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Empowering Through Group Exercise: Beat It Trainers' Views on Successful Implementation of a Diabetes Management Program Online and In-Person

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Abstract: Background: The Beat It program is a clinician-led, community-based group exercise intervention for adults with Type 2 Diabetes Mellitus (T2DM). While previous studies have demonstrated its effectiveness in improving physical and mental health outcomes, this study explores the perspectives of Beat It Trainers to identify key factors contributing to the program's success and areas for improvement. Methods: Semi-structured interviews were conducted with 11 Accredited Exercise Physiologists who had delivered both in-person and online versions of the program. Interviews were thematically analyzed using inductive approaches. Results: Eight main themes emerged: customization to individual needs, capability building, outcome improvement, affordability, accessibility, sustainability, and a holistic approach delivered in a group setting. Challenges identified included managing group dynamics, maintaining participant commitment in a fully subsidized program, and providing nutrition advice within the trainers' scope of practice. The program's adaptability to both in-person and online delivery modes was highlighted as enhancing its accessibility and resilience. Conclusions: This study provides valuable insights into the factors contributing to the success of the Beat It program from the implementers' perspective. The findings suggest that investing in comprehensive training for facilitators, particularly in group dynamics management, could benefit similar programs. While the program's fully subsidized structure reduces financial barriers to entry, innovative strategies to enhance participant engagement and perceived value should be explored. The success of the online delivery mode indicates that hybrid models offering both in-person and virtual options could increase accessibility in future supervised, community-based exercise programs for T2DM management.

Keywords: diabetes; exercise; lifestyle; community-based intervention; exercise physiologist; telehealth; physical therapist; allied health professional; engagement

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1. Introduction

The global prevalence of diabetes has reached alarming levels, with over 530 million individuals affected worldwide [1]. Type 2 Diabetes Mellitus (T2DM) represents the vast majority of cases, accounting for ~90% of all diagnoses [1,2]. This rapid increase in diabetes prevalence has been characterized as an uncontrolled pandemic of unprecedented scale [1]. The International Diabetes Federation projects this number to rise to 783 million by 2045 [1], placing a significant burden on healthcare systems and economies worldwide.

In Australia, the impact of T2DM mirrors global trends. The management of T2DM in Australia places a substantial burden on the healthcare system, with annual costs

estimated at $17.6 billion (inflation adjusted) [3,4]. This cost underscores the urgent need for effective, scalable interventions to manage T2DM and its associated complications. While pharmacological interventions remain crucial, there is growing recognition of the vital role that lifestyle modifications, especially structured exercise programs, play in managing T2DM [5]. In this context, the Beat It program emerges as a significant translational research initiative in Australia. Beat It is a clinician-led, community-based group exercise intervention designed for adults with T2DM. Since its inception in 2015, the program has expanded from its initial implementation in two Australian states to nationwide delivery, offering both in-person and online formats. The program was rolled out nationally over a nine-month period as part of a unified suite of diabetes management services. Each state/territory operates autonomously, managing their own Beat It Trainer recruitment, contracting, and administrative processes while maintaining program fidelity through standardized training and resources. The program is ongoing, funded by the National Diabetes Services Scheme, and facilitated by Diabetes Australia.

The Beat It program is delivered through twice-weekly supervised exercise sessions over eight weeks, plus six 30-min person-centered education sessions on various lifestyle and diabetes management topics across the program duration. Each one-hour exercise session begins with a 5–10 min dynamic warm-up, followed by 20 min of moderate-intensity aerobic exercise (e.g., exercise bikes, treadmills, cross-trainers), 20 min of resistance training targeting major muscle groups (chest, back, shoulders, arms, legs, core) performed at 2–3 sets of 8–12 repetitions, 5 min of balance work performed at 2–3 sets for 30 s, and 5 min of flexibility exercises at 2 sets for 30 s, concluding with a 5-min cool-down. Exercise intensity is monitored using the Borg Rating of Perceived Exertion (RPE) scale (6–20), with moderate-intensity defined as 12–14 RPE (where participants can maintain a conversation while exercising). Exercise progression follows the FITT principle (Frequency, Intensity, Time, Type), with Beat It Trainers adjusting these variables based on individual participant responses and capabilities. Programs are individually tailored during the initial consultation based on each participant's physical capabilities, fitness level, and any comorbidities or injuries.

In-person delivery accommodates up to 12 participants per group, while online delivery is capped at 6 participants to ensure appropriate supervision, with specific adaptations for remote delivery detailed in our previous publication [6] The program operates through subcontracted Accredited Exercise Physiologists, with participants engaging in a 10-week period (including initial consultation, 8-week program, and final consultation). Participants can re-engage every two years and may transition between online and in-person modes based on availability.

Multiple evaluations of Beat It have demonstrated its effectiveness in improving both physical and mental health outcomes among older adults with T2DM [6–8]. Kirwan et al. (2021) [8] conducted a short-term evaluation of the in-person format, finding significant improvements in waist circumference, aerobic capacity, strength, flexibility, and balance. A follow-up study by Kirwan et al. (2022) [6] assessed the long-term impacts, showing that these health benefits were largely maintained 12 months after program completion. In response to the COVID-19 pandemic, Beat It was adapted to an online format. Kirwan et al. (2022) [7] evaluated this version, finding comparable health benefits to the in-person format. Notably, across all three studies, many participants who initially scored below established functional fitness thresholds for community independence [9] showed marked improvements, often reaching or surpassing these critical benchmarks. These outcomes suggest an enhanced capacity for participants to maintain independence in community living, potentially delaying or preventing early entry into assisted care facilities. This is particularly significant given that frailty, characterized by multi-system functional decline and increased vulnerability, is a growing global health concern as populations age worldwide [10]. The studies also reported improvements in mental health outcomes, including reductions in depression, anxiety, and stress symptoms, as well as increased confidence in managing diabetes [6–8].

The efficacy of Beat It has been recognized in a recent systematic review and meta-analysis of clinician-led, community-based group exercise interventions for adults with T2DM [11]. This review, encompassing eight studies with 938 participants, demonstrated that such interventions significantly improve glycemic control, physical fitness, and anthropometric and hematological measurements in adults with T2DM. While the effectiveness of Beat It from the participants' perspective has been well-documented, there remains a crucial gap in understanding the factors contributing to its success from the implementers' viewpoint. This gap is particularly important in translational research, where the insights of those delivering the intervention can provide valuable information about the practicalities of implementing evidence-based practices in real-world settings [12].

The Beat It program is delivered by tertiary educated Accredited Exercise Physiologists, known as "Beat It Trainers", who have completed additional, specialized training to facilitate the program. These trainers play a pivotal role in the program's implementation and success, delivering both the exercise sessions and the education components. Their unique position on the front line of program delivery provides them with valuable insights into the specific strategies and components that facilitate positive participant engagement, as well as areas where challenges may arise.

The primary objective of this study is to explore the perspectives of Beat It Trainers to identify key factors contributing to the program's success, potential areas for improvement, and considerations for scaling up or adapting the intervention. By addressing this objective, we aim to inform the refinement of future iterations of Beat It, guide the scalability of the program, provide valuable lessons for the implementation of similar interventions in other contexts or populations, and offer insights into the successful adaptation of in-person programs to online formats.

2. Materials and Methods

All Beat It Trainers (n = 40) who had delivered both the in-person and online versions of the program were invited via email to participate in this qualitative study. These trainers were subcontractors for Diabetes Australia, responsible for implementing the Beat It program in various locations. All Beat It Trainers complete mandatory specialized training certified by Diabetes Qualified, comprising 12 h of online modules, one day of practical training, and for those delivering online programs, an additional two-hour virtual delivery training. Certification renewal is required every two years. Beat It Trainers, operating as subcontractors, are reimbursed through a fixed-fee schedule based on participant registrations and attendance at initial consultation. Following informed consent, semi-structured Zoom interviews were conducted over a four-month period between August and November 2022. Interviews were conducted at a time convenient to the Beat It Trainers by an interviewer experienced in qualitative research methods. Interviews were audio-recorded and transcribed verbatim. A question guide based on the Beat It Trainers' experience with delivering Beat It programs was developed by the authors. It included prompts on the strengths and challenges of delivering in-person and online programs and areas for potential improvement (Supplementary Material). The interview duration ranged between 20 and 40 minutes, with an average time of 30 minutes. Ethics approval for this study was granted by Macquarie University Human Ethics Committee (11133/520221113337155, 5 April 2022).

During the interviews, data were collected on participants' years of experience as Accredited Exercise Physiologists, the number of Beat It programs they had delivered both in-person and online, and postcodes outlining the location of delivery. Postcodes (n = 23) were used to determine Socioeconomic Indexes for Areas (SEIFA) and Accessibility and Remoteness Index of Australia (ARIA) [13], as an area-level measure of socioeconomic status and remoteness. Socioeconomic status was assessed using the Index of Relative Socioeconomic Advantage and Disadvantage (IRSAD), which ranks every region of Australia by relative socioeconomic advantage and disadvantage [14]. Postcodes were inputted into

the PoCoG ARIA Lookup Tool [15] and categorized into major cities, inner regional, and outer regional areas.

Interview transcripts were thematically analyzed using inductive approaches [16]. All participants were assigned pseudonyms to ensure confidentiality. Two authors (JJ, LS), independent of the interviewer (MK), initially coded the transcripts inductively using NVivo v.12 (QSR International Pty Ltd, Denver, Colorado, USA.). The initial codes were generated verbatim or in summary about an issue relating to the research aim. Co-authors (MK, JJ, LS) reviewed and clustered similar codes together, generating initial categories. MK and KG revisited these categories a second and third time for further understanding, and then combined the categories into themes. These themes were emailed in a summary document to all interviewees, providing them with an opportunity to check and further contribute to the interpretation of the data [17]. Ten of eleven responded to this email and confirmed that the themes accurately reflected the strengths, challenges, and experience of delivering the Beat It program.

3. Results

Of 40 Beat It Trainers invited to participate, 11 agreed to be interviewed, yielding a 27.5% response rate. These trainers had been practicing as Accredited Exercise Physiologists for between 2.5 to 10 years and had delivered the in-person Beat It program between 3 and 50 times (mean = 17 times) and the online version of the program between 1 and 15 times (mean = 5 times). Six of the eleven Beat It Trainers delivered programs in low socioeconomic areas, with one-third of programs delivered in major cities and the remaining in inner and outer regional areas.

Thematic analysis of the interview data revealed eight main themes (Table 1) relating to these clinicians' perspectives and experiences of delivering the Beat It program.

Table 1. Perceptions of benefits and impacts for participants and Beat It Trainers.

Theme	Theme Description	Participant Experience *	Beat It Trainer Perspective	Representative Quotes
Customized to individual needs	Tailoring the program to meet specific health requirements	Supports individuals with complex medical needs	Trainers have expertise in exercise prescription for unhealthy populations	"Most of the people that come, are really appreciative of the program and want to continue in some way onwards. . . They don't know what to do in terms of exercise, they've been told to exercise. They've been told to go lose weight. They haven't had any direction. . . and a lot of the patients have comorbidities with back pain, knee osteoarthritis, rotator cuff problems." (AEP#1)
Builds capability	Enhancing skills and knowledge for both participants and trainers	Improves exercise self-efficacy	Training provided ensures effective delivery and ongoing support, including improved online delivery capabilities	"The training (for the facilitator) is, yeah, really helpful—we deliver lots of funded programs and Beat It stands out probably as the best." (AEP#4)
Improves outcomes	Achieving positive health and wellness results	Improves physical and mental health outcomes	Wider skill set developed through training and experience of delivering program in both modes	"Classically, I'd see a reduction in waist circumference of somewhere between 2 to 4 cm. Weight loss of 1 1/2 to 3 kilos, increased cardiovascular fitness, decreased blood pressure. . . Umm, decrease BMI or whatever else would go with that and they were actually similar recordings. . ." (AEP#1)

Table 1. *Cont.*

Theme	Theme Description	Participant Experience *	Beat It Trainer Perspective	Representative Quotes
Affordable	Ensuring program accessibility through funding	Fully subsidized by the National Diabetes Services Scheme	Funded by National Diabetes Services Scheme	"I think that the participants are so lucky to be able to do a program that's like not only free but offers them so much of the exercise component." (AEP#4)
Accessible	Providing flexible program delivery options	Select in-person or online programs	Ability to deliver in-person or online programs	"As an exercise physiologist, we do exercise and education, and that's basically what the program is, which is why we love it, because we really see a lot of the barriers to participation taken away." (AEP#5)
Sustainable	Promoting long-term engagement and business growth	Access to eight Medicare rebated sessions and low-cost maintenance programs post-program	Acts as a feeder program Provided employment during COVID lockdowns	"People we saw two years ago they're still coming in to see us and still coming in to do their exercise. So as I said Beat It is a very good launchpad for people to sort of get their exercise journey going as well as, introducing other lifestyle changes." (AEP#8)
Holistic approach	Addressing multiple aspects of health and wellness	Program includes diabetes education, management strategies, nutrition, exercise, and mental health	Enables Beat It Trainer to work within their AEP scope, but goes beyond delivering only exercise sessions	"It's somewhat more holistic in the sense that it covers a lot of other bases that sometimes that we don't get to delve into as AEP's, you know, things like mental health, you know, relaxation and just that extra time on diabetes education." (AEP#3)
Group delivery	Leveraging group dynamics for enhanced outcomes	Individual program delivered in a group setting facilitates peer connections and motivation	Efficient way to deliver holistic program to a cohort with similar needs	"It feels rewarding to exercise in a group, there's a camaraderie that is built, it's a really good way to connect with peers." (AEP#1)

AEP stands for Accredited Exercise Physiologist, * Participant experience from the Beat It Trainers' perspective.

In addition to the strengths and impacts of the Beat It program, the trainers identified three primary challenges:

Challenge 1: Group Dynamics and Diverse Personalities

Beat It Trainers reported that managing the mix of personalities in a group setting could be challenging, although they generally felt capable of handling these situations.

> "There's always someone in the group that's quite overpowering. It happens online as well, but I guess face to face they're bigger groups, so there are chances of more people." (AEP#11)

> "It's a whole lot of managing. You've got 15 personalities, political things, COVID things. It's tricky to manage." (AEP#5)

> "If we get 15 people in a program, it's a lot of different personalities in a group. So probably managing that can be sometimes little bit difficult. Umm, but you know, you kind of work it out. And yeah, it's sometimes that's a little bit challenging." (AEP#9)

Challenge 2: Participant Commitment and Program Value

Some Beat It Trainers suggested that introducing a nominal fee might improve completion rates and participant engagement. They felt that while the fully subsidized nature of the program was beneficial in reducing barriers to entry, it sometimes led to a lack of commitment from participants.

> "The participants don't have the financial burden that might be attached to coming to another exercise group. So, I guess that can be good and a bad thing.

> Sometimes it means that they're appreciative of that and they make them most of that, and other times it means that maybe because they don't have a component to it that they're like, not as invested, or they're more likely to drop out because it doesn't really matter." (AEP#4)

> "It's free, which overcomes a big barrier, but also because its free, people don't necessarily show up." (AEP#11)

> "If patients were contributing something else financially into the program themselves they potentially might have a bit more buy-in and a bit more appreciation of what's actually happening?" (AEP#3)

> "Financial accountability like maybe they pay 50 bucks and they get their 50 bucks back at the end of the program. It really sucks when you do 15 initials, you're raring to go and nine people are there halfway through and they all seemed to be loving the program. Something comes up one day. Fine, second day, fine, but then they just drop off. And you're like, what?" (AEP#5)

Challenge 3: Nutrition Advice and Scope of Practice

Beat It Trainers identified that participants often seek highly specific nutrition advice, which can fall outside the Trainers' scope of practice as Accredited Exercise Physiologists. This highlights a potential need for additional nutritional support or resources within the program.

> "I know a fair bit, but I know I don't know everything and even hearing it from a dietitian would be really beneficial for participants." (AEP#6)

> "Nutrition components I only know so much and there's a lot of niche questions." (AEP#7)

> "I stay in my lane as an Accredited Exercise Physiologist. But if I can just have as much nutrition guidance as possible because at the end of the day, a lot of my participants can't afford to see a dietitian." (AEP#5)

> "It would be great to include in education sessions guest speakers or videos of dieticians answering specific questions about diets—that would be helpful." (AEP#6)

These challenges highlight areas for potential program improvement, including strategies for managing group dynamics, enhancing participant commitment, and addressing the need for specialized nutritional guidance within the scope of the program.

4. Discussion

This study explored the perspectives of Beat It Trainers on the effectiveness of the Beat It program, a clinician-led, supervised, community-based group exercise intervention for adults with T2DM, delivered both in-person and online. Our findings revealed seven key themes that contribute to the program's success: customization to individual needs, capability building, outcome improvement, affordability, accessibility, sustainability, and a holistic approach delivered in a group setting. These themes highlight the multifaceted nature of the Beat It program and its potential to address various aspects of T2DM management. The unique combination of clinical expertise, community-based delivery, and group dynamics appears to be central to the program's effectiveness, as perceived by the Beat It Trainers.

4.1. Program Strengths and Effectiveness

4.1.1. Customization and Capability Building

The customization of the Beat It program to individual needs emerged as a crucial factor in its effectiveness, aligning with previous research emphasizing the importance of tailored interventions for T2DM management [18]. The program's design allows for the

personalization of exercise regimens for individuals with complex medical needs, ensuring its adaptability and relevance to a diverse patient population.

The capability-building aspect, both for participants and trainers, is particularly noteworthy. By improving exercise self-efficacy and diabetes self-management skills, Beat It supports participants in managing their health, consistent with self-efficacy theory and its importance in diabetes management interventions [19].

4.1.2. Health Outcomes and Evidence Alignment

The improvements in physical and mental health outcomes, exercise self-efficacy, and quality of life reported by Beat It Trainers are consistent with our previous findings from participant evaluations [6–8]. These observations are further supported by a recent systematic review and meta-analysis [11], strengthening the evidence for the program's potential positive impact on adults with T2DM.

4.1.3. Accessibility and Telehealth Potential

The comparable outcomes between in-person [6–8] and online delivery modes [7] suggest that telehealth approaches can be effective alternatives. A recent scoping review by Albalawi and colleagues [20] found that tele-exercise interventions led to improvements in various T2DM-related factors, comparable to supervised in-person exercise interventions. This evidence supports the potential of programs like Beat It to effectively deliver exercise interventions virtually, increasing accessibility for individuals facing barriers to in-person attendance.

4.2. Challenges and Opportunities for Improvement

4.2.1. Participant Engagement and Commitment

While the affordability and accessibility of Beat It address significant barriers to participation, maintaining participant commitment, particularly in a fully subsidized program, remains a challenge. A systematic review by MacDonald et al. [21] revealed wide variability in adherence rates to physical activity interventions for T2DM, ranging from 32% to 100%, with a median of 58%. Notably, adherence was higher in interventions using supervised training, underscoring the potential value of Beat It's supervised, group-based approach.

4.2.2. Sustainability of Behavior Change

A significant strength of the Beat It program is its potential for sustainability, both in terms of long-term participant engagement and as a business model for Beat It Trainers. A longitudinal evaluation in a subset of participants provided encouraging evidence for behavior change sustainability, demonstrating maintained improvements in waist circumference, aerobic capacity, strength, flexibility, and balance 12 months after program completion [6]. The Beat It program's sustainability is supported through its business model and ongoing engagement options. After completing the initial 10-week program, participants can maintain connection with their Beat It Trainer through government-subsidized exercise physiology services. Through their specialized Beat It Trainer certification, trainers are encouraged to offer maintenance programs, providing continuity of care while developing sustainable business practices. Participants become eligible to re-engage with the full Beat It program every two years, allowing for continued support while prioritizing access for new participants. This aspect addresses the common challenge of maintaining behavior change beyond the initial intervention period [22]. The program's design, which includes ongoing support and education, may contribute to more sustainable lifestyle changes among participants.

4.2.3. Behavioral Economics Insights

To address engagement challenges, applying behavioral economics principles offers promising avenues. While financial incentives can drive short-term health behaviors, their

impact often diminishes post-program [23]. Leveraging principles such as loss aversion could significantly boost participant motivation [24]. Royer et al. demonstrated that self-funded commitment contracts following an initial incentive program led to significant long-term behavioral changes [23].

Future research in community-based exercise programs for T2DM management could explore strategies such as structuring incentives with increasing payoffs over time, which may prove more effective for maintaining long-term engagement than decreasing or constant rewards [24]. The key challenge lies in balancing external motivators with intrinsic motivation to create lasting behavior change [25], while avoiding the potential crowding out of intrinsic motivation through poorly designed incentives [24].

4.2.4. Interdisciplinary Collaboration and Nutrition Support

The holistic approach of Beat It, incorporating education on various aspects of diabetes management alongside exercise, aligns with best practice guidelines for T2DM management [26]. However, the identified challenge regarding nutrition advice highlights the need for interdisciplinary collaboration in comprehensive diabetes care [27]. In response, Diabetes Australia has developed additional nutrition resources to supplement the education sessions delivered by Beat It Trainers. These supplementary resources include evidence-based fact sheets, instructional videos, online tutorials, and webinars. Participants can also access specialized nutrition and healthy eating programs through the Diabetes Australia website, supporting Beat It Trainers to maintain appropriate scope of practice while ensuring participants have access to comprehensive nutritional guidance.

4.2.5. Group Dynamics and Facilitator Training

The group delivery format presents both opportunities and challenges. While it potentially facilitates peer support and motivation, it also necessitates adept management of group dynamics by trainers [28]. Research has shown that belonging to an exercise group is associated with various forms of social support that strengthen exercise identity, which in turn is linked to increased physical activity levels [29]. This underscores the potential benefits of the Beat It program's group-based approach. Diabetes Australia addresses the need for effective group management by requiring all Beat It Trainers to complete additional training in group facilitation skills. Other community-based group exercise programs might consider incorporating similar training to enhance program effectiveness and leverage the benefits of group dynamics.

4.2.6. Strengths and Limitations

The strengths of this study include its focus on the facilitator perspective, which provides valuable insights into the operational aspects of program delivery. The inclusion of both in-person and online delivery experiences also offers timely information on the adaptability of such programs in changing circumstances. Limitations include the relatively small sample size and the potential for selection bias, as Beat It Trainers who had more positive experiences with the program may have been more likely to participate in the study. Future research could benefit from a larger, more diverse sample of trainers.

4.2.7. Practical Implications

The insights gained from this study have several practical implications for the design and implementation of community-based exercise programs for T2DM management. Firstly, the importance of facilitator capability-building suggests that other programs should consider investing in comprehensive training for their facilitators, particularly in areas of group dynamics management. Secondly, while trainers in this study attributed challenges in maintaining engagement to the program being fully subsidized, further research is needed to validate this assumption and explore other potential factors affecting commitment. Innovative strategies to enhance engagement, regardless of program cost, should be investigated. Finally, the success of the online delivery mode suggests that other programs

could benefit from developing hybrid models that offer both in-person and virtual options, thereby increasing accessibility and resilience to disruptions.

5. Conclusions

The Beat It program demonstrates several key strengths that contribute to its effectiveness in supporting adults with T2DM. Its adaptability to both in-person and online delivery modes is particularly relevant in the current healthcare landscape. While challenges remain, particularly in maintaining long-term engagement, the program's multifaceted approach and the insights gained from this study provide a solid foundation for future improvements and adaptations. Further research is needed to validate these findings and explore innovative strategies for enhancing program effectiveness and participant retention in community-based T2DM management interventions.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/diabetology5070049/s1, Semi-structured interview guide.

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Data Availability Statement: The data that supports the findings of this study are available on request from the corresponding author, Morwenna Kirwan.

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Abbreviations

Accredited Exercise Physiologist (AEP)

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