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Engaging Underserved Community Members in Diabetes Self-Management: Evidence from the YMCA of Greater Richmond Diabetes Control Program

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Abstract

Purpose.—The purpose of this study was to identify factors influencing participant engagement in a community-based Diabetes Self-Management Program (DSMP), with a focus on the needs of underserved groups (e.g., racial/ethnic minorities, low income).

Methods.—Focus groups were conducted with participants (n=22) from the YMCA of Greater Richmond's Diabetes Control Program, who were recruited using a purposeful sampling frame to capture a range of experiences. In-depth interviews were conducted with lay health coaches (n=3). The RADaR qualitative analysis technique was used to identify themes related to factors across the continuum of engagement.

Results.—Fear affected program enrollment and retention in complex ways. Peers and coaches were important for social support and accountability. The length of the program (12 weeks), accessible information, practical skill building, and emphasis on making small, feasible improvements in pursuit of larger goals were identified as critical for engagement and improving

diabetes self-management. Health and outside obligations were the major barriers to program attendance.

Conclusions.—Participant and coach perspectives provide important insight into existing strengths of community-based DSMPs that can be expanded on to promote engagement, as well as potential opportunities for improvement. Actionable recommendations for increasing engagement of underserved groups in community-based DSMPs are provided.

Keywords

community-based participatory research; disparities; program engagement; self-management and control; evaluation

Self-management programs are a core component of effective diabetes care.^{1,2} Numerous randomized controlled trials have shown that completing diabetes self-management programs (DSMPs) improves clinical management and outcomes such as healthier diet, physical activity, mental health and quality of life, disease management self-efficacy, glycemic control, complications, hospitalizations, and healthcare costs.^{3,4} In addition, more program contact hours are associated with better outcomes.^{3, 5-6} Despite the established benefits of DSMPs, even relatively brief programs have difficulty with engagement including enrollment and sustained attendance.^{7,8} Recruitment and retention rates are especially low for population groups that are persistently underserved in diabetes care, such as persons with lower socioeconomic status (SES), racial/ethnic minorities, and rural populations.⁹⁻¹¹ Prior research has identified numerous barriers to engagement in clinic-based DSMPs for underserved groups, such as disinterest in clinic-based programs provided by healthcare professionals (i.e., nurses, Certified Diabetes Educators), program brevity relative to the amount of material, lack of culturally competent content, low health literacy levels among participants.¹²⁻¹⁴ To help address these barriers, DSMPs are increasingly being offered in non-clinical settings (e.g., churches, senior centers) by trained laypersons in an effort to make them more accessible, acceptable, and relevant to underserved groups.¹⁵ Despite the promise of this approach, specific, evidence-based, actionable guidance is needed on how to enhance the engagement of underserved groups in community-based DSMPs and in adopting behavior and lifestyle changes that reduce adverse diabetes outcomes (e.g., healthy diet, regular physical activity, tobacco cessation, glycemic control).

For over six years, the YMCA of Greater Richmond, Virginia, has offered a Diabetes Control Program (DCP) in response to an identified need for greater access to DSMP resources in this community, particularly for socially disadvantaged groups. Recently, a community-based participatory research (CBPR) partnership conducted a quantitative evaluation of the DCP on participant clinical outcomes.¹⁶ Findings indicated that the DCP had reached a large number of traditionally underserved groups; 76% of participants were members of racial/ethnic minorities, and 50% lived below the federal poverty line. Participant clinical outcomes improved over the course of the program, such that participants demonstrated lower hemoglobin A1c, lower depressive symptoms, and more frequent glucose monitoring by program end. However, only 45.2% of enrollees completed the 12 week program, which is lower than the retention rates of some DSMPs but comparable to others.^{3,12,17} Although the quantitative evaluation of the DCP identified some participant

characteristics associated with program completion (i.e., older age, higher education, positive evaluation of their diabetes healthcare providers), it did not identify programmatic characteristics associated with retention. Anecdotal evidence from key stakeholders and DCP staff suggested a variety of factors likely contributed to initial and sustained program engagement. The present study was designed to systematically collect stakeholder perspectives in order to better understand factors that influenced DCP engagement. The study design used a purposeful sampling frame, based on DCP attendance records identifying participants with varying levels of engagement, and employed qualitative research methods. The goal was to provide the YMCA and other community-based DSMP providers with actionable recommendations on how to maximize engagement of underserved groups.

Study Purpose

This study sought to gain insight into the factors that influenced engagement in the DCP from the perspectives of both program participants and DCP coaches. The authors considered engagement to include both (a) recruitment and enrollment and (b) retention in the class sessions and participation in program-promoted activities (e.g., food journaling, meeting physical activity goals). These stages of engagement were prioritized to help the YMCA improve program reach while identifying issues related to ongoing retention. The analytic team identified current strengths of the DCP to be maintained and possibly expanded upon, as well as factors that interfered with engagement, some of which may provide opportunities for improvements to the program. Reflecting the YMCA's intention to provide a program for populations that are typically underserved by clinic-based DSMPs, this study focused on exploring whether and how the DCP fit participants' lived experiences and addressed their unmet needs related to diabetes self-management. Key findings were summarized as recommendations for promoting participant engagement in community-based DSMPs in the YMCA network and beyond.

Methods

YMCA of Greater Richmond's Diabetes Control Program

History and details of the DCP are provided elsewhere.¹⁶ Briefly, the DCP serves approximately 150 people a year in a group-based (4 to 15 individuals per group), 12-week program that meets weekly for 90 minutes in community settings (e.g., YMCA locations, churches, senior housing) in the Richmond, Virginia, metropolitan area. The program includes a mixture of didactic learning and interactive components including a cooking demonstration, a grocery store tour (with a store gift card), dietary and physical activity journaling, weight tracking, group workouts, and free access to the YMCA's personal trainers and gym facilities. DCP classes are facilitated by trained lay health coaches who are skilled at building rapport with and between participants using motivational interviewing techniques. Coaches make reminder and follow-up telephone calls to support ongoing engagement.

DCP participants are recruited at community health fairs, YMCA branches, and through referrals from local healthcare providers. The YMCA offers financial assistance on a sliding

scale for participants who cannot afford the DCP fee (\$429 at the time of this study). To date, more than 95% of participants have been eligible for financial assistance, and 52% paid less than \$20.

Study Design

DCP attendance records were used to identify and recruit three subsamples of DCP participants reflecting a range of experiences and perspectives on the program. The subsamples were: **Completers**, individuals who had attended 9+ DCP class sessions; **Non-completers**, individuals who attended >2 but <6 sessions; and **New enrollees**, currently enrolled individuals who had completed 2 sessions. Two focus groups were conducted with each participant subsample group (one to six participants in each focus group), for a total of six focus groups. Telephone interviews were also conducted with DCP coaches. Participants and coaches received \$20 for their time. All participants provided comprehensive informed consent. This study was reviewed by the Institutional Review Board (IRB) at Virginia Commonwealth University, and this analysis of de-identified data was deemed exempt from IRB oversight by the University of Michigan.

Data Collection

Data for this study were collected between July 2016 and June 2017. Participant focus groups were held in private rooms at various YMCA locations. Coach interviews were conducted by telephone. Each focus group and interview lasted approximately one hour and was audiotaped. The semi-structured interview guides were designed to facilitate open discourse, gather participant and coach perspectives on specific topics, and provide opportunities for unanticipated topics to emerge.¹⁸ The interview guides used for each participant subsample group and the coaches covered similar topics, with minor modifications reflecting each group's involvement in the DCP. The focus group questions most relevant to the current study were: *How did you learn about the YMCA DCP? Why did you decide to participate? Please share some of the things that helped/made it difficult to attend classes and keep up with the program? What do you think the YMCA can do to reach out to more people and encourage them to sign up for this program? What can the YMCA do to encourage people to attend most classes?* Coach interview guides explored coaches' perspectives on these same topics.

Data Analysis

The Rigorous And Accelerated Data Reduction (RADaR)¹⁹ technique for qualitative data analysis was used to identify prominent themes related to participant engagement. A four-person analytic team began by listening to the audio recordings and reading de-identified, verbatim transcripts. RADaR is a multi-step process in which the team analyzed the data in five iterative steps, each representing a more narrow and focused presentation of the data and themes. **Step 1:** The team created an all-inclusive data table of the transcripts, with quotes linked to the corresponding interview questions, speaker characteristics, and source (i.e., new enrollee, completer, or non-completer focus group; coach interview). **Step 2:** The team reduced the all-inclusive table by removing quotes unrelated to engagement. **Step 3:** The team employed open coding and grouped quotes according to several overarching codes

related to different stages of engagement in the DCP (e.g., recruitment, enrollment, retention), which were selected to organize the data. **Step 4:** The team identified, defined, and applied subcodes and organized the data accordingly. The document was revised until consensus was reached on the quotes attributed to each subcode. **Step 5:** The team developed the final organizational scheme used to present the major themes that emerged from the focus groups and interviews. The themes were similar to the previously identified subcodes, some of which were combined or divided to create themes, reduce redundancy, and create a coherent flow for reporting the results. The team compared characteristics of individual participants, participant subsample groups, and coaches that discussed each theme to assess topic representativeness; themes were generally consistent across groups unless described otherwise. Finally, the team selected illustrative quotes that reflected prominent themes and the diversity of perspectives reflected in the data.

Results

Demographic characteristics of focus group participants are provided in Table 1. The interviewed coaches were all female, had at least some college education, and did not have diabetes. Fifteen themes emerged from the data that covered factors related to DCP engagement (see Table 2). These are organized according to two distinct stages of engagement in the DCP: a) recruitment and enrollment; and b) retention and engagement in program-promoted activities. Key recommendations for program engagement derived from the data analysis are provided in Table 3.

Recruitment and Enrollment in the DCP

Recruitment outlets.—Most participants heard about the DCP from a healthcare provider, including both primary care generalists and diabetes specialists. Most providers were described as suggesting the DCP to their patients (the DCP participants) as a way for them to learn more about their condition. A smaller number of providers took this a step further and strongly advocated attendance and provided detailed explanations of how they anticipated their patients would benefit from the program. Participants also noted the importance of “word of mouth” and a lack of awareness about the DCP in their social networks. One new enrollee explained, *“Unfortunately, a lot of people are not going to go and seek the help [for diabetes] unless it’s put before them. When my doctor mentioned it to me, I was all for it. Then it was a few months before the program started, and I had not thought about it anymore until I got the call to say, ‘Hey, we’re starting the program.’ The sad thing is, I was diagnosed with diabetes over a year ago. I should have been searching this kind of thing out, but I wasn’t. And it wasn’t until it was presented to me [that I went].”*

Motivation.—Participants reported a variety of reasons for enrolling in the DCP and wanting to improve their diabetes self-management. Some noted specific expectations and goals they had, such as camaraderie and social support, a structured exercise program, reducing their HbA1c, or losing weight. A more common sentiment, however, had less to do with defined goals and was more about wanting to learn about their health condition and how to implement self-management. As one participant noted, *“I decided to participate because I didn’t know anything about diabetes, and I wanted some information that would*

clarify some things that I wanted to understand about diabetes.” Although participants recognized the importance of nutrition and physical activity for managing their diabetes, a frequently expressed reason for enrolling in the program was that they lacked adequate information and/or support for making improvements in these areas and integrating them into their daily lives. Other sources of motivation included friends and family and wanting to reverse or slow their diabetes progression.

Fear and avoidance.—Fear and avoidance were prominent themes that influenced both recruitment/enrollment and retention (discussed later) in complicated ways. A lot of participant narratives indicated fear: diabetes was described as a “*killer*,” and many participants commented that they wanted to get their diabetes “*under control before it’s too late*.” Participants communicated negative stories about others’ diabetes-related complications and deaths, often ending with statements that they did not want to experience the same outcomes. A new enrollee commented, “*I don’t want to end up in a nursing home. I don’t want to end up blind, on dialysis, and not able to walk.*” Fear also played a prominent role in participants’ delay in investing time and energy in learning how to better manage their diabetes. Most had been diagnosed years prior to enrolling in the DCP. For some, diabetes did not affect their daily functioning, so it was easy to ignore. Others, however, described themselves as being paralyzed by fear, particularly of complications and the effects of complications on their lifestyles and ability to work. Fear was also an often cited factor motivating enrollment in the DCP. A comment that resonated with many completers, “*You asked me what made me want to change and get into a class, and I answered that: I refuse to die from a spoon and a fork.*”

Comparisons to other diabetes resources.—Overwhelmingly, participants enrolled in the DCP because their experiences with other sources of diabetes education and support did not meet their needs. Some individuals were confused and overwhelmed by the wealth of information available. One new enrollee explained, “*I have a problem with Google. I Google everything. I Googled diabetes, and I got so much information that I said, ‘I have to go somewhere else to decipher it.’*” There was also a disconnect between healthcare providers and patients’ needs: some participants expressed frustration that their providers were not more helpful; others accepted that providers did not have time for in-depth discussions or for helping them develop behavior change strategies. Many participants had attended DSMPs outside of the YMCA in the past, and these programs were described as providing information but insufficient detail and attention to tangible self-management skills. A common sentiment, conveyed by this quote from a new enrollee, was: “*For years, I used to do my blood glucose, but I didn’t know what I was doing it for. I just pricked my finger and saw the number. Who was I going to report it to? ... I wasn’t educated.*”

Retention and Engagement in Program-Promoted Activities

Program structure.—Participants noted numerous characteristics that supported ongoing engagement in the program. Classes were frequently described as “*interesting*,” “*fun*,” and “*informative*.” Participants appreciated the 12-week length, the weekday evening class times, and that meetings were held at nearby locations in the community. A completer shared, “*It was good to know that you could come in next week and if you ran into*

something during that week you could ask a question.” Many participants, particularly in the completer groups, indicated that they wished the program was longer or that there was an alumni program to support ongoing engagement in self-management activities. Numerous tangible resources provided by the YMCA (e.g. personal trainer, gym access) were identified as supporting participant diabetes self-management efforts, especially increasing physical activity. Nearly all participants described the group format as one of the program’s most important features, which encouraged continued attendance, active participation in class discussions, and asking questions. A drawback of the group format was that when other participants stopped attending classes, this negatively affected the group dynamic. Participants generally liked the balance between the group classes and individual sessions with the YMCA’s personal trainers and personal interactions with their coaches (e.g., one-on-one conversations after class, between-session telephone calls). However, coaches noted that they could not always address participant needs, such as questions about medications; sometimes they had to direct participants to other resources. The largely in-person emphasis of the program was both a strength and challenge: the group-based classes encouraged interaction and hands-on skill building, but participants lamented the limited options for remaining engaged when they were unable to attend a class.

Activities.—Participants discussed several specific hands-on activities that supported their ongoing engagement including the in-class cooking demonstration, grocery store tour field trip, and daily journaling of diet and exercise. Several noted that they had never eaten the foods introduced at the cooking demonstration and were surprised that they liked them. The grocery store tour was frequently mentioned as a favorite activity. A completer shared, *“The grocery store experience was really neat. I never knew anything about grocery stores that outside of the parameter is the healthy stuff and inside is the bad stuff. I’d just go right for the middle. It was good learning that.”*

Accountability.—Participants noted several features of the program that held them accountable for attending class sessions, eating healthy, and getting regular exercise. A coach explained, *“I think the [coach] reminder calls really help, because some folks might forget and they may figure they’ll skip this week. But when I talk to them on the phone, there’s more accountability of, ‘I’m going to show up.’”* Although accountability to actively participate in the class sessions was described positively by participants, both participants and coaches expressed mixed feelings about the labor involved in daily food and physical activity tracking and the weekly weigh-ins. Several coaches noted that the food/activity tracking was difficult, time consuming, and often inaccurate, especially for low literacy participants. Participants talked more about the weekly weigh-ins, which they disliked but felt had value in raising awareness and holding them accountable. A completer explained, *“We have to weigh in every week. It scares me the most. It taunts me.... During the week, when I am going about my life and I’m eating something and I’m thinking, ‘You know, Thursday, you’ve got to get on the scale.’ ... But it’s a good thing.”*

Peer support.—Participants described their groups as welcoming, accepting, encouraging, and nonjudgmental. One participant characterized his class sessions as *“therapeutic.”* A new enrollee said, *“I like the program because our group is encouraging, and we learn different*

things from one another. It helps motivate you to get strong and stay in the program.” Some participants shared contact information with their classmates, were in communication between class sessions, and got together outside of class to exercise or just to socialize. Several noted that their classmates were the first people, other than their healthcare providers, with whom they had ever discussed diabetes. A new enrollee explained, *“In the community, we don’t talk about [living with diabetes]. This class allows us to be able to talk openly about that, and I’m hearing that other people are going through some of the things that I’m going through...to hear that other people are dealing with some of the same issues that I’m dealing with.”* This bonding around living with diabetes often gave participants the confidence to do things they struggled with alone, such as stepping on the scale, going to the gym, or being seen in a bathing suit.

Coach support.—The importance of the lay health coaches was a prominent theme in the focus groups. Without exception, participants described their coaches in positive terms (e.g., “fun,” “informative,” “motivating,” “patient”). A non-completer noted how her coach prioritized meeting the needs of class participants over rigidly following the program timeline, *“He knew he had to get through the material, but at the same time, he would take his time to listen to each one of us individually. It wasn’t a rush.... It was like, ‘Okay, folks, I hear you. I understand. I’m listening.’ That’s how he was. That’s what made a difference in the program.”* There were numerous accounts of coaches spending time getting to know participants and talking with them about their challenges, even those not directly related to diabetes. A completer commented, *“These coaches were just regular people, and they made us feel relaxed, and they interacted with us. We could tell jokes, and they would tell jokes. It was all pertaining to diabetes, but it was something that happened to us when we first started or whatever.”* Participants commonly characterized the coaches as understanding and accepting that real life commitments and responsibilities often interfered with program engagement and overall diabetes self-management; many provided examples of how rather than shaming or judging them for missing class or limited progress toward their self-management goals, their coaches were compassionate.

Individual characteristics.—Characteristics including readiness for change and capacity for sustained commitment were identified as factors that contributed to program engagement. Both participants and coaches noted the importance of being able to stay focused and maintaining sustained effort, especially given that many participants did not experience significant outcomes quickly, such as weight loss or no longer requiring diabetes medications. A coach described successful participants as, *“They’re goal oriented. They came in ready. They know it was very important for them to make this lifestyle change, and they’re ready and willing to do the work that’s going to be involved...and realize it’s not going to be instant.”*

Fear and avoidance.—Fear and avoidance affected ongoing engagement. New enrollees, in particular, expressed trepidation about beginning an exercise routine and the potential of pain or getting hurt. Some program elements were described as increasing health-related fears, because participants gained a more accurate understanding of the potential risks of diabetes. When asked to compare his feelings before and after starting the program, a new

enrollee explained, “*What I’m realizing...it’s going from not knowing to knowing. I have to carry everything around: eating, exercising, medication. It’s all got to be top priority. It’s got to take priority over everything else.*” On the other hand, the program also helped participants manage their fear by providing clear, actionable, and realistic steps toward improving their diabetes self-management. A common strategy that did not make fear disappear, but did make fear less likely to inhibit participants’ self-management behaviors, was making and celebrating small improvements. A male non-completer explained, “*People my size that’s overweight may be intimidated to go the gym because they don’t look like... people on the treadmill running. I know I am never going to be able to do that, but if I don’t start somewhere, I’ll never get that point.... Now if I am over here for five minutes, that was five minutes more than I’ve done before. You have to do something to get it started. I might start five minutes this week. Next week, I might go up to ten. It’s a process.... I didn’t gain this weight overnight, and I’m not going to lose it overnight. [The DCP] encourages you.... It gave me the confidence to be able to go the gym now and workout and not feel a certain type of way.*”

Barriers: health, obligations, transportation.—It was not uncommon for participants to have complex comorbid medical issues accompanied by numerous healthcare appointments. These sometimes interfered with class attendance. Diabetes-related complications were cited as barriers to class attendance, such as feeling dizzy or unsafe to travel or seeking emergency medical treatment. Participants and coaches also described how other health conditions interfered with attendance due to ongoing (e.g., pain, functional limitations) and acute (e.g., hospitalization, major surgery, chemotherapy) challenges. Work and family obligations were other common reasons for class absences. A coach summarized, “*I’ve heard all kinds of reasons why people didn’t attend: the car broke down, they had to work overtime, there was a death in the family, somebody was in the hospital, somebody’s house was on fire.... So I mean all kinds of life stuff that comes up.*” While most individuals noted the convenience of attending classes as local YMCA sites, transportation problems occasionally interfered with class attendance, particularly when unanticipated transportation challenges arose.

Information and skills.—A prominent theme was the wealth of practical information and relevant skills imparted by the program. Participants emphasized that this information and skills training were applicable to the social and physical environments they lived in, their complicated health issues, and their values. Participants explained that this realistic, personalized approach helped them learn more, implement changes into their lives, and build confidence that they could manage their diabetes better. One participant explained, “*By us not having that knowledge, we can’t control it [diabetes], but once we get that knowledge, I think we can do something about it.... You [have to] learn how to eat, and that makes a difference.*” Another commented, “*They taught me how to do the exercises. And first of all, you can’t just jump and do exercises, you’ve got to warm up and do those stretches. I didn’t know that. I just used to go straight into doing the exercises, and that’s why I was in more pain.... But once I learned that stretching and all that, then the exercise was coming in handy, and there was less pain.*”

Health benefits.—Participants cited improvements in their mental and physical health and quality of life that they attributed to the program that encouraged their ongoing engagement. Participants indicated that weight loss, lower HbA1c, being physically active, and feeling more confident about their diabetes self-management generated excitement about attending more classes and experiencing additional improvements in health. As a new enrollee shared about joining the program, *“It’s just another stepping stone to making me feel better about myself. I’m glad to be here.”*

Comparisons to other diabetes resources.—Participants made several comparisons between the DCP and their experiences with other diabetes resources that highlighted how the YMCA program addressed previously unmet needs. For example, participants noted that the program delivered education in an accessible manner, encouraged questions, and was long enough to give them sufficient time to process the abundance of information covered. This was contrasted with their experiences of healthcare provider visits, which were often brief and described as sometimes intimidating and overwhelming. A completer explained, *“My primary care [provider] would just say, ‘You have diabetes. You need to get your numbers down, your A1c.’ But nobody actually showed me the process of what goes on, what to eat. They sent me to classes on nutrition and that didn’t help me either because... they were in such a hurry. I actually needed somebody to sit down and give me a picture. Let me see what actually happens. I learned that in these [DCP] classes. Very beneficial.”* Participants also noted that the practical life skills taught in the program made integrating changes into their lives more feasible. Whereas other diabetes resources provided information and recommendations, the DCP taught participants tangible strategies for eating healthier, afforded instruction and facilities for safe exercising, and provided tools to help participants monitor and increase awareness of their dietary intake, physical activity, blood sugar, and weight.

Discussion

This study adds to the literature on how community-based DSMPs can encourage participant engagement across the continuum from program recruitment and enrollment to sustained attendance and adoption of diabetes self-management activities. This study identified multiple actionable recommendations for enhancing DSMP engagement of traditionally underserved groups in diabetes care. The results illustrate the value of a CBPR academic-community collaboration for bridging the gap between research and practice, in an example of translational population health science.

Through focus groups with DCP participants and interviews with DCP health coaches, a number of themes that reflected on existing strengths of this program in facilitating engagement were identified. Many of these may be especially relevant and beneficial for underserved groups. One characteristic with bearing on multiple themes of participant engagement was that this self-management program is both community-*based* and community-*placed*. Prior work has shown that these features are especially beneficial for underserved groups, who are more likely to have negative interactions with formal healthcare (e.g., discrimination, distrust, poor communication)^{20,21} and transportation and scheduling challenges.²² Underserved groups also tend to have more limited access to

resources that support engagement in self-management activities,²³ such as personal trainers or facilities for physical activity, and may need DSMPs that provide access to resources in order to attempt to improve their diabetes self-management. Programs that take advantage of preexisting resources in the community may be more appealing and facilitate sustained behavior and lifestyle changes post-program.

Participants and coaches also emphasized the importance of the 12-week length of the program, which provided sufficient time to process and apply the large amount of information and skills involved in diabetes self-management. Furthermore, both groups stressed the importance of the overarching approach of the program to provide education in a practical, interactive skill-building manner that recognized the importance of identifying realistic strategies to integrating behavior and lifestyle changes associated with effective diabetes self-management. Many participants noted that they had been told what self-management activities they should be engaging in, but these recommendations were often presented in ways that were too abstract, complicated, or unfeasible for them to adopt, given the social, physical, and economic contexts of their lives. The DCP, in contrast, was described as helping participants make small, manageable steps toward improving self-management. It also was characterized as having multiple strategies that prevented setbacks (e.g., missing class sessions, not meeting short-term physical activity goals) from derailing participant engagement.

Most of the factors that interfered with participant engagement were not program-related. Overall, across all three participant profiles, focus group participants were satisfied with program. The few critiques mentioned largely addressed minor logistical improvements specific to the YMCA's implementation, while major program components were overwhelmingly well received. Health issues and commitments to work and family were the biggest barriers to engagement. Strategy for addressing health-related challenges include increasing program content on managing multiple comorbid medical conditions and recruiting participants before their diabetes has progressed to the point of complications and accompanying comorbid conditions. Unfortunately, the DCP had limited strategies to help participants remain actively engaged when they missed class sessions. DSMPs could develop other delivery modes such as self-instructional materials, internet-based materials or modules, make-up classes, video recordings, and/or follow-up telephone calls with coaches. These strategies raise a challenge for the YMCA and other in-person DSMPs, in that these alternative approaches make it difficult to marshal key program strengths, such as their interactive and social components. While engagement may be less adversely affected in a different modality of DSMP (e.g., shorter or online DSMP), it may be difficult to integrate identified program strengths for engaging underserved and marginalized populations into these formats. Therefore, maintaining the core in-person program, while developing complementary alternative modes for helping participants remain engaged when unable to attend appears to be the best compromise.

Findings should be interpreted in light of study limitations and strengths. While the procedures used captured the strongest and most prevalent themes, topics not probed in greater depth during the focus groups and interviews and perspectives voiced by a minority of participants may not have been included in this paper. The in-depth description allowed

by qualitative methods combined with purposeful sampling of participants based on DCP attendance records enabled exploration of the diversity of participants' perspectives.

In conclusion, the perspectives of participants and other key stakeholders provide valuable insight into existing strengths of community-based DSMPs, which can be expanded on in efforts to promote engagement of underserved groups. They also highlight potential opportunities for improvement. Identifying programmatic changes to address factors serving as both barriers and facilitating factors (e.g., fear, longer program duration, in person class sessions) may prove especially complex.

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Table 1:

Participant characteristics

	Completers	New Enrollees	Non-Completers
	2 focus groups	2 focus groups	2 focus groups
<i>N</i> participants	10	9	3
Mean age, years (min, max)	62.2 (49 – 76)	56.3 (45 – 67)	50.3 (46 – 54)
Female	80%	44%	67%
Mean education, years (min, max)	13.3 (12 – 16)	14.0 (12 – 17)	13.3 (12 – 16)
Employment status			
Employed	60%	38%	0%
Retired/not employed	40%	62%	100%
Mean age of diabetes diagnosis, years (min, max)	46.4 (38 – 63)	41.6 (12 – 61)	38.0 (24 – 46)
Mean current HbA1c, % (min, max)	7.6 (7 – 8)	9.6 (6 – 12)	7.1 (6 – 8)

Table 2.

Themes related to engagement

Recruitment & Enrollment in the DCP
Recruitment outlets
Motivation
Fear & avoidance
Comparisons to other diabetes resources
Retention in DCP & Program-Promoted Activities
Program structure
Activities
Accountability
Peer social support
Coach social support
Individual characteristics
Fear & avoidance
Barriers: health, other obligations, transportation
Information & skills
Health benefits
Comparisons to other diabetes resources

Table 3.**Participant and coach recommendations for promoting engagement in community-based DSMPs**

Recruitment outlets	<ul style="list-style-type: none"> Healthcare providers, including both primary care generalist and diabetes specialists, are a good source of referrals Referring healthcare providers need a more comprehensive understanding of the program and how it can complement the healthcare they provide Develop substantial program awareness and a positive reputation outside of clinic settings Active recruitment efforts, including multiple contacts with potential participants, may be necessary to get some individuals to enroll
Recruitment materials & messaging	<ul style="list-style-type: none"> Recruit people when their diabetes is in earlier stages—before they develop complications and other comorbid conditions that further challenge effective diabetes self-management Address participant-identified motivations, fears, and program benefits. For example, emphasize: <ul style="list-style-type: none"> specific outcomes and satisfaction experienced by former participants learn more about diabetes and get questions answered in a comfortable environment develop practical strategies for incorporating healthier habits into your life get help becoming more physically fit safely and without pain access to tangible resources and other amenities develop friendships and social support with other people who have diabetes improve how you manage your diabetes, so you can feel better, healthier, and in control and able to prevent your diabetes from getting worse avoid increasing fear
Enrollment	<ul style="list-style-type: none"> Provide pre-enrollment orientation on commitment of the program and challenges of diabetes self-management Consider screening participants for readiness to change and invest in diabetes self-management Establish an indicator of commitment (e.g., participant contribution toward cost, level of readiness screening)
Program structure	<ul style="list-style-type: none"> Provide program through an established community institution Provide adequate time (e.g., 12 weeks) to cover the wealth of information related to diabetes self-management, provide ample opportunities for questions, build skills, initiate behavior and lifestyle changes, and develop social support Offer the program at various community locations and during different times of day, especially evenings and during the work week Supply tangible resources to support participant engagement in program-promoted activities (e.g., access to the fitness classes and facilities) Include a combination of group- and individual-based program components Help coaches and participants adjust to fluctuating attendance levels over the course of the program Minimize loss to follow up by creating ways for participants to stay engaged when they miss class sessions (e.g., make-up classes, video record sessions, provide copies of materials, internet-based units, follow-up telephone calls with coaches) and encouraging participants who have missed sessions to return Create program flexibility so coaches can meet both curricular and participant needs Provide transportation Develop back-up transportation plans with participants that can accommodate unanticipated transportation problems Support post-program maintenance of diabetes self-management activities and social support through a structured program, refresher sessions, organized activities, and/or a discounted YMCA memberships for DCP alumni
Program content	<ul style="list-style-type: none"> Provide participants with realistic guidelines for improvements (e.g., approximately how much weight loss are participants are likely to experience and in what timeframe)

	<ul style="list-style-type: none"> • Present accessible information • Tailor to the local context and participant characteristics, needs, and values • Accommodate low literacy challenges • Emphasize practical life skills • Incorporate interactive, hands-on activities such as cooking demonstrations, grocery store tours, journaling of dietary intake and exercise, and weight tracking • Introduce new foods, recipes, and cooking techniques • Instruct on how to exercise safely and without pain • Recommend relatively easy-to-use, time-efficient tools for tracking daily food and physical activity • Conduct regular weigh-ins • Pair discussions about the complications of diabetes with clear, actionable steps participants can take to avoid complications to minimize fear and enhance self-efficacy • Discuss managing complex medical conditions, especially interactions between diabetes and common comorbid conditions. Provide referrals to resources, if available (e.g., coordinated care programs)
Program environment	<ul style="list-style-type: none"> • Make class sessions interesting and fun • Create a welcoming, accepting, encouraging, and nonjudgmental environment • Facilitate participants and coaches teaching and learning from one another • Facilitate participants communicating and getting together outside of class (e.g., sharing contact information, organizing workout sessions) • Use lay health coaches who are “just regular people” • Identify coaches who are fun, informative, motivating, and patient • Ensure coaches are compassionate, accept that real life interferes with program engagement and diabetes self-management, and never shame or judge participants • Have coach reminder telephone calls and follow-up calls when participants miss sessions • Train coaches in motivational interviewing • Develop realistic participant expectations and goals • Identify and celebrate incremental steps toward participant goals • Have coaches who can push participants to improve their diabetes self-management gently