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Original Research

The Role and Effectiveness of Telephone Peer Coaching for Adult Patients With Type 2 Diabetes

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Key Messages

- After routine intervention at education centres, patients with type 2 diabetes have difficulty accessing lifestyle and diabetes management.
- Community members with diabetes represent an untapped source of expertise that could be drawn on to enhance the continuity of care.
- Few studies have investigated whether patients and clinicians would be receptive to partnering with peer coaches in providing ongoing support.

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ABSTRACT

Objectives: This pilot investigated the feasibility and viability of recruiting, training and pairing peer coaches with patients with type 2 diabetes and whether telephone coaching enhances health outcomes.
Methods: Using a 1-group longitudinal design, 115 English-speaking adult patients with type 2 diabetes living in a health region were recruited by educators. Measures were glycated hemoglobin levels, self-reported health, fatigue and pain, activation, empowerment, self-efficacy, depression, communication with physician, medication adherence, health literacy and health-care utilization. The intervention consisted of weekly 30-min telephone calls by coaches to patients for a period of 6 months. Outcome measures were completed at baseline and at 6 and 12 months. A 1-way repeated-measures analysis of variance assessed whether the coaching program improved the outcomes of the patients from baseline to 6 and 12 months.
Results: Process recording demonstrated that peer coaches can be recruited, trained and paired with patients with type 2 diabetes for a 26-week period. At 12 months, the mean patient glycated hemoglobin level decreased by 9%; general health improved by 7%; fatigue decreased by 15%; activation increased by 15%; empowerment increased by 10%; self-efficacy increased by 23%; depression level decreased by 24%; and communication with physician increased by 22%.
Conclusions: This pilot found that a pragmatic low-cost telephone peer-coaching intervention assisted patients with type 2 diabetes to self-manage their diabetes in better ways. Future replication and randomized trials are needed to validate these preliminary findings. Involving volunteer peers in the spectrum of diabetes care is a cost-effective way of providing additional support and continuity of care.

Mots Clés:
Taux d'A1C
autonomisation du patient
accompagnement par les pairs
soutien à l'autogestion
téléphone
diabète de type 2

RÉSUMÉ

Objectifs : Ce projet pilote visait à examiner la faisabilité et la viabilité du recrutement, de la formation et du jumelage d'entraîneurs entre pairs avec des patients atteints de diabète de type 2 et visait à savoir si un accompagnement téléphonique améliore les résultats pour la santé.

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Méthodes : En utilisant un modèle longitudinal à groupe unique, 115 patients adultes anglophones atteints de diabète de type 2 vivant dans une même région sanitaire ont été recrutés par des éducateurs. Les mesures ont porté sur les taux d'hémoglobine glyquée, l'état de santé autodéclarée, l'état de fatigue et de douleur, l'état d'activité, l'autonomisation, l'efficacité personnelle, la dépression, la communication avec le médecin, l'observance thérapeutique, la littératie en santé et le recours aux soins de santé. L'intervention consistait en des appels téléphoniques hebdomadaires de 30 minutes par les entraîneurs aux patients pour une période de 6 mois. Les mesures des résultats ont été complétées au départ puis après 6 et 12 mois. Une analyse de la variance à un facteur sur des mesures répétées a permis d'évaluer si le programme de coaching avait amélioré les résultats des patients après 6 et 12 mois par rapport à la période de référence.

Résultats : Le relevé de l'ensemble du processus a démontré que des pairs entraîneurs peuvent être recrutés, formés et jumelés à des patients atteints de diabète de type 2 pendant une période de 26 semaines. Après 12 mois, le taux moyen d'hémoglobine glyquée a diminué de 9 %; l'état de santé général s'est amélioré de 7 %; la fatigue a diminué de 15 %; l'état d'activité a augmenté de 15 %; l'autonomisation a augmenté de 10 %; l'efficacité personnelle de 23 %; le taux de dépression a diminué de 24 %; les communications avec le médecin ont augmenté de 22 %.

Conclusions : Ce projet pilote a permis de constater qu'une intervention pragmatique et peu coûteuse d'accompagnement téléphonique par des pairs aidait les patients atteints de diabète de type 2 à mieux prendre en charge leur diabète de façon autonome. Une réplication future de ces essais et leur randomisation sont nécessaires pour valider ces résultats préliminaires. L'implication de pairs bénévoles dans l'éventail des soins du diabète est un moyen rentable de fournir un soutien supplémentaire et une continuité des soins.

Introduction

During the past decade, research studies have consistently found that individual management and outcomes of type 2 diabetes are enhanced through the use of self-management strategies (1–5). One model of self-management delivery, the Stanford programs, is delivered by either health professionals or trained peer leaders and has consistently shown positive results in a number of settings (6–12). Using another mode—telephone coaching—both diabetes clinicians (13–15) and peers (14,16–22) have also demonstrated effectiveness in bringing about improved outcomes. As well, a recent pilot study (23) has investigated the acceptability and feasibility of involving health professionals as health coaches in primary care. A randomized controlled trial involving expert patients as peer coaches providing home visits has also shown improved self-efficacy in recently diagnosed patients (24). The effectiveness of involving peer coaches with patients with type 2 diabetes in a Canadian context has not been thoroughly examined, and there is little research that describes the interactions between coaches and patients. This project is innovative because it examines the process and effectiveness of trained peers in providing weekly telephone coaching to patients with type 2 diabetes for a 6-month period. In addition, the study also examines the sustainability of such changes at 12 months.

The primary purpose of this project was to evaluate the feasibility, viability, effectiveness, process and sustainability of using peer health coaches to assist patients with type 2 diabetes who were experiencing challenges in managing their diabetes. Two main areas of research were investigated, namely: 1) the feasibility and viability of a telephone peer coaching program and 2) the effectiveness of peer coaching for patients with type 2 diabetes.

The target population was adults with type 2 diabetes attending a Diabetes Health Centre in the Fraser Health region of British Columbia (BC). This is BC's largest health region, encompassing 20 communities and containing more than one-third of BC's total population. It is the fastest growing health region of BC, has the highest age-standardized prevalence rate of diabetes mellitus in BC, and 38% of all British Columbians with diabetes live in this region. Two communities, Surrey and Abbotsford, have the largest proportion of persons with diabetes among all these communities. In the eastern part of the region, significant proportions of the communities are in the lowest quintile of socioeconomic circumstances (i.e. Hope >75%, Mission, Abbotsford, Chilliwack >35%). Surrey has 25% of the lowest socioeconomic quintile, while New Westminster has 21%. Between 2001 and 2006, the immigrant population in Fraser Health grew by 82,405. Nearly 50% of the region's population report overweight or obese body mass indexes. In Fraser Health, there is a steadily growing waitlist and wait time for people to access Diabetes Health Centres, and only 49% of those with type 2 diabetes have 2 or more tests for glycated hemoglobin (A1C) levels (25).

Fraser Health Diabetes Health Centres provide client care through 3 visits. The first visit usually involves a comprehensive assessment, and in subsequent visits, patients receive diabetes education. On average, half of the patients attended all sessions, and referral to community resources and follow-up care with diabetes staff were rarely arranged. Diabetes education staff did not have the time or resources to provide ongoing behaviour-change counselling and support. The result was that patients did not have the knowledge, skills, confidence or supports required to manage diabetes, and the situation was accentuated when they were from a variety of cultural communities or were of lower socioeconomic status. An episodic 6-h provision of knowledge-based education did not prepare patients to effectively manage the ongoing and complex behaviours required to manage diabetes. As well, the health-care system is not designed to provide an extended period of support due to a shortage of time and resources and an entrenched system design.

Peer coaches can assist patients to implement and sustain the behaviours they need to manage on an ongoing basis beyond or outside of formal diabetes education. Involving peer coaches is innovative because it taps the largely untapped resource of community peer support and can be cost-effective. This concept is important because new models of health-care delivery are needed to meet the growing demand for diabetes services in a cost-effective way. Fraser Health diabetes clinicians acknowledged the need for this extended continuum of service and endorsed the peer diabetes coach initiative. This pilot project was a partnership between the 11 Diabetes Health Centres in the Fraser Health region of BC and the University of Victoria Self-Management BC Office. The

Regional Manager of Diabetes Services, one of the co-investigators of the study, had an instrumental role in securing staff participation and continuing support for the initiative. Ethical approval to conduct the research in the Fraser Health region was acquired from The Joint Fraser Health and University of Victoria Research Ethics Board.

A 40-member community advisory committee was established and met 15 times to guide the project and offer a community perspective. Committee membership consisted of diabetes educators, research team members from the university and Fraser Health, coaches, community health leaders and members of the pharmaceutical community.

This 2 ½-year project, funded by the Lawson Foundation, began in September 2014 and was completed in March 2017.

Methods

Feasibility and viability of peer coaches

The foci of this research were to ascertain: 1) whether recruiting and training peer coaches were feasible and viable; 2) whether patients with type 2 diabetes would accept a peer coach; and 3) whether diabetes educators would recruit and refer their patients to the coaching program. Differing research methods were used to investigate each question. The first major question related to the feasibility and viability of recruiting and training peer coaches and then pairing them with patients with type 2 diabetes who were experiencing difficulty in managing their condition. Process recording was used to address this question.

The initial plan was for the university partner to recruit and train 100 English-speaking adult coaches from their roster of persons who had completed self-management programs in Fraser Health. Ideally, coaches would have type 2 diabetes themselves or have family members or close friends with diabetes or had led self-management programs. With respect to patients, the plan was for the diabetes educators to recruit 150 study subjects. Eligibility criteria included adults with type 2 diabetes living in the Fraser Health region, currently attending a Diabetes Health Centre, the ability to speak English and disclosure to educators that they were experiencing difficulty in managing.

Fraser Health diabetes educators and administration had participated in the planning and implementation of the project, so there were only a few challenges. The first challenge was that the team could not use randomized controlled trial methodology to create experimental and control groups for analysis. Diabetes educators did not feel ethically comfortable in recruiting patients experiencing difficulty with the chance that they would not receive a coach. Subsequently, the project team decided to modify the methodology to a 1-way repeated-measures analysis of variance with outcome measures obtained at baseline, 6 months and 12 months. The second challenge related to proposed client eligibility of having A1C levels above 8.0% within the past 6 months because patients' records were not accessible. Again, the team deleted this criterion. In retrospect, the baseline mean for patients was 8.4%.

During the 2 ½-year project, 224 persons expressed interest in becoming coaches. Of these, 109 completed a baseline questionnaire and consent form and completed 1 of 15 3-day coach-training workshops delivered by the university and diabetes educators. Over a 3-day training, coaches received a 1-day education session about management of type 2 diabetes that was provided by a diabetes educator and 2 days of training concerning using self-management support strategies and coaching skills provided by the university partner. The self-management support techniques were modeled after the 5As (Assess, Advise, Agree, Assist, Arrange) and Stanford approaches. Instruction was provided for making the weekly 30-min telephone calls, the need to make 3 attempts to make contact, what they needed to do if contact was not made and what needed to be included in each call. The main topics in each call were to to include: 1) how they were managing their diabetes, their medications and their home and work lives; 2) using the problem-solving process; 3) making action plans to start a new behaviour; and 4) how to locate and access community resources. Coaches were given a coaching manual that contained this standardized information and recording forms for them to complete at the end of each call. In addition, coaches were given a Fraser Health patient booklet titled "On the Road to Diabetes Health" (https://patienteduc.fraserhealth.ca/file/on-the-road-to-diabetes-health-330.pdf), which was also given to every patient who attended a Diabetes Education Centre.

After completing the training workshop, each coach was paired with a patient and made weekly 30-min telephone calls for a period of 6 months (26 weeks). Every 2 weeks, a research team member would have a 10- to 15-min telephone conversation with each coach to provide support, solve problems and ensure program fidelity. Coaches were supported at several stages throughout their 6-month coaching period, namely, in the training, during the bimonthly coach check-ins and through participation in the advisory committee meetings. This ensured that the self-management values were reinforced throughout the coaching period, which enhanced intervention fidelity.

Coaches and patients were matched by sex and as close to proximity in age as possible. The research coordinator and research associate paired coaches and patients by discussing personality types and preferred coaching style (e.g. assertive or reserved). Coaches were instructed to contact their patients once a week for 6 months and engage in a 30-min telephone-delivered coaching session. The coaches were also invited to attend quarterly advisory committee meetings. Coaches were given a $100 honorarium for their participation.

Of the 109 trained coaches, 85 were paired with patients during the project period: 67 were paired with 1 patient, 13 with 2 patients, 3 with 3 patients and 2 with 4 patients. Fourteen coaches were not paired because they would not be available for extended periods of time or because it was too late in the study to ensure a 6-month involvement. The remaining 10 coaches were paired, but the matches ended because the patients changed their minds about having a coach. An analysis was conducted to compare the coaches who were paired and stayed with the study for the 6 months with the coaches who were either not paired or paired but discontinued. The 2 groups did not differ in any of the variables except having English as their first language. The groups that were either not paired or in which pairing was discontinued had a greater proportion of coaches whose first language was not English (chi-square df=2, n=109)=24.91, p<001).

Two patient recruitment methods were used, specifically, through diabetes educators and through promotional materials in local papers. In total, 316 persons inquired about having a coach, and 200 inquiries were received from diabetes educators. Of the respondents, 155 patients completed the questionnaires and consent forms, and 115 were paired with a coach. Only 3 patients had led or taken a Stanford self-management program prior to their involvement in the study. Pairing was not arranged for 40 persons who had initially expressed interest because they would not be available to receive the calls over a 6-month period, did not meet the recruitment criteria or had reconsidered having a coach. During the study period, 87 of the 115 patients (76%) completed all the biweekly calls over the 6-month period; 11 completed the calls for between 4 and 6 months; 12 completed the calls for between 2 and 4 months; and the remaining 5 completed the calls for fewer than 2 months.

Analysis of this experience demonstrated that peer coaches can be recruited, trained and paired with patients with type 2 diabetes for a 26-week period.

Effectiveness of peer coaching

Quantitative research was used to investigate effectiveness with patients completing questionnaires at baseline and at 6 and 12 months. Questionnaires contained 12 outcome measures (i.e. A1C levels, self-reported health (26), fatigue (27), pain (28), patient activation (29), diabetes empowerment (30), self-efficacy to manage (27), depression (31), communication with physician (30), medication adherence (32), health literacy (3 questions) (33) and health-care utilization (i.e. emergency department visits, nights in hospital, and doctor visits in the previous 6 months) (30). All measures have been previously tested for reliability and validity. In addition to the 12 outcome measures, 5 demographic variables (age, sex, race/ethnicity, years of education and number of chronic conditions) were obtained for each patient and were used to assess any potentially differential effects of the program across time. For assessing these effects, factorial mixed analyses of variance with groups (e.g. based on sex, etc.) as the between-subjects factor and time as the repeated measures factor were employed. None of these demographic variables influenced the effectiveness of the intervention. Readers interested in these additional analyses can review them in the technical report ("The Role and Effectiveness of Diabetes Coaches in British Columbia," http://www.selfmanagementbc.ca/uploads/Research/Diabetes%20Health%20Coach%20Study%20Final%20Report%20January%202018.pdf). Patients received $25 each time they completed the questionnaire. For the main hypothesis, that the coaching program would improve the outcomes of the patients from baseline to 6 and 12 months, a 1-way repeated-measures analysis of variance (ANOVA) was used.

Results

The description of the 109 coaches and 115 patients (total N=224) is shown in Table 1. The 2 groups are comparable in terms of the proportion of men and women, their living situations, average age and whether they had attended a diabetes patient education program (a series of classes) but differ in terms of their language and education levels.

Findings from the 1-way repeated measures ANOVA that assessed the impact of the coaching program on the various outcome measures over time are summarized in Table 2. The table shows the means, standard deviations and number of observations (N) on which each analysis was based. Using a Bonferroni adjusted statistical significance level of .0031 per ANOVA of each outcome measure to control for type I error probability at the .05 level, statistically significant changes over time are indicated in boldface type. The table also shows the p values for outcomes that did not reach the preset level but did have p values of <.10. The analyses were conducted using all available data (i.e. cases with missing data were not eliminated from analyses) due to the low overall dropout rate and our observations that those participants who dropped out did not differ from those who remained in the study in terms of any of the demographic and outcome variables at baseline.

There were 8 outcome measures that changed significantly over time. The A1C levels dropped from an average of 8.4% at baseline to 7.6% at 6 months and remained at 7.6% at 12 months. Self-rated general health, fatigue, diabetes empowerment, self-efficacy, depression and communication with physician also improved significantly from baseline to 6 months and remained at the improved levels at 12 months.

Patient activation measure (PAM) scores showed that the transformed activation levels had increased from an average of 56.1 at baseline to 66.3 at 6 months, and they remained elevated at 64.4 at 12 months. Similarly, the self-efficacy scores increased from 5.8 at baseline to 7.3 at 6 months and remained high at 7.1 at 12 months. The PAM and self-efficacy scale measure similar constructs, and they were, indeed, correlated at each time point (at baseline, r=.5388, N=114; p<.0001; at 6 months, r=.5602, N=100; p<.0001; at 12 months, r=.5890, N=94; p<.0001). The increases in scores from baseline to 6 months were also statistically significant for both measures, and the improvements across time also remained correlated. The correlation between the PAM and self-efficacy changes from baseline to 6 months was r=.4937, N=100; p<.0001; and for baseline to 12 months, r=.3939, N=94; p=.0001.

Four levels of patient activation have been identified through the PAM (34). At level 1, the least-activated level, people tend to be passive and may not feel confident enough to play active roles in their own health. At level 2, people may lack basic knowledge and confidence in their ability to manage their health. At level 3, people appear to be taking some action but may still lack confidence and skill to support all necessary behaviors. At level 4, the most highly activated level, people have adopted many of the behaviours that will support their health but may not be able to maintain them in the face of life stressors. Higher activation levels are associated with much lower levels of unmet needs for medical care and greater

Table 1
Demographic, general health and physical description of coaches and study participants

	Coaches (N=109)		Program participants (N=115)	
	N	%	N	%
Sex				
Male	74	67.9	73	63.5
Female	35	32.1	42	36.5
Age (years)				
Mean (SD)	61.6 (12.8)		60.8 (9.3)	
Mother tongue				
English	71	65.1	94	81.7
Punjabi	11	10.1	5	4.4
Other	27	24.8	16	13.9
Education level				
High school or less (0–12 years)	14	12.8	36	31.3
Some postsecondary (13–15 years)	34	31.2	40	34.8
Postsecondary (16 years)	31	28.4	20	17.4
Postgraduate (17 or more years)	30	27.5	19	16.5
Living situation*				
Lives alone	24	22.9	28	24.4
Lives with others	81	77.1	87	75.7
Attended a diabetes patient education program?†				
Yes	52	81.3	92	80.7
If yes, how many years ago? Mean (SD)	6.1 (8.4) n=52		4.2 (4.6) n=85	
Who has T2D?				
Self	60	55.1	115	100
Family/friend	17	15.6	0	0
Other	32	29.4	0	0
Years since T2D diagnosis‡ Mean (SD)	12.76 (12.51) n=58		8.91 (8.38) n=113	
Number of chronic conditions, including T2D§				
None	23	21.1	0	0
1	39	35.8	29	25.2
2	24	22.0	23	25.0
3	15	13.8	40	34.8
4 or more	7	6.4	23	20.0

T2D, type 2 diabetes.
* Four coaches were not comfortable disclosing their living situations.
† A Diabetes Patient Education Program is offered to persons diagnosed with type 2 diabetes. Of the 60 coaches who had type 2 diabetes, 52 had attended a program.
‡ Two coaches could not recall when they were diagnosed with type 2 diabetes.
§ One coach was missing this information; therefore, the percentages do not add up to 100%.

Table 2
Participants: means (standard deviations) on the outcome measures at baseline, 6 months and 12 months*

Outcome measure†	At baseline	At 6 months	At 12 months	F value	p value‡
A1C level§	8.35 (1.74) N=109	7.58 (1.45) N=95	7.60 (1.30) N=89	14.42	**<.0001**
General health (1 to 5 rating) ↓	3.34 (0.82) N=113	3.11 (0.88) N=97	3.09 (0.79) N=94	10.17	**.0001**
Fatigue (0 to 10 rating) ↓	5.64 (2.21) N=115	4.90 (2.57) N=97	4.82 (2.46) N=93	8.01	**.0005**
Pain (0 to 10 rating) ↓	4.20 (2.94) N=115	4.09 (3.06) N=97	4.14 (2.83) N=93	<1.0	ns
PAM: activation level (%)	56.13 (12.27) N=114	66.33 (14.18) N=100	64.39 (14.47) N=95	31.73	**<.0001**
Diabetes Empowerment Scale (DES) score (1 to 5)	3.54 (0.49) N=115	3.93 (0.44) N=93	3.91 (0.48) N=87	38.02	**<.0001**
Self-Efficacy Scale score (1 to 10)	5.81 (1.82) N=115	7.33 (1.60) N=100	7.12 (1.68) N=94	59.33	**<.0001**
Depression (PHQ-9) score (0 to 24)	8.33 (5.56) N=112	5.23 (4.60) N= 75	6.33 (4.87) N=91	18.59	**<.0001**
Communication with physician (0 to 5 score)	2.44 (1.16) N=113	2.96 (1.26) N=76	2.97 (1.25) N=93	13.25	**<.0001**
Morisky Medication Adherence Scale (0 to 8 score)	5.56 (1.75) N=109	5.76 (1.61) N=93	6.00 (1.54) N=89	3.19	ns (.0455)
Health literacy: read (1 to 5 rating) ↑	4.48 (1.00) N=115	4.51 (1.09) N=99	4.53 (0.96) N=94	<1.0	ns
Health literacy – learning (1 to 5 rating) ↑	4.39 (1.02) N=115	4.55 (0.94) N=100	4.55 (0.97) N=94	2.98	ns (.0542)
Health literacy, fill out forms (1 to 5 rating) ↓	1.60 (1.12) N=114	1.63 (1.18) N=100	1.70 (1.27) N=94	<1.0	ns
Number of ER visits in past 6 months	0.49 (1.02) N=115	0.39 (1.06) N=99	0.29 (0.70) N=93	2.07	ns
Number of doctor visits in past 6 months¶	4.57 (3.88) N=114	3.90 (3.22) N=100	3.36 (2.73) N=92	3.78	ns (.0265)
Number of nights spent in hospital in past 6 months‖	0.80 (2.61) N=115	7.58 (1.45) N=95	0.18 (0.84) N=91	2.60	ns (.0904)

A1C, glycated hemoglobin; *ER*, emergency department; *F*, value from the one-way ANOVA (i.e. distribution of the ratio of two variances); *PAM*, patient activation measure; *ns*, not significant.

* The number of respondents indicates each outcome measure at each time point because some respondents did not provide a response.

† ↓ indicates that lower scores on this measure are better; ↑ indicates that higher scores are better.

‡ We report the p value for the more conservative Greenhouse-Geisser epsilon corrected degrees of freedom in the repeated measures ANOVA. For all but 3 outcome measures, the epsilons were >.90, and the lowest 3 were 0.8415 for A1C, 0.8644 for ER visits and 0.7845 for number of nights spent in hospital. Statistically significant changes over time are indicated in boldface type.

§ A1C levels that were 3.0 or more standard deviations above the group means were considered extreme scores and were deleted from analyses. This criterion led to the deletion of 6 scores from 4 program participants: 2 at baseline (19.5, 18.0), 2 at 6 months (14.3, 12.7) and 2 at 12 months (16.4, 15.1). No participants had A1C scores lower than 3 SD (minimum score at baseline was 5.3, at 6 months was 4.7, and at 12 months was 5.3).

¶ Two extreme scores (greater than 3.0 SDs from the group means) were removed from analyses of doctor visits (scores of 48 at baseline and 30 at 12 months.

‖ Extreme scores (greater than 3.0 SDs from the group means) from 4 participants were removed from analyses of nights spent in hospital.

support from health-care providers for self-management of chronic conditions (35).

Figure 1 shows that at baseline, the proportions of patients were about equal across the 4 activation levels. At 6 months, the proportions at levels 3 and 4 rose, while the proportions at levels 1 and 2 dropped substantially and remained elevated at 12 months, although some slippage back to level 2 was observed. A chi-square test of independence confirmed that the increase in the proportions of patients at the higher PAM activation levels at 6 and 12 months was statistically significant: chi-square (df=6, N=281)=22.976; p<.001.

The remaining outcome measures did not seem to be affected by the coaching. They were: pain, scores on the Morisky Medication Adherence scale and the 3 items assessing health literacy (all p values >.0224). It should be noted, however, that although these outcome measures did not reach statistical significance, the changes in the mean scores were all in the predicted (better over time) direction when compared with baseline.

Additional variables related to health-care utilization (number of visits to the emergency department, number of visits to the doctor and number of nights spent in hospital) are summarized at the bottom of Table 2. None of these measures changed statistically significantly over time.

Discussion

Behaviour change, specifically changing diet and physical activity behaviour, is 1 of the cornerstones of diabetes treatment, but changing behaviour is challenging. In a recent systematic review and meta-analysis by Cradock and colleagues (36), the researchers found that combined diet and physical activity interventions achieved clinically meaningful reductions in A1C levels at 3 and 6 months, but they were not sustained at 12 and 24 months, thus showing the difficulty in maintaining initial reductions in A1C levels over time. This study, however, demonstrated that improvements in A1C levels and other health outcomes can be sustained without reinforcement at 12 months (6 months post-intervention), which is a noteworthy achievement.

In addition, the peer coaching was able to bring about improvement in other important areas, namely, depression and activation levels. Studies consistently show that comorbid depression in diabetes is associated with poorer self-care and non-adherence to diabetes management (37), leading to increased episodes of hyperglycemia, microvascular and macrovascular complications and an associated increase in morbidity and mortality (38,39).

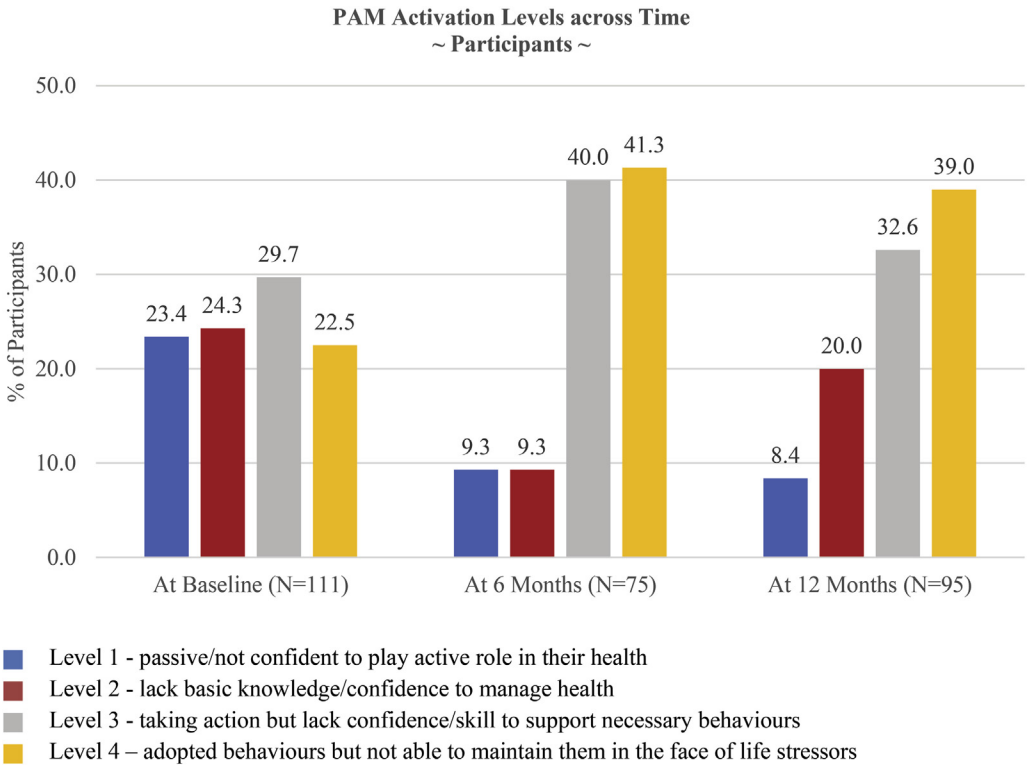

Figure 1. Participant baseline, 6 and 12-month patient activation measure (PAM) scores.

Another important change was an increase in patient-activation levels. The PAM (26) has been shown to be an important surrogate measure for several outcomes. Activation refers to people's ability and willingness to take on the role of managing their health and health care, and it assesses an individual's knowledge, skill and confidence in managing. The PAM has been used extensively in health-care research, and results have been published in numerous journals (http://www.insigniahealth.com/research/archive/). A 2016 systematic review of the association between patient activation and medical adherence, hospitalization and emergency department utilization in patients with chronic illness found that patient activation is associated with reduced hospitalization and emergency department use (40).

Last, this longitudinal pilot study used differing research methods to examine the implementation and effectiveness of a peer-led telephone intervention for patients with type 2 diabetes who were experiencing challenges and stress concerning daily management. A review of the processes used to recruit and train the coaches and determine patients' interest demonstrated that the concept is both feasible and viable.

Conclusion

In the study, 8 outcome measures improved from baseline to 6 months and were maintained at 12 months, namely, A1C levels (9%); general health (7%); fatigue (15%); patient activation (15%); diabetes empowerment (10%); self-efficacy (23%); depression (24%); and communication with physician (22%). In addition, these outcome measures were not influenced by covariates of sex, age, education level or the number of chronic health conditions patients were experiencing.

The main purpose of this study was to explore the feasibility and viability of involving peer coaches in enhancing the continuity of care for patients with type 2 diabetes. Its major limitation was the inability to utilize a control arm. Both diabetes clinicians and research staff concurred that it would be unethical to recruit patients to the study at a vulnerable time in their lives and to later inform them that they would need to wait 6 months for the program. In the real world, it is sometimes not ethical or realistic to incorporate randomized controlled trial designs, especially with vulnerable populations. Enhancing the external validity of effectiveness can be achieved by replication studies and, perhaps, studies not involving vulnerable populations. Despite the lack of a control arm, this study demonstrated findings consistent with other studies that measured the impact of peer support in improving glucose control in patients with type 2 diabetes (14,16–20,22,41).

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Author Disclosures

Conflicts of interest: None.

Author Contributions

PM is the guarantor of this work and, as such, had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis; he was responsible for methodologic design, conceptual development, statistical analysis, interpretation of data and drafting and editing the manuscript; SL was responsible for literature review and conceptual development; FH was also responsible for the conceptual development of the project and the establishment and maintenance of partnerships with diabetes education centres, health-care professionals and the community.

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