



BMJ Open Implementation of the Diabetes Community Exercise and Education Programme (DCEP) for the management of type 2 diabetes: qualitative process evaluation

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ABSTRACT

Objectives To examine context-specific delivery factors, facilitators and barriers to implementation of the Diabetes Community Exercise and Education Programme (DCEP) for adults with type 2 diabetes (T2D) using the Reach, Effectiveness, Adoption, Implementation and Maintenance framework.

Design A qualitative evaluation embedded within the DCEP pragmatic randomised controlled trial. Data collected via focus groups and interviews and analysed thematically.

Setting Community-based in two cities (Dunedin and Invercargill) in the lower south island of New Zealand.

Participants Seventeen adults diagnosed with T2D attending DCEP and 14 healthcare professionals involved in DCEP delivery.

Intervention DCEP is a twice weekly session of exercise and education over 12 weeks, followed by a twice weekly ongoing exercise class.

Results While our reach target was met (sample size, ethnic representation), the randomisation process potentially deterred Māori and Pasifika from participating. The reach of DCEP may be extended through the use of several strategies: promotion of self-referral, primary healthcare organisation ownership and community champions. DCEP was considered effective based on perceived benefit. The social and welcoming environment created relationships and connections. People felt comfortable attending DCEP and empowered to learn. Key to implementation and adoption was the building of trusting relationships with local health providers and communities. This takes time and care and cannot be rushed. Training of staff and optimising communication needed further attention. To maintain DCEP, delivery close to where people live and a generic approach catering for people with multiple chronic conditions may be required.

Conclusions For success, lifestyle programmes such as DCEP, need time and diligence to build and maintain networks and trust. Beyond frontline delivery staff and target populations, relationships should extend to local healthcare organisations and communities. Access and ongoing attendance are enabled by healthcare professionals practicing in a nuanced person-centred

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ Data were collected from both Diabetes Community Exercise and Education Programme (DCEP) attendees and healthcare professionals involved in DCEP, delivery, enabling capture of wide and diverse opinions.
- ⇒ The initial focusing analysis to identify key topics may have missed smaller and possibly important issues that merited consideration.
- ⇒ Although our randomised controlled trial met ethnic representation, this qualitative evaluation had low Māori or Pasifika representation.
- ⇒ While the interviewees were ethnically diverse, the three researchers who analysed the data were Pākehā (non-Māori) negating a Māori or Pasifika lens to the analysis.

manner; this, plus high staff turnover, necessitates ongoing training.

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INTRODUCTION

Type 2 diabetes (T2D) is a substantial health issue. Globally, 8.5% of adults aged 18 years and older are estimated to have T2D.¹ In Aotearoa/New Zealand (NZ) over 250 000 people are estimated to have T2D (self-reported prevalence 5.9%), with high prevalence among Māori (the indigenous people of NZ) (7.9%), Pasifika (people from the Pacific Islands now living in NZ) (13.6%) and people living in low socioeconomic areas (10.4%).² Alongside blood glucose control via medication, diet control and being physically active are the key evidence-based components of management,^{1 3} especially if delivered by healthcare professionals (HCPs).⁴ In NZ, diabetes primary healthcare is provided

by general practitioners (GPs) and nurses focusing on screening and diagnosis, education and pharmacological management.^{5 6} The educational component is largely achieved via referral to the Diabetes Education Self-Management Newly Diagnosed and Ongoing Diabetes (DESMOND) programme, a 1-day group-delivered educational programme.⁷ We are not aware of any formal exercise programmes delivered by registered HCPs to people with T2D in NZ. To address this challenge in the southern region of NZ, we developed the Diabetes Community Exercise and Education Programme (DCEP), which has now been in existence for over 10 years.

DCEP is a group exercise and educational programme, tailored to individual needs and specifically designed to enable access for Māori, Pasifika, and people living in low socioeconomic areas. The aim of DCEP is to support adults living with T2D to take control of their health and to live well with their long-term condition. There are two parts to DCEP. Participants attend a twice weekly exercise and education session for 12 weeks, followed by a twice weekly maintenance exercise class. The programme has previously been described in detail.⁸ The potential benefits of DCEP highlighted in a feasibility study,⁹ justified a pragmatic randomised controlled trial (RCT) to evaluate the effects of DCEP (plus usual care) on the glycated haemoglobin (HbA1c) levels, physical health outcomes and health-related quality of life of individuals living with T2D, compared with usual care alone.⁸ The target sample size for the primary outcome (glycaemic control) was 220 individuals with T2D which included a 40% dropout rate. We recruited and analysed data from 165 participants. The results of the RCT showed no statistically significant differences between groups for both the primary outcome (blood glucose control—HbA1c) and secondary outcomes (Incremental Shuttle Walk Test, body weight, waist circumference, blood pressure, quality of life measures) at 1-year follow-up.¹⁰ The RCT, however, was successful in engaging its target population and there was good attendance in the first 12 weeks (as described below).

Reflective of the ethnicity in the lower South Island of NZ, 14% of the cohort were Māori and 6% Pasifika, with 27% of participants living in areas considered by the NZ Deprivation Index to be in the most deprived deciles (deciles 9 and 10).¹¹ Adherence to the 12-week DCEP intervention was good, a majority (56%) attended 15 or more of the 24 sessions (41% attending for ≥20/24 sessions, 15% for 15–19/24 sessions, 21% for 2–15/24 sessions and 23% for no attendance or 1 session). Attendance at the subsequent maintenance classes was however poor (23% attending >50% and 35% attending 10%–40% of available sessions, with 42% attending no sessions).

Given the success in targeting the populations of interest and initial attendance at DCEP and NZ's current health inequities, and associated poorer outcomes for Māori,^{12 13} an in-depth explorative evaluation of DCEP is warranted to inform future practice. This paper reports a qualitative process evaluation to identify practical ways

to improve DCEP delivery and inform its future development. This evaluation, embedded within the DCEP RCT, aimed to examine the context-specific delivery factors, facilitators and barriers to implementation of the DCEP using the Reach, Effectiveness, Adoption, Implementation and Maintenance (RE-AIM) framework.¹⁴

METHODS

Study setting

This community-based study took place in two separate urban centres in the lower South Island of NZ: Dunedin (Otago Region) and Invercargill (Southland Region) in community exercise venues.

Design

A qualitative process evaluation of DCEP was undertaken as part of a two-arm parallel, open label RCT. The trial protocol⁸ and main trial findings¹⁰ have been previously reported. The trial recruited adults (age ≥35 years) with a diagnosis of T2D via general practices and public advertisements. DCEP was introduced sequentially, starting in Dunedin and then 3 months later in Invercargill. Following baseline evaluation, participants were randomly allocated to either DCEP (plus usual care) or usual care. Participants randomised to DCEP attended the 12-week programme and then continued in the maintenance programme for a further 12 months. Across the duration of the trial, seven DCEP 12-week classes were held.

Data collection

Interviews and focus groups were held at both study sites following the 12-week programme and at the end of the trial until data saturation (when no new data repeated what was in the previous data)¹⁵ occurred. From DCEP participants consenting to interview, 2–3 were purposively (by attendance) interviewed after completion of each class. Semi-structured interviews were used with DCEP attendees and any attending whānau (family). Guided by their availability or for logistical reasons, we used either interviews or focus groups for all the HCPs involved in DCEP who consented to interview. The interview topic guide was informed by The Consolidated Framework for Implementation Research (CFIR)¹⁶ (box 1). All interviews and focus groups occurred at a mutually arranged time and place, were audio-recorded with permission and were about 1 hour long. Research assistants, with bachelor's degrees and from a variety of backgrounds (nursing, psychology, social science) and ethnicities (Māori, Pākehā (non-Māori)) and known to the attendees, undertook the interviews. All audio recordings were transcribed verbatim by a professional transcription company.

Data analysis

Data were first thematically analysed using the General Inductive Approach, a pragmatic approach specifically designed for evaluative health research.^{17 18} Three researchers (AW, LH, TSt) read the transcripts multiple

Box 1 Interview topic guide

Questions for both Diabetes Community Exercise and Education Programme (DCEP) attendees and healthcare professionals:

- ⇒ Tell me about your experience of DCEP?
- ⇒ How could we improve DCEP?
- ⇒ How suitable/appropriate/acceptable is DCEP for your community?
- ⇒ How can we make DCEP continue in your community beyond the trial?

Additional healthcare professional questions:

- ⇒ What are the important aspects of DCEP? Why?
- ⇒ In order to deliver DCEP, what are important attributes/training do healthcare professionals require?
- ⇒ How did DCEP influence your practice?

times to gain an understanding of the key topics of interest, coded them accordingly and identified illustrative quotes. To assist defining these key topics, a short summary was written by AW for each transcript summarising the main points of the interview. The transcripts of HCPs were analysed first. The key topics were then further analysed over two stages using both the CFIR and RE-AIM frameworks.¹⁹ The rationale for using both frameworks is that CFIR enables the understanding of the ‘why’ of success (or not) of implementation while the RE-AIM describes the practicalities of the outcomes (the who, what, where, how and when).^{19 20} In the first stage, the relevant constructs and domains from the CFIR were used to deductively explore and organise data. To further categorise the organised data, in the second stage, the five RE-AIM domains were applied by AW and LH. Multiple discussions between the research team members (AW, LH, TSt) finalised the analysis by consensus. The Consolidated criteria for Reporting Qualitative research²¹ were used to inform reporting of the study findings (online supplemental file 1).

Patient and public involvement

Patients or members of the general public were not involved in the design or conduct of this study.

RESULTS

We interviewed 17 DCEP participants diagnosed with T2D and randomised to DCEP and 18 HCPs. The characteristics of participants are presented in tables 1 and 2.

Table 3 presents a summary of the key CFIR domains identified. Online supplemental file 2 presents the detailed CFIR findings along with illustrative quotes. Below we present the findings relative to the RE-AIM framework domains (namely, Reach, Effectiveness, Adoption, Implementation and Maintenance).

Reach

As described above, the RCT attained its targeted sample size, and its ethnic composition was reflective of that of the study setting. HCP participants suggested however that

Table 1 Characteristics of Diabetes Community Exercise and Education Programme participants (N=17)

| Category | Participants |
|------------------------------|------------------------------|
| Location | |
| Dunedin | 7 |
| Invercargill | 10 |
| Sex | |
| Female | 11 |
| Male | 6 |
| Age | Age range 39–76; mean age 61 |
| Ethnicity | |
| New Zealand European/Pākehā | 13 |
| Māori | 3 |
| Cook Island Māori (Pasifika) | 1 |

the RCT randomisation process challenged recruitment as it was considered culturally unacceptable for Māori and Pasifika. For these populations, whānau (family) support

Table 2 Characteristics of healthcare professional stakeholders (N=18)

| Category | Participants |
|---|--------------|
| Location | |
| Dunedin | 7 |
| Invercargill | 11 |
| Sex | |
| Female | 15 |
| Male | 3 |
| Ethnicity | |
| NZ European/Pākehā | 17 |
| Māori | 1 |
| Healthcare profession | |
| Nurses | 5 |
| Physiotherapist | 1 |
| Clinical DCEP lead | 1 |
| Pharmacist | 2 |
| Podiatrist | 1 |
| Dietician | 1 |
| General practitioner | 1 |
| Counsellor | 1 |
| DCEP administrator | 1 |
| Primary Care Liaison Coordinator for Arthritis NZ | 1 |
| Diabetes NZ coordinators | 2 |
| Smoke-free NZ coordinator | 1 |

DCEP, Diabetes Community Exercise and Education Programme ; NZ, New Zealand.

Table 3 Summary of the key CFIR domains

| Domains | Summary |
|--------------------------------|---|
| Individual | Training and good communication of HCPs was crucial—they had to buy into the philosophies of DCEP and person-centred care and be trained into the nuances of delivering individualised care and attendee driven education within a group setting. Further, HCPs had to have, or develop, the ability to create trusting and caring relationships with attendees thus enabling a social and welcoming atmosphere and encouraging attendance. In turn, the supportive social environment enhanced the relationships and interactions of attendees, so they derived benefit from each other. Additionally, the correct venues had to be found (eg, in terms of location, safety, access both to and into, temperature, culturally acceptability, inexpensive to hire); the time in the day for the class was crucial (eg, not impacting on work); and the correct equipment purchased (eg, durable, practical, easily transportable and stored). |
| Inner setting | The most prominent findings were securing appropriate HCPs and their ongoing training. |
| Outer setting | The outer setting both assisted and offered challenges to implementation. While we had long standing and strong relationships with many HCPs, for the trial we needed to work with new healthcare providers. We found that we rushed the process with some new healthcare providers or did not quite understand the local political environment for others. As we were not merging DCEP into an existing healthcare practice but rather setting up an independent community-based class, we learnt the necessity of taking time, and focused energy, as well as having local champions, to build such relationships and good communication strategies. Further, the navigation of relationships was ongoing as HCPs changed—both those that delivered DCEP and the managers of the services involved. Ongoing funding was another major challenge to the sustainability of DCEP. |
| Characteristics of individuals | Attendees talked about their increasing self-efficacy to manage their health, undertaking self-management activities and growing more comfortable to attend DCEP. |

CFIR, Consolidated Framework for Implementation Research ; DCEP, Diabetes Community Exercise and Education Programme ; HCP, healthcare professional .

is important and potential participants would have been more comfortable if they could attend together; the possibility of being randomised to different groups as individuals was undesirable.

[Our] community feel more comfortable coming in groups. [I] recommend they be randomised together. [I] can then go along with them to whatever programme they get randomised to [to facilitate introductions and help create relationships]. [If] this could be the case, I am happy to promote the research on my marae and to the general practice. (Nurse)

Referral into the trial was assisted by community champions of DCEP, such as general practice staff. However, there was also a need for improved communication channels, beyond GPs, for getting information about DCEP out and how people could self-refer to it. Further, it was thought that having a primary healthcare organisation (PHO) endorse, fund and run DCEP would increase general practice referral; thus, mitigating the observed resistance from some general practices about referring patients into DCEP.

We had some resistance from general practices about referring [‘their’ patients].... So, I think if the PHO owned it, they would promote it around their respective practices. They would target their practices that they identified as having high-needs patients [who would benefit from participating in DCEP]. (Clinical Lead)

Effectiveness

Both attendees and HCPs expressed a range of positive beliefs about DCEP. The group approach of DCEP facilitated relationship development among the whole group, both between HCPs and attendees and among attendees themselves.

I try and engage with everyone to start with ... when people are doing their thing, I’ll walk around and chat and I’ll do that connecting. I am working on a kind of personal connection, not just a ‘I’m your physio’ kind of connection but actually finding out a bit about them, [like asking] ‘What do you do?’ I’ll [also] share a little bit about myself and so I sort of engage them from there. When the bikes are together, you end up having a conversation with two people at the same time and [then] they end up talking. (Physio)

The group nature of DCEP intervention also encouraged inclusion of family/whānau (important in Māori culture). Family came along to support and joined in with the education and exercise sessions.

I really like the idea of [the approach of DCEP]. Instead of just being [targeted at] one person with diabetes, it’s actually engaging for whānau to come and do this [join in]. So, it’s been wonderful to see husbands and wives coming in and talking and walking that journey together. (Nurse)

Attendees (A#) stated meeting people, connecting and enjoying each other's company was key to their continued attendance.

I guess that was one of the reasons why we kept going back, because we had some laughs and because we were comfortable. (A639)

Others suggested that DCEP was an integral, positive and supportive part of their lives and had led to behaviour change, such as testing their blood sugar levels daily.

Attendees also found the HCPs welcoming and appreciated the individual attention that provided exercise tailored to their needs.

[physiotherapist] was prepared to work with us all individually if we required it, and if we had any specific issues that she could help with. (A373)

Attendees considered the format of DCEP, while different from others they had attended, was good and thought provoking. They seemed to enjoy the group discussions that were facilitated by educators and occurred organically between participants.

We have had more discussion from the people within the group during and afterwards. When you are discussing that [new information] among group of people, there are things that come out that you didn't know about. (A373)

One participant summed up impact of DCEP by stating:

I feel better just for meeting the people that I met, doing the stuff that I did, learning what I did. (A639)

HCPs considered that DCEP had several advantages over the other two usual healthcare options, namely, DESMOND or advice given through routine consultations with members of the primary healthcare team. The group focus provided a non-threatening environment for participants and facilitated revisiting of educational information, while at the same time provided repeated contact with HCPs.

I think the points of difference [to usual care], that I can see, is the education component... that constant or continued access, a point of contact to a health professional. It's in an environment that's not threatening because they're there in a big group doing exercise and learning more about their health condition [at every session]. (Nurse Manager)

HCPs suggested the repeated sessions of DCEP provided more opportunity for attendees to ask questions of HCPs.

I see it [DCEP] as being really valuable because people often tell us that they don't feel that they have the ability to ask the questions that they really want to ask [at an appointment] due to time pressures. (Pharmacist)

The ability to create an atmosphere through a suitably curated music playlist enabled HCPs to build group cohesion; an underpinning aspect of DCEP's approach.

People said they loved the music. We had a mix. There was [Pacific] island music and all sorts of things a real big variation of music and they were like, "This is great!" ... Being able to make [the playlist] more personalised and more appropriate for the people that are coming in is important and having that flexibility I think is quite good. (Physio)

Adoption

The DCEP delivery characteristics that supported adoption were underpinned by the longstanding networking and relationship development undertaken with external people and organisations over many years. This led to the successful inclusion of others to support DCEP (eg, venue, staffing) or for delivery of education sessions.

Places where we have had existing relationships, existing trusting relationships [built] over time, [these] have worked. We've had a long-standing relationship with [name of a health provider]. And they've been good. They've supported us. They had their staff running the exercise class long before we had a contract sorted with them. They needed to trust us. And they did. And then there's others ... and I've been working with them for years. One person always agrees [to come and talk] and does it free of charge. He sees it as part of his role. (Clinical Lead)

It was evident in the data, however, that taking time to develop relationships and not asking too much of people or organisations, was imperative for the adoption of DCEP by community organisations.

We tried to work closely with [name of health provider]. ... It didn't go well. ... The challenge was that we didn't really have an opportunity to work through the necessary discussions because, all of a sudden, we were asking a lot of them in a relatively short period of time. We managed to sour that relationship through communication not being ideal and just asking for too much, too soon. (Clinical Lead)

While training of HCPs assisted with engagement in DCEP delivery, HCPs' knowledge and beliefs about DCEP suggested a buy-in to its philosophy was essential. Challenging aspects were ensuring team players were recruited whose daily practice aligned with the DCEP philosophy.

And I do think that if staff aren't clear on some of the values around [DCEP] it is difficult ... It's not classic cardiac rehab, or pulmonary rehab. It's not, 'do this', 'do this', or blow whistles. We do try and run [DCEP] with a certain ethos. (Clinical Lead)

Additionally, HCPs recommended that an ability to connect with individuals/family/whānau and facilitate

development of relationships was an important attribute for successful implementation of DCEP.

You certainly need someone who can engage with people [especially] when you've got all these random people that don't know each other, and you need to engage with them and then try and get them to engage with each other! It's quite key to how [DCEP] runs as well. (Physio)

Implementation

Initial training was undertaken with HCPs involved in DCEP delivery via Zoom (ie, introduction and orientation), followed by self-directed study of relevant resources. Sharing of pertinent resources was ongoing and shared with the team via email. Training updates were held to answer any outstanding or frequently asked questions and to train any new HCPs who had joined since the previous training. However, some HCPs missed these opportunities. The orientation training for DCEP was not repeated for new HCPs and new HCPs to DCEP talked about information not being handed on.

That was the problem, that none of it [training about what to do] was handed over. Absolutely nothing. (Nurse)

HCP participants suggested that the networks and communication between and among people involved in DCEP could have been more structured and improved. There was also limited networking experienced by educators and limited feedback was provided to educators about content for and applicability of their sessions.

And nobody came back and said that was a bad talk. (Podiatrist)

Implementation from an administrative perspective included ensuring that there was a good administrator as:

There was a lot of coordinating and making sure that we had all our ducks in a row basically, to keep it going. (Administrator)

This included the logistics of finding suitable venues in which to hold DCEP. Venues needed to be accessible, close to high-needs populations and be large enough to fit the participants and their exercise equipment in.

Maintenance

It was suggested that DCEP, because of its preventative, collaborative and community focus should be an attractive long-term investment for national and local planners and funders. Additionally, a broader approach that included people with any long-term condition/s should be a consideration moving forward.

My personal view is around having [DCEP] as long-term conditions focused, not just diabetes. I think the sustainability in the community, particularly in some of our rural areas, would be difficult with just a diabetes focused programme. It would be a challenge. ...

Therefore, [if you broaden the programme] you're not doubling up on your resources. You can use the process and get greater 'bang for your buck. (Nurse Manager)

To achieve sustainability, it was suggested that any programme would need to be delivered close to where people lived, especially in rural areas, where people with complex needs and multiple long-term conditions often live because living costs are lower. It can be expensive and difficult for this group to travel into urban centres to attend DCEP.

The timing of the classes, being held in the middle of the day, was often a major barrier to those who were working and also excluded attendees from bringing along their family/whānau, an evening class was suggested as a way of promoting attendance. Additionally, it was felt DCEP would need to have the local and wider community supporting its implementation and integration into the community.

[it] has to be a programme that can be picked up and taken somewhere and supported from a distance. [It would need] good community engagement so that everybody knows it's available for a wider population, and that there is commitment from all the layers [local providers, planners and funders etc] who need to be involved. But if it's not a funded programme, then there needs to be a community response to what we're going to do, for the long-term. (Nurse Manager)

DCEP was also perceived as having value for physiotherapists as it broadened their expertise to include exercise programmes for people with long-term conditions. However, for physiotherapists, a tension was evident between the value placed on the approach of DCEP by HCPs and potential HCPs, and the facility to recoup wages at a rate similar to that earned in private practice.

If you're working in a private practice, that person can be billing for at least 2–3 consultations through ACC [Accident Compensation Corporation], an hour, which brings in quite a bit more money than [the] hourly rate that [the programme could] pay someone. So, approaching a private practice to buy out their staff time [is tricky]. (Clinical Lead)

As DCEP was developed to support people living in low socioeconomic conditions it was offered free to attendees. This, however, meant that funding streams had to be identified to support aspects of DCEP (ie, venue hire, staff wages).

DISCUSSION

To inform future development of DCEP and similar lifestyle programmes for people living with T2D, we undertook a process evaluation of the implementation of DCEP into community-based settings within two cities in the lower South Island of NZ. We used a three-stage approach.

Initially, key topics of implementation interest were identified through thematic analysis and we then sought to understand the ‘why’ of success (or not) of our implementation via application of the CFIR framework. To inform future development of DCEP, we identified the practicalities of the outcomes (‘the who, what, where, how, and when’) using the RE-AIM framework.^{19 20} Below we discuss our findings relative to the RE-AIM framework.

Reach

While we met our reach target (ie, sample size and regional ethnic representation), had we not had to use the randomisation process of the RCT (thus potentially deterring Māori participants) reach could have been extended. It could have also been further extended had we promoted self-referral in addition to GP referral, given the latter was potentially ‘gate-keeping’. PHO ‘ownership’ of DCEP and community champions could further enhance reach.

The RCT process was found culturally unacceptable to Māori and potentially for other ethnic groups such as Pasifika, potentially reducing the reach of DCEP, similar to a finding in a recent systematic review.²² Wider literature suggests that the NZ health system’s individualised approach to healthcare,^{23–25} and by extension that of the RCT randomisation process, denies people the psychosocial benefit attained through inclusion of family/whānau in preventative and rehabilitation programmes.²⁶

Further, to improve reach and access to DCEP, wider and enhanced communication targeted directly to people living with T2D was needed, especially emphasizing the self-referral option. Self-referral has been shown to enhance population representation for people accessing psychological therapies for mental health in the UK²⁷ and availability of funding and staff training support to provide community rehabilitation programmes is crucial to equitable access. In contrast, other UK research²⁴ has found that people on low incomes considered self-referral to be an obstacle to psychological therapies. These authors suggested the need to better understand the complexities of effective referral and/or self-referral in primary care, such as how services are discussed with patients and assumptions about people’s readiness to self-refer.²⁸ Our findings suggest that improving the referral cycle would additionally require ‘ownership’ of DCEP by local PHOs, who because of the ‘buy-in’ would then refer patients into the programme on an ongoing basis. To enable programmes that address issues of inequities for Māori, a strategy ‘by Māori for Māori’ is crucial,^{29 30} but funding, development and implementation of such programmes continues to be challenge in NZ. As noted in the foreword of the 2019 Health Quality and Safety Commission report: ‘It is not a matter of favouritism, political correctness or deference to Māori; rather, it is a matter of health and well-being and the eradication of inequities’.³¹

Effectiveness

Essentially DCEP was considered effective in that both attendees and HCPs spoke of the beneficial impact it had

in creating a social and welcoming environment which, although founded on relationships and connections, was tailored to the individual. People felt comfortable attending and empowered to learn.

DCEP was valued by both attendees and HCPs because it appeared to offer benefits that impacted wellness and social connectedness, with group interactions and the ability to build relationships considered important facets. It is well established that development of meaningful relationships with other people generates a feeling of belonging (or social connection) and an improvement in well-being and health.^{32–35} Further, for older adults, social support, especially from family, is associated with increased engagement in physical activity.³⁶ Group participation for people with long-term conditions has significant benefits (on, eg, self-efficacy, self-care, quality of life, pain, psychological symptoms).³⁷ For such populations, numerous factors (such as mental, emotional and physical symptoms)^{38 39} or wider social determinants of health⁴⁰ make it difficult to develop and maintain support networks, and thus organised healthcare groups can become important enablers. Effective, caring, empathetic communication is a cornerstone of relationship development^{34 41} and relationship-centred care.⁴² Relationship-centred care is argued to be the founding principle of healthcare provision⁴² and is contended to have a positive effect on health outcomes.⁴³ Our findings further reinforce the substantiation for relationship-centred care in rehabilitation programmes.

Adoption

Key to adoption of DCEP were the networking and relationships with local health providers and communities. However, the building of these relationships should not be underestimated—it takes time and should not be rushed. Also, of importance, was whether the HCPs delivering DCEP valued the philosophy of DCEP (based on the ‘spirit’ of Motivational Interviewing).⁴⁴ Training of staff and communication between the various HCPs involved was not optimal and needs further consideration and development.

Not only is relationship centred care important for recipients of healthcare, our findings emphasise the long-term relationship development and networking with healthcare providers and the community required for the initiation and adoption of community-based rehabilitation programmes. This process cannot be rushed, and is an important facilitator of attendance, particularly for indigenous peoples.¹⁹ From an organisational perspective, HCPs felt that champions and the ‘right’ type of HCPs employed to deliver DCEP were important for adoption. From the perspective of attendees, the inclusive, non-judgemental and welcoming atmosphere of DCEP encouraged their engagement.

Implementation

HCPs’ buy-in to the underlying philosophy of DCEP and a team player attitude contributed to successful delivery



of DCEP. The literature suggests obtaining HCPs' buy-in is a perennial issue when introducing change or innovation.⁴⁵ Understanding and addressing the organisational factors impacting on implementation, and indeed organisational readiness,⁴⁶ along with understanding of predictors of HCPs readiness, are needed to increase team cohesiveness and engagement with a programme.^{45–48} HCPs also suggested better DCEP training was needed, including improved communication among involved HCPs. Strengthening such aspects would increase the psychological meaningfulness, a prerequisite for buy-in,⁴⁹ the reward resulting in greater investment in DCEP delivery.⁴⁵ Our findings suggest champions for DCEP were required to facilitate cultural and context specific factors, impacting not only reach but implementation.⁵⁰

Maintenance

To maintain DCEP, especially if aiming to reach those in most need, DCEP needs to be delivered closer to where people live; in rural NZ, this would also necessitate a generic approach catering for people with multimorbidity, instead of condition-specific approaches. As DCEP was developed for those living in low socioeconomic situations, it was free to attend; this however meant ongoing funding challenges, even though its preventative attributes may, in the long-term, be cost-saving for the health system.

DCEP was considered impactful as a health preventative programme. A plethora of literature espouses the benefit of exercise and education and their impact on mitigating risk of disease progression and improved outcomes for people with long-term conditions.⁵¹ With limited healthcare resources,⁵² a more sustainable model of a generic programme for people living with multiple conditions rather than a condition specific focus has been suggested. Delivered locally and offered at times appropriate for the community concerned with local and wider community support would improve engagement⁵³ but sourcing funding would require attention. Ownership by a PHO or community-based health organisation (eg, a Māori health provider) has also been proposed.⁵³

Strengths and limitations

A strength of our study was the use of two complementary implementation science frameworks (CFIR and RE-AIM) to better understand the DCEP implementation process. A strength and a limitation of our study was the broad and rich data we collected. While this ensured a wide and diverse capture of opinions, it also required an initial focusing analysis to identify key topics that we then explored in more depth with the CFIR¹⁶ and RE-AIM¹⁴ frameworks. The initial analysis may have missed smaller and possibly important issues that merited consideration. Although our RCT met ethnic representation, the process evaluation had low Māori or Pasifika representation. Further to this, while the interviewees were ethnically diverse, the three researchers who analysed the data

were Pākehā (non-Māori) negating the application of a Māori or Pasifika lens to the analysis.

Implications for policy and practice

Lifestyle programmes such as DCEP are developed based on community input and community relationships. While acceptable and effective in promoting health-care in a person-centred manner, their survival appears dependent, not on perceived acceptability or perceived effectiveness, but on ongoing funding, which is largely short-term and not sustained. The funding appears to be used as a 'band-aid' for identified problems and not dedicated and embedded to enable a preventative long-term strategy. A case in point of a lifestyle intervention programme developed by Māori for Māori in Dunedin,⁵⁴ found to be successful and beneficial for attending Māori with T2D, attracted enough funding from the Health Funding Authority to continue, but only for 1 year. The Health Funding Authority and the programme no longer exist.⁵⁴

CONCLUSION

What we have learnt in implementing a lifestyle programme such as DCEP is that to ensure success, time and care needs to be taken to build and maintain networks, trust and relationships. This requires good communication channels. The networks and relationships required are not only between those delivering the programmes and the target community group, but also between local healthcare organisations (eg, district health boards, general practices, PHOs and Māori health providers) as well as between the HCPs involved within DCEP. Healthcare programmes that have a person-centred focus enable access and ongoing attendance. It does, however, require HCPs to practice in a nuanced person-centred manner, and as staff turnover is frequently high, a programme of continual training is also required. Future programmes may be more viable if delivered closer to where people live and, instead of having a condition-specific approach, could take a more generic approach to cater for people with multiple long-term conditions.

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