G., & Vinicor, F. (2001). Report of the health care delivery work group. *Diabetes Care*, *24*, 124-130.
- Glasgow, R. E., Boles, S., McKay, G. H., Feil, E., & Barrera, M. (2003). The D-Net diabetes self management program :long term implementation outcomes and generalisation results. *Preventative Medicine*, *36*, 410-419.
- Goodheart, C. D., & Lansing, M. H. (1997). *Treating people with chronic disease: A Psychological Guide*. Washington, DC: American Psychological Association.
- Gortner, S. R., & Jenkins, L. S. (1990). Self-efficacy and activity following cardiac surgery. *Journal of Advanced Nursing*, *15*, 1132-1138.
- Greene, P. G., Smith, D. E., Hullett, S., Kratt, P. P., & Kennard, P. (1999). Cancer prevention in rural primary care: An academic-practice partnership. *American Journal of Preventive Medicine*, *16*(3 Suppl), 58-42.
- Greenfield, S., Kaplan, S., Ware, J. E., Yano, E. M., & Frank, H. J. (1988). Patients' participation in medical care: Effects on blood sugar control and quality of life in diabetes. *Journal of General Internal Medicine*, *3*, 448-459.
- Greenfield, S., Kaplan, S., & Ware, J. E. (1985). Expanding patient involvement in care. Effects on patient outcome. *Annals of Internal Medicine*, *102*, 520-528.
- Haynes, R. B. (2001). Interventions for helping patients to follow prescriptions for medications. *Cochrane Database of Systematic Reviews*, *1*.
- Hunt Joseph, D., Griffin, M., Hall, R. F., & Doherty Sullivan, E. (2001). Peer coaching: An intervention for individuals struggling with diabetes. *The Diabetes Educator*, *5*, 703-710.
- Jones, H., Edwards, L., Vallis, T. M., Ruggiero, L., Rossi, S., Rossi, J. S., Greene, G., Prochaska, J.O., & Zinman, B. (2003). Changes in diabetes self care behaviours make a difference in glycemic control. *Diabetes Care*, *26*, 732-737.
- Joseph, D. H., Griffin, M., Hall, R. F., & Sullivan, E. D. (2001). Peer coaching: An intervention for individuals struggling with diabetes. *The Diabetes Educator*, *27*, 703-710.
- Kaplan, R. M., & Simon, H. J. (1990). Compliance in medical care: Reconsideration of self predictors. *Annals of Behavior Medicine*, *12*, 71.
- King, H. (1999). WHO and the International Diabetes Federation: Regional Partners. *Bulletin of the World Health Organization*, *77*, 954.
- Lorig, K. (1996). Chronic disease self management a model for tertiary prevention. (Perspectives on chronic illness: Treating parties and delivering care). *American Behavioural Scientist*, *39*, 676-678.
- Lorig, K., & Gonzalez, V. M. (2000). Community based diabetes self management education: Definition and case. *Diabetes Spectrum*, *13*, 234.
- Lorig, K. R., Sobel, D. S., Ritter, P. L., Laurent, D., & Hobbs, M. (2001). Effect of a Self Management Program on Patients with Chronic Disease. *Effective Clinical Practice*, *4*, 256-262.
- Lorig, K. R., Sobel, D. S., Stewart, A. L., Brown, B. W., Bandura, A., Ritter, P., Gonzalez, V. M., Laurent, D. D., & Holman, H. (1999). Evidence suggesting that a chronic disease self-management program can improve health status while reducing hospitalization A randomized hospitalization. *Medical Care*, *37*, 5-14.
- Massanari, M. J. (2000). Curtailing cost and improving patient outcomes. *Journal of Asthma*, *37*, 641-651.
- Mathers, C. D., Vos, E. T., Stevenson, C. E., & Begg, S. J. (2000). The Australian burden of disease study: Measuring the loss of health from diseases, injury and risk factors. *Medical Journal of Australia*, *172*, 592-596.
- Mau, M. K., Glanz, K., Severino, R., & Grove, J. S. (2001). Mediators of lifestyle behaviour change in native Hawaiians: Initial findings from the native Hawaiian Diabetes intervention program. *Diabetes*, *24*, 1770-1775.
- Miller, N. H., Hill, M., Kottke, T., & Ockene, I. S. (1997). The multilevel compliance challenge: recommendations for a call to action. A statement for healthcare professionals. *Circulation*, *95*, 1085-1090.
- Molter, J. (2002). Duke and federal Government partner to create innovative health care Model. Retrieved June 12, 2003, from <http://www.dukemednews.duke.edu>
- Mueller, K. J., Ortega, S. T., Parker, K., Patil, K., & Askenazi, A. (1999). Health status and access to care among rural minorities. *Journal of Health Care Poor and Underserved*, *10*, 230-49.
- Myers, L. B., & Midence, K. (1998). Adherence to treatment in medical conditions. Amsterdam: Harwood Academic Publishers.

- National Heart Foundation (1999). Plant sterols and stanols. Retrieved 29 September, 2001, from http://www.hyp.ac.uk/bhs/bhf_factfiles/bhf_factfile_march_2002.pdf
- Norris, S., Engelgau, M., & Narayan, K. (2001). Effectiveness of self-management training in type 2 diabetes: a systematic review of randomized controlled trials. *Diabetes Care*, *24*, 561-587.
- Prochaska, J. O., & Velicer, W.F. (1997). The Transtheoretical Model of health behavior change. *American Journal of Health Promotion*, *12*, 38-48.
- Reda, S., & Makhoul, S. (2003). Prompts to encourage appointment attendance for people with serious mental illness. In: *The Cochrane Library*, *3*, Oxford: Upstate Software.
- Rich-Edwards, J. W., Manson, J. E., Hennekens, C. H., & Buring, J. E. (1995). The primary prevention of coronary heart disease in women. *The New England Journal of Medicine*, *87*, 181-185.
- Rollnick, S., Heather, N., & Bell, A. (1992). Negotiating behavior change in medical settings: The development of a brief motivational interviewing. *Journal of Mental Health*, *1*, 25-37.
- Rollnick, S., & Miller, W. R. (1995). What is motivational interviewing? *Behavioural and Cognitive Psychotherapy*, *23*, 325-334.
- Sabate, E. (2002). Adherence to long term therapies: Towards policy for action. *International Journal of Behavioral Medicine*, *9*(supp 1), 231.
- Samarel, N., & Fawcett, J. (1992). Enhancing adaption to breast cancer: The addition of coaching to support groups. *Oncology nursing Forum*, *19*, 591-596.
- Schechter, C. B., & Walker, E. A. (2002). Improving adherence to diabetes self management recommendations. *Diabetes Spectrum*, *15*, 170-175.
- Schwarzer, R. (2001). Social-cognitive factors in changing health-related behaviors. *Current Directions in Psychological Science*, *10*, 47-51.
- Sullivan, E. D., & Joseph, D. H. (2000). University/community partnership to improve the lives of people with diabetes. *Practical Diabetes International*, *17*, 26-30.
- Thorne, S. E., & Paterson, B. L. (2001). Health care professional support for self-care management in chronic illness: insights from diabetes research. *Patient Education and Counseling*, *42*, 81-90.
- The Diabetes Prevention Program Research Group. (2002). The Diabetes Prevention Program (DPP): Description of lifestyle intervention. *Diabetes Care*, *25*, 2165-2171.
- Vale, M. J., Jelineck, M. V., Best, J. D., Dart, A. M., Grigg, L. E., Hare, D. L., Ho, B., Newman, R., & McNeil, J. J. (2001, August). Multicentre randomised controlled trial of coaching patients on achieving cardiovascular health (COACH): a proven method for achieving risk factor targets in patients with coronary heart disease. Paper presented at the Annual Congress of the European Society of Cardiology, Stockholm.
- Vale, M. J., Jelineck, M. V., Best, J. D., & Santamaria, J. D. (2002). Coaching patients with coronary heart disease to achieve the target cholesterol: A method to bridge the gap between evidence-based medicine and the "real world"-randomised controlled trial. *Journal of Clinical Epidemiology*, *55*, 245-252.
- Vale, M. J., Jelinek, M. V., Best, J.D., Dart, A. M., Grigg, L. E., Hare, D. L., Ho, B. P., Newman, R. W., & McNeil, J. J. (2003). Coaching patients on achieving cardiovascular health (Coach): A multicenter randomized trial in patient with coronary heart disease. *Archives of Internal Medicine*, *163* (in press).
- Valenti, W. M. (2001). Treatment adherence improves outcomes and manages costs. *AIDS Reader*, *11*, 399-404.
- Wahl, L. M., & Nowak, M. A. (2000). Adherence and drug resistance: Predictions for therapy outcome. Proceedings of the Royal Society of London - Series B: *Biological Sciences*, *267*, 835-843.
- Watson, M., Briganti, E., Skinner, T., & Manning, C. (2003). Self management strategies for adults with type 1 diabetes mellitus. (Protocol for a Cochrane review). In: *The Cochrane Library*(1).
- Weinger, K., & Jacobson, A. M. (2001). Psychosocial and quality of life correlates of glycemic control during intensive treatment of type 1 diabetes. *Patient Education and Counseling*, *42*, 123-131.
- Wilkie, D. J., Williams, A. R., Grevstad, P., & Mekwa, J. (1995). Coaching persons with lung cancer to report sensory pain Literature review and pilot study findings. *Cancer Nursing*, *18*, 7-15.

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