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Beyond Good Intentions: the development and evaluation of a proactive self-management course for patients recently diagnosed with Type 2 diabetes

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Abstract

This paper describes the development and first results of a brief self-management course for patients recently diagnosed with Type 2 diabetes. The intervention incorporates elements from proactive coping and self-regulation theory in a five-step plan to help newly diagnosed patients formulate and carry out intentions with regard to their self-management. The theoretical framework and course program are described, patient evaluations are summarized and proximal outcomes of the course will be analyzed, investigating whether the course is able to increase patients' proactive skills, goal attainment and confidence in dealing with self-management issues. Participants included 180 patients, diagnosed 3–33 months previously during a population screening. Participants were randomized into an intervention ($n = 78$) or control group ($n = 102$). Course evaluations were very positive, regardless of patients' demographic or medical background and participants were particularly positive about the five-step plan and potential for peer interaction. Compared with the control group, course participants improved significantly in terms of proactive coping, goal achievement and self-efficacy.

An intervention based on proactive coping appears to meet the needs of patients newly diagnosed with Type 2 diabetes, teaching them new proactive skills, improving their goal achievement and increasing their self-efficacy in dealing with their self-management tasks.

Introduction

From the moment they are diagnosed, patients with Type 2 diabetes are expected to take a major role in the management of their disease. This self-management includes monitoring and managing symptoms, adhering to treatment regimens, maintaining a healthy lifestyle and managing the impact of the illness on a daily basis and for the rest of one's life. Diabetes management can be particularly difficult for newly diagnosed patients. These patients generally experience few symptoms, often have difficulty identifying with their disease and generally have a poor understanding of their risk or treatment options [1–3]. While many newly diagnosed patients may intend to change their lifestyles, they have little experience in carrying out their intentions and report relatively little self-care behavior [4]. If patients are to profit from earlier detection, they need to take responsibility for and actively engage in self-management. Intervention programs are needed which focus specifically on the needs and concerns of these newly diagnosed patients.

This paper describes the development and proximal outcomes of 'Beyond Good Intentions', an intervention specifically designed to support newly diagnosed patients with Type 2 diabetes to initiate and maintain self-management behavior.

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Theoretical framework

A major problem in most self-management interventions is the lack of an explicit theoretical framework to explain both the reasons for non-adherence and the potentially effective ingredients that could increase adherence [5–8]. Furthermore, while most interventions have been successful in improving knowledge, attitudes, self-care behaviors and medical outcomes, such improvements have generally been short-lived, gradually disappearing once intensive contact with professionals is removed [8–11]. These interventions appear to be successful at motivating patients to initiate goal pursuits, but they rarely address the real problem with adherence, that is goal maintenance [12]. New theoretically based interventions are therefore needed which not only increase patients' knowledge and motivation to formulate intentions but also support them in carrying out these intentions.

Our intervention addresses these issues in a comprehensive theoretical framework based on the theories of self-regulation [13] and proactive coping [14]. Self-regulation is the process through which people control and direct their actions in order to meet their goals. Self-management requires a continual trade-off between maintaining long-term health and continuing to pursue other personal goals, habits and activities that often interfere with optimal self-management. A first assumption in our intervention is that patients need to be made more aware of their competing goals and need to decide realistically upon the goals they aim at. This emphasis on goal setting is supported by previous studies [15–17], and has been found to be particularly effective when followed by specific planning of behavior [18]. Proactive coping theory provides a framework to model these planning tasks.

Proactive coping refers to efforts undertaken in advance of a potentially stressful event to prevent it or modify its form before it occurs; in our case, how patients newly diagnosed with diabetes cope with potential threats to their health. The theory consists of five stages describing the steps patients can take to realize optimal self-care at an early stage, before signs of poor self-management occur. Proactive

coping starts with the 'accumulation of resources' such as time, money, skills and social support, creating the optimal conditions to deal with any future threats. The second, 'attention-recognition' stage, refers to the individual's ability to see a potential stressful event coming. Once a potential stressor has been detected, 'initial appraisal' occurs in which the individual assesses the threat and anticipates how this may affect him. 'Preliminary coping' efforts are subsequently undertaken to minimize or prevent the stressor. The final stage involves the 'use of feedback' and includes an evaluation of both the stressful event and the success of preliminary coping efforts. Proactive coping represents a shift from traditional models of coping; it emphasizes the anticipation of a variety of potential threats and implies that patients think about their goals and can take evasive action in advance of any actual threat. It also emphasizes different skills, focusing on active rather than avoidant or emotional coping and relying on informational support as opposed to emotional support [14].

Based on this stage model of proactive coping, and our previous experience with 'proactive' interventions [19–21], we developed a five-step plan to help patients formulate, carry out and evaluate their self-management goals. The intervention also used additional techniques to help patients grasp the five-step plan. First, the importance of setting small, positive, achievable and specific goals was stressed, forcing patients to consider how realistic their goals were in advance. Second, patients were asked to formulate implementation intentions, writing down their action plans in detailed and concrete terms to promote goal achievement [18, 22]. Third, mental simulation was employed to allow patients to virtually try out their goals and action plans [23]. Finally, the intervention continually challenged patients' beliefs and attitudes and emphasized the importance of peer interaction to stimulate instrumental support and problem-solving skills.

Objectives

The primary aim of this intervention was to help patients tackle specific self-care issues using the

proactive five-step plan, ultimately making them more proactive and confident in achieving optimal self-management. In this paper, we will first describe the content of the program in sufficient detail to enable comparison and replication by other researchers. Second, we will investigate how patients evaluated the program and whether the course caters more to specific groups of patients. Finally, we will explore whether the course is successful in achieving its proximal outcomes; that is, do course participants deal with their self-care in a more proactive manner, are they more effective in achieving their goals and, finally, does this increase their self-efficacy in dealing with self-care tasks.

Methods

A prospective randomized clinical trial was carried out to examine the effectiveness of the intervention Beyond Good Intentions. Following consent, patients were assigned to one of two treatment groups. Both patients and their caregivers were aware of the randomization process and patient's allocation. The control group received a brochure on diabetes self-management. The intervention group was offered the self-management course Beyond Good Intentions, which lasted 12 weeks. Both groups received questionnaires upon randomization (T1) and immediately after the course (T2). The Medical Ethics Committee of the University Medical Center Utrecht approved the study.

Recruitment and sample

Participants were recruited from the ADDITION study, a multicenter randomized controlled trial which evaluates the feasibility of a population-based screening program for Type 2 diabetes and subsequently investigates the effectiveness of a target-driven approach to reduce cardiovascular risk in people with screen-detected diabetes [24]. Patients had been diagnosed 3–33 months previously and were subsequently randomized into either intensive multifactorial treatment [lifestyle advice and protocol-driven tight control of blood glucose, cholesterol and blood pressure, including prescription

of aspirin and angiotensin converting enzyme (ACE) inhibitors] or conventional treatment according to national guidelines.

In total, 468 newly diagnosed patients from 70 general practices were invited and 227 (49%) patients agreed to participate. Reasons for not participating included practical issues such as work, illness or transportation (36%), lack of interest in research (36%), satisfaction with present level of (self) care (12%) and the perception that their diabetes was too mild (13%). Participants were more educated than non-participants, but there were no differences with regard to other patient characteristics (data not shown).

Of the 227 participants, 119 patients were allocated to the intervention condition and 108 were allocated to the control condition. A total of 30 patients from the intervention group dropped out before the start of the course due to time constraints, limited mobility and ill-health. A further 11 dropped out during the course due to personal circumstances. In the control group, four patients dropped out due to ill-health while two had difficulty filling out the forms. Patients who dropped out prematurely were less educated but did not differ significantly from participants on any other patient characteristic (data not shown).

The course was run 13 times with an average of six patients per course. Of the 78 course participants, 56 (71%) attended all six meetings, 19 (24%) missed one group session and four participants (5%) missed two sessions.

A total of 180 patients participated in the study and completed all questionnaires, with 78 in the intervention and 102 in the control condition.

Patient characteristics are shown in Table I. There were no significant differences between the intervention and control groups on any variable, suggesting that the randomization process was successful.

The course

The course Beyond Good Intentions lasted 12 weeks and consisted of four 2-h group sessions and two 1-h individual sessions. The course was facilitated by a registered nurse, experienced with diabetes

Table I. Demographic and medical characteristics

	Intervention (<i>n</i> = 78)	Control (<i>n</i> = 102)	<i>P</i> -value ^a
Age, mean (SD)	62.0 (4.9)	61.9 (5.6)	0.96
Gender (%)			
Male	64	55	0.24
Female	36	45	
Partner status (%)			
Partner	91	84	0.19
No partner	9	16	
Education level ^b , mean (SD)	3.4 (1.6)	3.1 (1.5)	0.15
Employed (%)			
Employed	30	22	0.17
Unemployed	70	78	
Treatment (%)			
Intensive	41	45	0.44
Usual care	59	55	
Disease duration, in months (SD)	18.4 (8.8)	17.0 (9.0)	0.31

^a*P*-value for ANOVA (age, education and disease duration) or χ^2 (all other variables).

^bLevel of education was measured on a six-point scale (1 = lowest, 6 = highest level).

patients. Nurses received four initial training sessions and additional supervision throughout the course from a clinical psychologist and felt sufficiently equipped to give the course.

The program began with an individual intake session, to discuss the patient's knowledge, attitudes and ambivalence with regard to diabetes management. Patient's diabetic history and present self-management level were discussed using 'The Diabetes Profile', a form designed to help patients gain insight into their condition. The form included recent information on patient's blood glucose, body mass index, blood pressure and cholesterol levels, using a color scheme from green to red to indicate their relative risk for long-term complications. Using this profile, a discussion ensued on why self-management is important, which areas the patient would like to work on and, finally, how the course could help achieve these changes.

Subsequently, four group sessions consisting of 6–8 participants were held biweekly. The first three sessions covered topics relevant to all patients; that is, physical activity, dieting and medication and

monitoring of the disease. In the fourth session, patients were given the opportunity to work on a personally relevant goal. This could be one of the previous themes, but all topics with regard to diabetes self-care were welcome.

The group sessions all had the same basic structure. After discussing the homework, the theme of the session was introduced and patients were invited to share their beliefs, emotions and experiences with regard to the theme. Subsequently, participants wrote their own individual action plans to attain a goal and discussed these with the group. Group members judged the quality of the goals in terms of their concreteness and attainability (Step 1), helped each other to recognize additional conditions and barriers which needed to be addressed (Step 2) and generated alternative strategies for solving problems in specific situations (Step 3). After the discussion, patients were asked to write down their final plan in the form of an implementation intention, stating specifically what they were going to do, how, where, when and with whom (Step 4). Patients were then asked to indicate how they were going to evaluate their progress and to consider in advance when they would be satisfied (Step 5). Finally, participants were also given homework in which they were asked to act on their plan, rehearse the desired behavior and keep a written daily register of goal attainment.

The group sessions had a patient-centered focus. The trainer took the role of facilitator and coach, stimulating patients to support each other and become more self-reliant in seeking information. Mental simulation was employed in each session to evaluate goals and action plans and try out alternative strategies.

The course ended with an individual session in which patients evaluated the program, their own progress and their future plans. This included personal issues that could not be dealt with during group meetings. The trainer helped patients to formulate new action plans and stimulated patients to discuss their experiences with their doctor.

The course included a patient workbook [25] and a nurse's handbook [26]. The workbook contained

background information on diabetes and each specific theme, including advice on relevant goals, conditions, barriers and action plans and contacts for patients who wanted more information. The nurse's handbook consisted of theoretical backgrounds and detailed descriptions of each session, including suggestions and pitfalls with regard to the five-step plan.

Measures

The evaluation of the course is based on the evaluation form filled out by course participants and two questionnaires completed by all participants, at baseline (T1) and immediately after the course (T2).

Course patients were presented with an evaluation form upon completing the course. Evaluations of various aspects of the course were elicited by written statements in which patients agreed on a five-point scale ranging from (1) 'not at all' to (5) 'very much'. Based on a factor analysis, we aggregated these items into four scales. 'Sessions' consisted of four statements measuring the degree to which sessions were 'educational', 'useful', 'interesting' and 'enjoyable' (Cronbach's $\alpha = 0.87$). 'Homework' included five statements assessing how 'educational', 'useful', 'interesting', 'difficult' and 'enjoyable' the homework was ($\alpha = 0.76$). The 'five-step plan' consisted of five statements on the usefulness and relevance of goal setting and action plans in the context of diabetes self-care, e.g. 'making action-plans is a helpful strategy in coping with my diabetes' ($\alpha = 0.91$). 'Trainers competence' involved five statements assessing the trainers 'expertise', 'empathy', 'flexibility', 'overall performance' and 'sympathetic nature' ($\alpha = 0.90$).

In addition, a number of single items were included. 'Peer support' was assessed with the statement 'During the course, I learned a lot from other participants', rated from (1) 'totally disagree' to (5) 'totally agree'. The patient workbook was assessed with the statement, 'The workbook was a valuable addition to the course'. Finally, patients were asked to give a global rating of the course and course leader on a scale from 1 to 10. Participants were also asked whether they would 'advise others to

participate in the intervention' on a scale from (1) 'certainly not' to (4) 'certainly'.

To assess the effects of the program, three proximal outcomes were measured in both groups at T1 and T2. The first outcome measure was 'proactive coping'. Patients were first asked if they had worked on a diabetes-related health goal in the preceding month. Patients who had worked on a goal were then asked in how far they used proactive concepts to achieve this goal, using the Proactive Diabetes Management Inventory, an instrument specifically designed to evaluate the success of our course in getting patients to implement the five-step plan in their self-care. The instrument included 17 statements covering different aspects of the five-step plan and asked in how far patients undertook these activities, from 1 = 'definitely not' to 5 = 'definitely'. The first six items assess whether patients think about their goals beforehand in a proactive fashion; that is, do they anticipate the conditions needed to reach their goal and do they anticipate barriers they may encounter along the way? Items 7–12 assess whether patients anticipate and plan the strategies needed to achieve their goal. Finally, Items 13–17 assess whether patients monitor their progress and strategies and adapt these accordingly. The scale resulted in a mean score ranging from 1 to 5 (Cronbach's $\alpha = 0.86$) and shows good conceptual and discriminant validity and reasonable predictive validity (data not shown).

The second outcome measure was 'goal achievement'. After stating their goal, patients were asked to indicate in how far they had achieved this goal, ranging from 1 = 'not at all' to 10 = 'completely achieved my goal'.

The final outcome measure, 'self-efficacy', was assessed using a questionnaire adapted from Lorig *et al.* [27]. Their original instrument is considered a valid and reliable measure for assessing self-efficacy in performing specific behaviors to control chronic disease. The adapted scale, developed to assess diabetes patients, included 12 items, each of which began with 'How confident are you that you can...', with answers ranging from 'not at all confident' (1) to 'totally confident' (7). The Dutch

translation has been validated [28] and Cronbach's α was 0.84 in this sample.

Analysis

The course evaluations were summarized using descriptive statistics. Three core evaluative measures were chosen to establish the suitability of the program for different categories of patients; that is, the 'global course grade' and the two subscales 'sessions' and the 'five-step plan'. These three measures were correlated with demographic (age, gender and education) and medical variables (disease duration and treatment intensity). Based on the Bonferroni procedure, we opted for a test of significance at the 0.003 level (0.05/15 tests) with correlations up to a significance level of 0.01 considered marginal.

To assess the effectiveness of the course in improving proactive coping skills, goal achievement and self-efficacy, we employed a two by two (group \times time) analysis of variance (ANOVA) with repeated measures, examining differences between 'groups', changes over time and 'group \times time' interactions. Only those patients who stated a goal at both T1 and T2 could be included in the analysis of proactive coping and goal attainment, while all patients could be considered for the self-efficacy scale. Additional *post hoc* analyses were done to examine differences between groups and time points (Bonferroni correction).

Results

Overall, the patient evaluations were very positive (Table II). Patients gave the course a mean global rating of 8.0 and 85% would most certainly advise others to take the course. The trainers, sessions, five-step plan, peer support and workbook all received high marks. With regard to the five-step plan, 80% of the patients considered it to be (very) relevant to their self-care and were firmly planning to continue using it in the future.

Patients were less positive about the homework assignments. The rating of 3.3 was reasonable, but considerably lower than the marks for the sessions overall ($t(78)$ 11.1, $P < 0.001$). Most patients not only found the assignments to be useful and educa-

Table II. Summary of patients' evaluations of the course

Scale (score range)	Mean (SD)
Global course rating (1–10)	8.0 (0.5)
Global trainer rating (1–10)	8.3 (1.0)
Advice to others (1–4)	3.8 (0.5)
Sessions (1–5)	4.1 (0.6)
Homework (1–5)	3.3 (0.7)
Five-step plan (1–5)	4.0 (0.8)
Trainers (1–5)	4.2 (0.5)
Peer support (1–5)	4.2 (0.9)
Workbook (1–5)	4.2 (0.6)
Frequency homework (1–5)	3.3 (1.2)
Time spent homework (min)	24

tional but also considered them difficult and time consuming. Patients did their homework less frequently than required (3–4 days/week versus daily) but spent considerable time on it per session (25 min).

Responses to the open-ended questions were also positive. Participants particularly liked the peer support (38 participants), the general setup of the course and the five-step plan (31 participants) and the choice of topics (12 participants). On the downside, 11 participants had expected to receive more detailed information. Another 11 participants would have appreciated a refresher session after some time to share experiences and reassess their goals and plans.

There was very little variation in patients' evaluations and no significant (or marginal) associations between the evaluative data and any demographic or medical variables.

To examine the proximal effectiveness of the course, changes in proactive coping, goal attainment and self-efficacy were analyzed, comparing course participants (intervention) with the control group. At baseline, 82% of course participants had worked on a goal in the preceding month compared with 81% of control patients. At the end of the course, all course participants had worked on a goal in the preceding month compared with 78% of control patients. With regard to the analysis of proactive coping and goal attainment, 64 course participants were compared with 73 control patients who had stated a goal at both T1 and T2.

Table III. Effectiveness of the intervention *Beyond Good Intentions* in improving proactive coping skills, goal attainment and self-efficacy

	Baseline	Follow-up	ANOVA repeated measures	
	T1	T2	Time	Group \times time
Proactive coping skills				
Intervention (64)	2.6 (0.1) ^a	3.1 (0.1) ^{ab}	$F(1,135) = 12.8$	$F(1,135) = 14.3$
Control (73)	2.6 (0.1)	2.6 (0.1) ^b	$P < 0.001$	$P < 0.001$
Goal attainment (1–10)				
Intervention (64)	5.4 (0.3) ^a	6.7 (0.6) ^{ab}	NS	$F(1,135) = 14.3$
Control (73)	6.3 (0.2)	5.9 (0.3) ^b		$P < 0.001$
Self-efficacy (1–5)				
Intervention (78)	5.5 (0.1) ^a	5.9 (0.1) ^{ab}	$F(1,178) = 10.2$	$F(1,178) = 12.9$
Control (102)	5.7 (0.1)	5.6 (0.1) ^b	$P < 0.05$	$P < 0.001$

Results are presented in terms of means (standard deviations). Means with different superscripts in a row differ significantly from each other at $P < 0.05$ (Bonferroni test). There were no significant main effects for group.

Table III describes the outcomes of the repeated measures analysis. ANOVA revealed a significant interaction effect for group \times time for all three outcomes: proactive coping skills ($F(1,136) = 14.3$, $P < 0.001$), goal attainment ($F(1,136) = 14.3$, $P < 0.001$) and self-efficacy ($F(1,179) = 12$, 9 , $P < 0.001$). For all three outcomes, mean scores increased in the intervention group and remained stable or marginally decreased in the control group.

Discussion

This study describes the development and evaluation of a theory-driven intervention geared to enhancing self-management in newly diagnosed patients with Type 2 diabetes by addressing their potential for self-regulation and proactive coping. This course, *Beyond Good Intentions*, was implemented with considerable success and proved to be relevant to a wide range of newly diagnosed patients and self-care issues.

Participants were overwhelmingly positive in their evaluations of the course, regardless of their demographic and medical background. They gave the content, structure and trainers a very positive evaluation and they were particularly satisfied with the five-step plan and peer interaction. Patients learned to implement the five-step plan in the context of their self-care, and were planning to continue

using their newly acquired proactive skills. These skills helped patients to move beyond their good intentions, helping them to achieve their goals and increase their self-efficacy.

This work shows that the theoretical model of proactive coping can be translated into a practical course that is effective in the context of diabetes self-management. The proactive five-step plan is new in that it emphasizes the role of anticipation in coping with potential threats. Additional ingredients such as mental simulation and implementation intentions proved to be invaluable tools in helping patients to set realistic goals, anticipate and overcome potential barriers and evaluate their progress. Previous work on proactive coping shows that the concept is applicable to a much broader range of issues including aging, education, employment and personal development [14, 19–21, 29].

The course's focus on personally relevant goal setting is not a new theoretical insight, but for many patients it was the first time they consciously formulated and planned out specific self-care goals. The focus on small, achievable goals helped patients to realize their intentions and gave them more confidence in dealing with their diabetes. At the end of the course, all patients were setting new goals to further improve their self-care.

Peer support was another valuable aspect of the program. For many, it was the first time they spoke

with other patients, and many appreciated the course's positive and open atmosphere in which they could share experiences and advice, including such simple but invaluable things as sharing recipes. While individual patients need enough time and attention, recent reviews suggest that group-based training have added benefits, creating the potential for vicarious learning and support [9, 30].

Some elements were more difficult to realize, suggesting that the course may not be suitable for all patients. The course's focus on increasing self-reliance was not acceptable to all. Some patients wanted more information and wanted to be told what to do. Accepting and taking responsibility for a disease such as diabetes can be difficult, and for patients who are not ready to do so, a patient-centered empowerment approach may not be appreciated [31]. Moreover, many patients were not inclined to do the homework everyday. Many patients found the daily records arduous and time consuming, suggesting that they may not have fully profited from this element of the course. Nevertheless, progress evaluation remains an important aspect of the five-step plan and we therefore suggest giving participants more freedom to choose a personally suitable registration method. In addition, 15% of the patients would have preferred more sessions spread out over a longer time span. While we recognized that more intensive contact and booster sessions can make interventions more effective [11], our focus was on developing a brief intervention that could be applied in the primary care setting. To ensure that patients would receive support beyond the course itself, general practitioners were informed of their patient's participation and patients were advised to share their experiences with their caregivers.

This study's evaluation thus reveals that the course is successful in teaching newly diagnosed patients to become more proactive in their diabetes self-care. However, a few limitations must be recognized. First, this study focused on short-term change in proximal outcomes; the course's long-term effects on self-management behaviors and medical outcomes remain to be determined in the ongoing evaluation. Second, this study was limited

to patients diagnosed via a screening-trial; however, evidence suggests that these patients do not differ from other newly diagnosed patients in their psychological outcomes [1–3]. Finally, we had some difficulty recruiting less educated patients. While this group did not profit less from the course, it points to a common problem in intervention research; notably, how to recruit patients from lower socioeconomic backgrounds.

Regardless, the findings of this study suggest that the course has practical value. It is relatively brief and can be given in the patient's community by general nurse practitioners who require few training sessions to successfully deliver the course. For the majority of newly diagnosed patients, the intervention formed a first step in taking a more proactive and problem-solving approach to their diabetes management. This is one of the major challenges facing medical providers who work with asymptomatic, but chronically ill patients. Early detection and treatment will have little added effect if patients do not take responsibility for and realize an optimal self-management.

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Conflict of interest statement

None declared.

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