

Article

Transitioning to Telehealth during COVID-19: Experiences and Insights from Diabetes Prevention and Management Program Providers in Los Angeles County

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Abstract: The onset of the COVID-19 pandemic in March 2020 accelerated the efforts of several organizations providing the National Diabetes Prevention Program (National DPP) and the Diabetes Self-Management Education and Support (DSMES) program to rapidly transition from in-person service delivery to program administration via telehealth. Semi-structured interviews were conducted with 35 National DPP and DSMES experts and providers in Los Angeles County to gain a better understanding of the challenges and benefits associated with this transition. Interviews were completed during June to October 2021. Thematic analyses were performed using the Social-Ecological Model as a guiding framework. The analyses revealed several factors that influenced the transition, including at the individual (e.g., technology and health behaviors), interpersonal (e.g., social connections and support), organizational (e.g., provider workload and program enrollment and retention), community (e.g., recruitment), and policy (e.g., government support and reimbursement for telehealth services) levels. Findings suggest that the transition to telehealth was challenging for most National DPP and DSMES providers. However, because of its lower cost, ability to reach long distances virtually, and potential efficiency when employed as part of a hybrid approach, this delivery modality remains viable, offering benefits beyond the traditional program models.

Keywords: key informant interviews; prevention of type 2 diabetes; self-management of type 2 diabetes; National DPP; DSMES; telehealth; provider experiences; COVID-19



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1. Introduction

In the United States, an estimated 34.1 million adults have diabetes, and 88 million have prediabetes [1]. In Los Angeles County, California, approximately 1 in 10 adults has been diagnosed with type 2 diabetes [2]. Individuals with diabetes are at risk for many serious health problems, including heart disease, stroke, chronic kidney failure, amputations of lower limbs, blindness, and premature death [3]. They are also at increased risk for severe disease and death from the coronavirus disease 2019 (COVID-19) [4]; thus, limiting exposure to the virus that causes COVID-19 has been a critical priority for protecting individuals with these conditions throughout the pandemic.

Even before the pandemic, efforts to locally promote diabetes prevention and management have focused on increasing access to and use of the National Diabetes Prevention Program (National DPP) and Diabetes Self-Management Education and Support (DSMES) program services. The National DPP is a year-long lifestyle change program based on the original Diabetes Prevention Program [5–7], which has been shown to reduce the incidence of diabetes in the short term and over time [5,8]. Likewise, DSMES is an evidence-based service model designed for individuals diagnosed with diabetes, with education services that have been shown to improve eating patterns, activity levels, and hemoglobin A1C (HbA1c) levels among program participants [9].

While telehealth is not a novel approach to either program model, the onset of the COVID-19 pandemic in March 2020 accelerated its use by National DPP and DSMES providers across Los Angeles County (LAC) and elsewhere in the United States (U.S.). This rapid transition from in-person service delivery to a virtual format was unprecedented in this regard. Telehealth, by definition and by standard practice, includes the use of telecommunications technologies of various forms to provide healthcare and health education. The modality can involve live videoconferencing, the electronic transmission of health information, and the use of devices to collect and transmit data to providers to assist with clinical decision-making (e.g., remote glucose monitor, remote weight monitoring device) [10].

Prior to the pandemic, both National DPP and DSMES programming were offered in-person, sometimes via telehealth, and through other technology-based modalities [8,11]. Prior studies indicate that programs delivered via telehealth can result in observable improvements to health and behavioral outcomes [11–16]. However, the majority of organizations providing National DPP and DSMES in LAC at the start of the pandemic provided them primarily in-person [17,18]. Nationally, the use of telehealth for these two programs, and for healthcare services more broadly, had been low before the health crisis [19–21]. Reported barriers to telehealth included a lack of technical skills and/or equipment, privacy and security concerns, provider comfort and organizational support of the modality, and a lack of adequate reimbursement for such services [22–24]. The shelter-in-place orders and other efforts to decrease the spread of COVID-19, in a sense, forced providers to come up with innovative solutions to these barriers as they moved from a traditional in-person delivery model to telehealth.

Although pre-pandemic research on telehealth is not sparse in the health services research literature, it has not been conducted for transitions that took place on a very short timeline. For example, little is known about the challenges or the optimal practices that are needed to rapidly switch from primarily in-person sessions to virtual sessions that are facilitated by evolving technology platforms such as Zoom, GoToMeeting, or Doximity. This study explores the experiences and insights of 35 National DPP and DSMES experts and providers in LAC to identify opportunities where integration of telehealth into these 2 program models can help improve the delivery of diabetes prevention and management services, including ways to better increase participation and retention.

2. Methods

2.1. Study Design

A qualitative, key informant study was employed for this project. Thirty-five semi-structured interviews were conducted between June and October 2021. A core project team guided the design, methods, data collection, and analysis of the interview data. The team consisted of staff from Ad Lucem Consulting and the Los Angeles County Department of Public Health (DPH). The DPH's Institutional Review Board reviewed and approved the study protocols and materials.

2.2. Setting

In LAC and at the time of the study, there were approximately 35 organizations that were either accredited by the American Association of Diabetes Care and Education

Specialists (ADCES) or recognized by the American Diabetes Association (ADA) to provide DSMES services [17], and 43 organizations that provided the National DPP [18]. Some of these organizations provided both National DPP and DSMES services. Many that offered the National DPP had applied for and received recognition from the Centers for Disease Control and Prevention (CDC) Diabetes Prevention Recognition Program (DPRP), a program entity that reviews and affirms the effective delivery of DPP services. The organizations providing these services included hospitals and healthcare systems, community-based organizations, Federally Qualified Health Centers (FQHCs), community health centers, pharmacies, universities, and health plans/insurers.

2.3. Participants

Key informant interviews were conducted with experts and providers of National DPP and/or DSMES programs in LAC. The former were not restricted to local experts—they included subject matter experts from across the U.S. For both experts and providers, DPH assisted with recruitment. Some of the expert interviewees were identified through a literature review, and others were identified as “experts” by other interviewees. Experts were primarily selected based on their knowledge of and/or experience with delivering the National DPP and/or the DSMES program. All prospective interviewees were invited via email first, with follow-up phone calls as needed. In total, 56 experts and providers were contacted, and 35 were interviewed (62% response rate).

2.4. Data Collection

Two semi-structured interview guides were developed for the study, one for experts and the other for providers (see Supplementary Materials (S1) for interview guide questions). Both guides include questions about the impact of COVID-19 on National DPP/DSMES program delivery, challenges and optimal practices associated with integrating/implementing telehealth sessions, and policy and systems changes that are likely to be necessary to support and sustain telehealth practices. Experts were asked to assess the value or impacts of telehealth and what the future may look like for National DPP/DSMES that continue telehealth services. Providers were asked questions about the infrastructure and capacity needed to implement telehealth.

All interviewees provided consent prior to being interviewed and did not receive compensation for their participation. Each interview required approximately 45 min to complete, and all interviews were conducted and recorded via videoconferencing software by trained interviewers. Verbatim transcripts were generated, checked for accuracy, and loaded into ATLAS.ti (Version 22.0.6.0, access on 15 December 2022) [25] for sorting and qualitative analysis.

2.5. Qualitative Data Analysis

Interview transcripts were initially coded in ATLAS.ti for themes and subthemes using thematic analysis [26]. A codebook was then developed based on the identified themes. The transcripts were double-coded, and any differences were resolved during team meetings. The lead author coded all the transcripts, and two trained undergraduate research assistants each coded approximately half of the transcripts.

The social-ecological model (SEM) was used as a framework to describe factors that influenced the transition from in-person service delivery to services offered via telehealth. The SEM is a theory-based framework that recognizes the complex interactions between individuals, their social networks, and broader structural factors through five levels: individual, interpersonal, organizational/institutional, community, and policy [27]. The SEM has been used previously to identify factors that impact health and well-being and as the guiding framework for health promotion interventions in the community. This model serves as the organizing framework for themes identified in this study.

3. Results

A total of 35 interviews were conducted with National DPP/DSMES experts and providers. Nine were conducted with experts who represented the following organization types: health management and training ($n = 4$), health professional association ($n = 3$), state public health ($n = 1$), and academia ($n = 1$). Twenty-six were with providers, in particular, with individuals from hospitals/healthcare systems ($n = 8$), community health centers ($n = 7$), private/small businesses ($n = 4$), universities ($n = 3$), Health Resources and Services Administration-funded FQHCs ($n = 3$), and health plans/insurers ($n = 1$). Many of the providers interviewed serve populations with a high burden of diabetes and other chronic diseases.

Two expert interviewees could speak to both National DPP and DSMES delivery, two could speak to just DSMES services, and six could speak to just National DPP programming. Of the experts, two were also DPP providers, and one was delivering both National DPP and DSMES.

Almost all providers were providing in-person sessions prior to the COVID-19 pandemic, and only 2 of the 26 providers were already offering primarily telehealth National DPP and/or DSMES services. Majority of providers switched to providing telehealth services shortly after the start of the pandemic. In most cases, telehealth delivery included videoconferences and/or telephone conference calls with groups or individuals. Experts and providers used different terminology to refer to the virtual delivery of services/programming (e.g., distance learning, telehealth visits, online sessions). For consistency, we use “telehealth sessions” to refer to these services. Table 1 provides an overview of the mode of delivery before and during the pandemic by program type.

Table 1. National Diabetes Prevention Program and Diabetes Self-Management Education and Support program delivery before and after the start of the COVID-19 pandemic among 26 providers that participated in the key informant interviews.

	Program Delivery before the Pandemic		Program Delivery after Start of the Pandemic				
	In-Person Delivery	Telehealth	Continued to Offer Primarily Telehealth	Switched to Telehealth National DPP	Stopped Offering National DPP	Switched to Telehealth DSMES	Stopped Offering DSMES
National DPP ONLY	9	1 *	1	6	3	N/A	N/A
DSMES ONLY	5	0	0	N/A	N/A	5	0
National DPP and DSMES	10	1 *	1	8	2	9	1

* One provider was already offering the National DPP via telehealth, and another provider was offering both the National DPP and DSMES services via telehealth before the pandemic.

3.1. Major Themes

The themes identified during data analysis are described below and in Figure 1 and Table 2 according to the levels of the SEM. It is important to note that some themes included more than one level of influence and were organized according to where they fit best in the conceptual model.

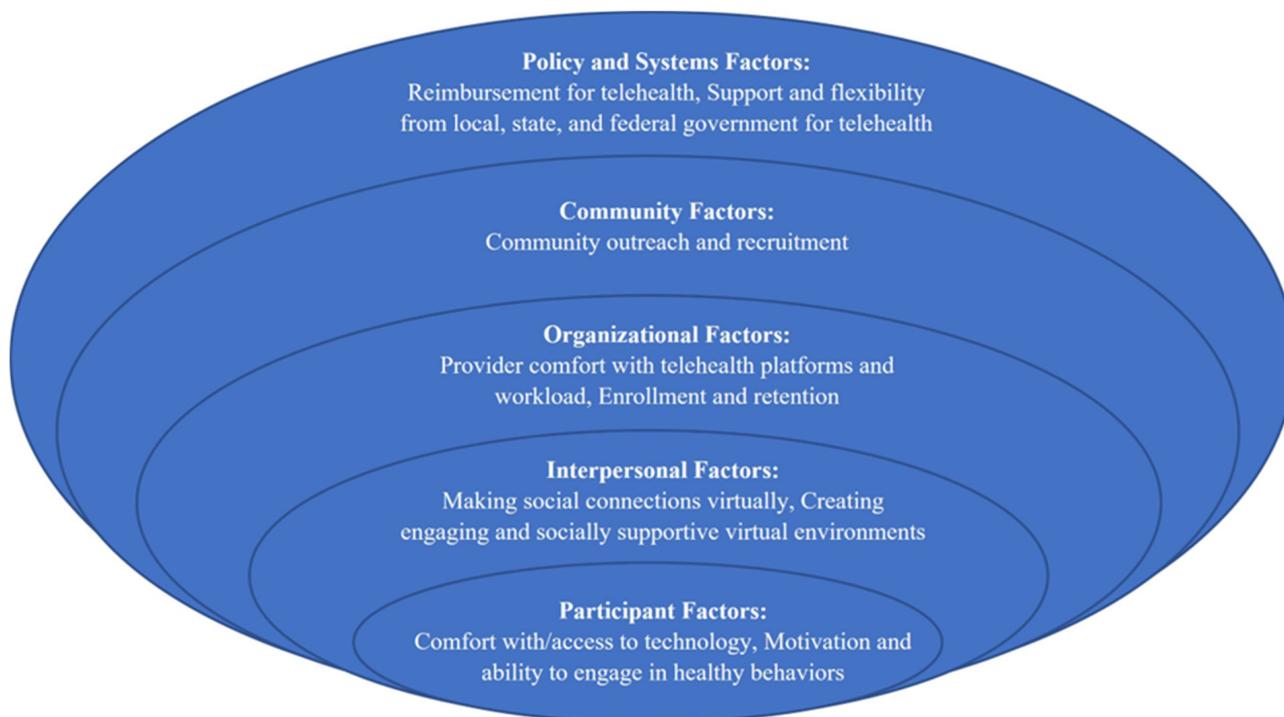


Figure 1. Social-ecological model with factors influencing telehealth delivery of the National Diabetes Prevention Program and Diabetes Self-Management Education and Support program during the COVID-19 pandemic.

Table 2. Themes and representative quotes related to telehealth delivery of the National Diabetes Prevention Program and Diabetes Self-Management Education and Support program during the COVID-19 pandemic by level of the social-ecological model.

Factors	Themes	Representative Quote(s)
Individual Participant Factors: Challenges and optimal practices influencing participants’ ability to successfully participate in telehealth National DPP and DSMES		
Access to and comfort with technology	Comfort and access to technology among participants was mixed Tailored and consistent technical assistance helped many participants overcome issues with technology Despite providers’ efforts, some participants were not willing or able to engage in telehealth	“We had some groups where 50% of our group didn’t have access to a phone . . . And then we had other groups that made the switch very easily . . . [They had] access to the internet”. National DPP Expert and Provider “We created a little handout flyer with like a one pager on the steps on how to connect to the class. And we mailed it to them. We use that and we use phone calls to guide them through it”. National DPP and DSMES Provider
Motivation and ability to engage in healthy behaviors	Challenges collecting health data via telehealth made it difficult to determine the impact of the transition on health behaviors Participants’ motivation and ability to engage in healthy behaviors and achieve certain health outcomes was mixed Providers helped participants set individualized goals to overcome challenges and provided resources when needed	“They really didn’t want to share their weights. Also, we heard several people saying that they don’t have access to a weighing scale. So that kind of decreased the number of people reporting weights”. National DPP Provider “There was a lot of stress on participants and instead of trying to reach the DPP goal of weight loss, perhaps they would just focus on weight maintenance”. National DPP Provider

Table 2. *Cont.*

Factors	Themes	Representative Quote(s)
Interpersonal Factors: Challenges and optimal practices for facilitating relationships and engagement in a virtual environment		
Creating engaging virtual environments and making social connections virtually	Establishing relationships between participants and between participants and providers was challenging in a virtual environment Modifying materials and delivery of curriculum, using the platform functions, sending group texts, and creating social media groups increased engagement and connection Hybrid approaches (in-person and telehealth) may be useful for establishing relationships and improving telehealth sessions	“They can connect to us. The language, the culture, we live in this community. And that helped us to have a very successful in-person class. But how do I make that connection virtually? It’s just not there”. National DPP and DSMES Provider “I hate to say that it’s kind of like edutainment, so the more colorful and the more interesting your materials are, the more you’ll get their attention”. National DPP Provider
Organizational Factors: Overcoming provider and organizational barriers to providing telehealth and maintaining enrollment and retention in the programs		
Provider comfort with telehealth platforms	Comfort and familiarity with telehealth platforms and delivery was mixed among providers Training sessions for providers can be helpful for overcoming challenges with platforms and telehealth delivery Contingency plans are needed to deal with technical challenges	“Our Diabetes Prevention Program teams were not on the cutting edge of providing telehealth programming. So, there was a big learning curve for them”. National DPP Provider “Your platform might be great and awesome, but the internet might go out . . . I always have a dial-in conference line so everyone can get on the phone and talk”. National DPP Expert and Provider
Provider workload	Transitioning to telehealth increased the workload of many providers initially but may ultimately save time and allow for program expansion	“You don’t have to travel. You don’t have to go anywhere. You can run it from your home office . . . So those two to three, or even four hours can be used for education . . . It can be evolved into providing more classes”. National DPP Expert and Provider
Enrollment and retention	Programs experienced an initial drop in enrollment and retention, but many recovered and were able to expand and reach different audiences Telehealth availability increased accessibility of programs to individuals who could not participate in-person	“Now we are able to provide a DPP in summer in Florida or even Hawaii, anywhere they want . . . that was a great change that we were able to adapt to be more nationwide rather than just stay in Southern California”. National DPP Expert and Provider “Our enrollment actually probably was better, because people didn’t have to drive here and try and find a parking space. And it could fit into their time without them really leaving their home”. DSMES Provider
Community Factors: Challenges external to organizations resulting from the COVID-19 pandemic		
Community outreach and recruitment	The closure of community recruitment locations due to the pandemic made outreach and recruitment difficult for some providers Providers had to shift recruitment methods	“Recruitment was hard because we couldn’t go to places and give our nutrition workshops or hang up flyers”. National DPP Provider
Policy and Systems Change Factors: Policy-level barriers and support needed from government agencies for telehealth		
Reimbursement for telehealth and support/flexibility from government agencies for telehealth	Changes to National DPP eligibility requirements and flexibility for maintaining DPRP recognition are needed Adequate and sustained coverage for telehealth is needed from Medicare and Medicaid	“I think once you are recognized, you should be able to go back and forth and do both [in-person and distance learning] if you want to, instead of being pegged into just one track”. National DPP Provider “Medicare has to be in-person. And I think for a lot of Medicare participants, being virtual would probably be really good for them because a lot of times they don’t have transportation, or they have to be with a caregiver”. DSMES Provider “Coverage for services virtually needs to be set in stone . . . Now, it’s sort of vague, and I don’t know how long it’s gonna last . . . With very clear policies and procedures, and coverage for virtual services, I think in my community, it will increase participation in [DSMES]”. DSMES Provider

3.2. Individual Factors

3.2.1. Participant Comfort with and Access to Technology

Interviewees reported a wide range of comfort with and access to technology across and within the populations they work with. While some interviewees described challenges in reaching older populations and lower-income groups because of discomfort with technol-

ogy and/or limited access to the internet or a computer, others had the opposite experience. One National DPP expert stated:

“Maybe they are an 89-year-old grandmother who’s online all the time and is Queen of the internet . . . or maybe there’s someone that is not very familiar with technologies. We saw a big range within our communities.”

Participants with less technical knowledge experienced challenges connecting to telehealth platforms and sometimes attended meetings via phone/audio only. In a few cases, participants did not have permanent phones/phone numbers or email accounts. Participants also experienced technical difficulties such as unstable internet connections, dropped calls, or difficulties unmuting to speak. Some participants did have access to technology, but they had a strong preference for in-person learning.

3.2.2. Participant Health Behaviors and Outcomes

The rapid transition to telehealth resulted in challenges in collecting health data from some program participants, so it was difficult for interviewees to determine the full impact of the pandemic on the transition and on telehealth services’ delivery as it relates to changes in participant health behaviors and health outcomes.

When program sessions were held in-person, it had been easier for providers to collect participant health data such as weight and HbA1c levels. With the transition to telehealth, providers had to rely on self-reported weight from the participants. Some participants did not want to report their weight or did not have access to a scale at home. Despite lacking complete data on participant weight, some providers mentioned that participants were successful in maintaining their weight, and a minority lost weight. Other interviewees mentioned that participants gained weight. DSMES providers also did not have current data on HbA1c levels because patients were not coming into the office to have laboratory work performed. A few interviewees speculated that participants likely experienced higher HbA1c levels, at least initially. Among those interviewees who had data, they reported similar or better HbA1c levels with telehealth delivery.

Despite the difficulties with collecting health data, a minority of interviewees described how participants improved their eating habits and cooked more after the start of the pandemic due to the large amounts of time they were spending at home. Others mentioned that participants had worse eating habits and described how a few experienced food insecurity and were reliant on food pantries for food, which did not provide enough healthy options. National DPP providers also reported that participants’ physical activity levels decreased, and participants had to be highly motivated to exercise during the pandemic. One National DPP provider stated:

“We saw activity in minutes plunder, and we saw those not so good eating habits go up . . . even though they knew staying healthy and maybe preventing diabetes would hopefully make them weather COVID better.”

3.2.3. Meeting Participants Where They Are

To address issues with technology, health behaviors, and health outcomes that resulted from the transition to telehealth and the COVID-19 pandemic, interviewees stressed the need to “meet participants where they are”. Technical assistance, health and behavior goals, and resources for participants needed to be tailored to the needs of each participant and/or group. In many cases, providers and participants could work around their initial discomfort with technology and the lack of access to technology, but in other cases, it was too difficult, and some National DPP cohorts ended, or some DSMES participants did not continue receiving services.

Providers described tremendous efforts, especially during the initial transition, to make sure that “everyone’s on the same playing field” with technology. These efforts included conducting individual phone meetings with participants, creating simple handouts or guides for connecting to the platform, and following up frequently with participants to make sure they could connect and stay engaged in the program. National DPP providers

also hosted “Session Zeroes” before the start of the program to assess participants’ readiness to participate and address their technology needs. In addition, providers loaned devices (e.g., tablets, Chromebooks, smartphones) with internet connections to participants without access to the technology.

Tailored assistance for participants was also helpful for overcoming barriers to healthy eating and physical activity habits. Providers helped participants create plans or set goals to work around challenges and provided them with resources when needed. One National DPP and DSMES provider stated:

“People’s lives had to change. People were fearful . . . we would have to tell them these are some exercises you could do at home . . . or these are healthy recipes that you can make with the food that you would get at a food pantry or Food Bank.”

3.3. Interpersonal Factors

Social Support and Engagement

Interviewees reported that interpersonal factors such as the relationships between providers and participants were important to the success of DSMES services and to the success that many National DPP cohorts enjoyed. However, interviewees noted that making a “human connection” was “a little harder to do over a virtual connection”. One National DPP and DSMES provider stated:

“The benefit of having an in-person workshop is the social aspect of it. People do feel more connected with each other, and they feel like they have the support of their peers. In the virtual [setting] that was a challenge . . . They’re just really not as connected with each other.”

Strategies to increase engagement in telehealth sessions and help participants make connections included having round-robin discussions, warm invitations to participate in the conversation, and using breakout rooms and poll functions provided by the telehealth platform. Some providers also mentioned changing the way they delivered content and modifying materials to work for telehealth. One National DPP and DSMES provider mentioned “the more colorful and interesting your materials are, the more you’ll get their attention”.

Maintaining connections and communication between telehealth sessions was also important for increasing engagement and social cohesion. National DPP providers created group text messages and used social media such as WhatsApp and Facebook to increase communication and connection.

Providers also noted the importance of “knowing your audience and what works for them”. Some noted that a hybrid approach with both telehealth and in-person sessions might be good moving forward. One DSMES provider suggested “incorporating face-to-face periodically,” as in-person sessions may help establish a relationship with participants and make future telehealth sessions more successful. Despite efforts to engage participants during telehealth sessions, some participants and providers still had a strong preference for in-person sessions.

3.4. Organizational Factors

Providers faced several challenges at the organizational level when transitioning from in-person to telehealth services. Many successfully implemented a range of strategies or optimal practices to overcome these challenges.

3.4.1. Telehealth Platforms and Technical Difficulties

There was a range in comfort levels with the platform (e.g., Zoom, GoToMeeting, Doximity) selected to provide telehealth services. Some providers were very familiar with their platform and had experience delivering telehealth sessions prior to the pandemic, whereas others had very limited or no experience.

Training sessions for providers were implemented at organizations to overcome challenges with platforms and telehealth delivery. Most organizations were also quick to supply providers with the necessary technological equipment (monitors, webcams, etc.) to conduct telehealth sessions. In most cases, providers were able to learn how to use the platform relatively quickly. One National DPP provider stated:

“We had practice facilitation where I would have them take turns facilitating a class online and then provide feedback. So, there was a lot of training on that for my team.”

In other cases, interviewees noted it would have been helpful to have additional training provided by their organization or external experts to increase providers' comfort and effectiveness at delivering telehealth sessions.

Despite providers' quick adjustment to telehealth platforms and the new equipment, a small number of interviewees described remaining challenges with particular platforms that were not fully meeting their needs. Providers also experienced occasional challenges with internet connectivity and noted the need for contingency plans for technical issues or when participants cannot join telehealth sessions.

3.4.2. Provider Workload and Organizational Support

Transitioning to telehealth required providers to spend additional time modifying materials for telehealth delivery, recruiting and retaining participants, and assisting participants. However, interviewees also noted that telehealth delivery of services can be more convenient for providers and save them time or allow them to meet with more cohorts or individuals. One DPP and DSMES provider stated:

“You can provide a [telehealth] program. It's one hour for the coach. It's not all this travel and set up and talking time that really adds on an additional two hours for every meeting session. So, it's much more streamlined, and that can open the possibilities for delivering the program at hours more populations can attend.”

In most cases, providers noted that they felt sufficiently supported by their organizations in the transition to telehealth. A small number of DSMES providers did mention the need for additional organizational support, specifically having enough administrative staff to prepare participants for telehealth sessions and schedule future appointments.

3.4.3. Recruitment and Enrollment

Interviewees reported that programs experienced an initial drop in enrollment because of a pause to program operations and/or recruitment due to the pandemic. Some programs continued to have low enrollment numbers because of recruitment challenges or participant discomfort with telehealth. However, several interviewees noted that telehealth increased access to individuals from a wider geographic area and to those who previously could not commit to a long program and/or had challenges attending in-person. With the enrollment of these additional participants, some programs maintained pre-pandemic numbers, and a few increased their enrollment. For example, one National DPP provider said:

“Switching to virtual allowed us to reach members that wouldn't normally have the time to attend our in-person workshop. So, these are the working people and maybe the elderly who don't want to drive to a site at night.”

Interviewees noted several strategies that could be used to improve outreach and recruitment efforts for telehealth programs. They described the importance of contacting healthcare providers about telehealth services and encouraging them to make referrals, conducting direct marketing to patients through patient portals and newsletters, and marketing through social media. One National DPP and DSMES provider mentioned that regardless of the mode of outreach or recruitment, providers need to tailor the message to fit the needs of the individual participant.

3.4.4. Retention

Interviewees reported two different experiences when it came to the retention of National DPP participants in telehealth programs in comparison to DSMES participants. National DPP providers and experts mentioned that retention rates were mixed across cohorts. Some National DPP providers reported that retention was better with telehealth, especially among well-established cohorts. However, others experienced lower retention rates, especially among participants with a strong preference for in-person sessions or who were not comfortable with technology.

In contrast, many DSMES providers stated that retention stayed the same or improved after transitioning to virtual/distance learning program provision. One DSMES provider commented, “it’s about the same as before . . . it’s not like we saw them for a series of visits. We saw them for the initial and then maybe one follow-up or two. We’re still staying about the same”.

3.5. Community Factors

Factors external to organizations and occurring in the broader community as a result of the pandemic had an impact on the transition from in-person services to telehealth. The closure of various organizations, churches, senior centers, and other locations was especially challenging for providers that recruited through community outreach efforts. Community outreach often required substantial effort prior to the pandemic and was even more difficult when recruitment locations were closed because of COVID-19. Providers had to conduct other forms of outreach, and some experienced lower enrollments. One National DPP expert stated:

“In a lot of these communities, the recruitment was very much this high-touch relationship-building with the community where you’re going out to health fairs, to congregate meal sites . . . Well, senior centers closed, the congregate meal site has become Meals on Wheels, the church is not servicing, senior housing is not letting anyone in, and the assisted living programs are on lockdown.”

3.6. Policy and Systems Factors

Interviewees had several suggestions for changes that are needed to support telehealth National DPP and DSMES programs at the local, state, and federal governmental levels.

3.6.1. Local Government

Suggestions for policy and systems changes that could be implemented by the local government or DPH included: assistance with marketing programs to increase enrollment, providing free training and materials for delivering telehealth programs, purchasing technology needed for telehealth and sharing with organizations and program participants, facilitating networking opportunities for providers to share best practices, assisting providers with program compliance, and advocating for policy change at the federal level to increase reimbursement for programs. For example, one National DPP and DSMES provider stated:

“I think LA County Department of Public Health can continue being an advocate for health plans and vendors that provide the services and really take a role at the federal level to change some of these policies to provide more flexibility for populations covered by Medicare.”

3.6.2. State and Federal Government

Interviewees mentioned some general policy changes at the state and federal level that would be helpful for both National DPP and DSMES, such as expanding access to healthcare/insurance and expanding broadband/internet availability. Interviewees also mentioned that insurance companies should cover the technology needed for participants to receive telehealth services. However, in most cases, they suggested program-specific changes.

3.6.3. Policy and Systems Changes Needed for National DPP

Interviewees spoke to the need to increase reimbursement rates for National DPP from Medicaid (Medi-Cal in California) and Medicare, noting that the current reimbursement rates made it difficult for program providers to cover their costs. For example, one National DPP expert stated:

“The reimbursement needs to align, actually align with the high fixed costs of [National DPP] . . . It is very hard to start one of these programs and sustain it over time. You have to be incredibly efficient to be able to do that with Medi-Cal or Medicare DPP reimbursement.”

In addition, interviewees mentioned that the process for receiving Medicare reimbursement for National DPP needs to be “less onerous”. They noted that few organizations are applying to provide Medicare DPP because of the stringent requirements.

Interviewees also had suggestions for policy and systems changes that need to be made by the CDC, particularly around the Diabetes Prevention Recognition Program (DPRP). Interviewees discussed the need for providing flexibility for maintaining DPRP recognition if organizations were not able to meet program requirements during the pandemic (for example, cohorts that do not achieve required weight loss and activity levels), or if organizations offered the program in a different modality than the one they originally applied for (i.e., offering distance learning versus in-person).

Interviewees also mentioned that National DPP eligibility requirements, the curriculum, and reporting requirements need to be changed or updated. Providers stated that the body mass index (BMI) eligibility requirement for National DPP needs to be removed, as some individuals with lower BMIs may be at risk for diabetes. Providers also recommended the CDC update the National DPP curriculum to meet current nutrition guidelines/science and provide guidance for adapting the curriculum to telehealth. Other providers would like the curriculum to be available in more languages than just English and Spanish. In addition, providers would like the CDC to streamline reporting requirements. One National DPP expert and provider suggested that the CDC should provide a platform for all National DPP programs from which they could provide distance learning, securely enter confidential participant information, and communicate with participants.

3.6.4. Policy and Systems Changes Needed for DSMES

Similar to the National DPP, DSMES experts and providers mentioned the need for adequate and sustained coverage for telehealth programs through Medicare. Interviewees noted that if Medicare continues to cover telehealth and allow a variety of providers to offer telehealth services, other insurers will follow. Interviewees also noted that because of the complexity of Medicare reimbursement, only a small percentage of Medicare beneficiaries utilize the program. For example, a DSMES expert stated:

“[DSMES providers] are afraid to bill [Medicare] because they’re afraid they’re going to do something wrong. And all they’re trying to do is take care of their patients, and they get shut down because they’re not sustainable financially.”

Other interviewees mentioned that regulations need to be changed to allow providers to be licensed in multiple states, so they can provide services to participants that travel or live in another state.

3.7. Beyond the Pandemic: The Future of Telehealth

When asked about their future plans and whether they would continue to offer National DPP and/or DSMES via telehealth, some providers mentioned that they were excited to go back to all in-person sessions. However, many providers mentioned they were planning to offer both in-person and telehealth programming or some hybrid version. Interviewees noted that telehealth expanded the reach of the program to individuals who could not or would not participate in-person, but in-person was needed for others

who either preferred in-person sessions or had technical challenges. One National DPP expert stated:

“[Telehealth] provides a way in another way into the program. And with 88 million people who have prediabetes, you need as many doors as possible into this program.”

After the initial challenges of the rapid transition to telehealth, many providers found that telehealth allowed them to expand their programs to new geographic areas and reduced travel and/or set-up necessary for in-person sessions. Providers noted that continued investment in telehealth modalities and the policy changes mentioned above would be necessary to continue to offer telehealth options.

4. Discussion

Our study analysis shows that several challenges emerged at all levels of the SEM as providers rapidly switched from in-person sessions to telehealth in LAC. Providers implemented several strategies or optimal practices to overcome these challenges and, in many instances, were able to successfully transition to telehealth, retain existing participants, and enroll new participants.

Similar to other studies [23,24], interviewees reported a wide range of comfort with and access to technology among participant populations. Other studies have also found that the elderly, lower-income individuals, and individuals who require translation services may experience greater difficulty in using telehealth services [23,24]. However, in this study, these differences in comfort and access were not always driven by age or income status, as interviewees provided examples of elderly individuals who were very tech-savvy and people with lower incomes who were quickly able to adjust to telehealth.

To overcome technological barriers to engaging in telehealth services, interviewees mentioned that participants needed intense, tailored assistance, at least initially. The extent to which this technical assistance will be necessary in the future, however, is not clear. Overall, participant comfort with and ability to use telehealth likely increased as a result of more frequent use during the pandemic. Studies indicate that interest in telehealth, willingness to use, and use of telehealth increased significantly among U.S. adults throughout the pandemic [28,29], especially among non-Hispanic Black adults and adults with lower education levels [29]. As a result, many new National DPP and DSMES participants may not need as much technical assistance to participate in programs that employ telehealth either exclusively or in a hybrid fashion.

Challenges in collecting participant health data via telehealth made it difficult for interviewees to determine the impact of the pandemic on the transition to telehealth or on individual health behaviors and outcomes. Similar challenges in conducting nutrition assessments and monitoring client health outcomes were also reported by registered dietitian nutritionists that had transitioned to telehealth services during the pandemic [30]. Increasing access to and reimbursement for remote monitoring devices may help overcome data collection challenges associated with telehealth usage [31,32]. Hybrid programming may allow for in-person assessments and data collection while maintaining many of the benefits of services delivered via telehealth.

Challenges with accessing healthy food and safely engaging in physical activity that were exacerbated by the pandemic [33–35] could have resulted in worse health behaviors and outcomes than might normally be seen in programs that utilize telehealth. Studies of telehealth diabetes management programs conducted prior to the pandemic have shown improvements in HbA1c levels and other behavioral and health outcomes [14,15,36]. Additionally, weight loss among individuals with prediabetes that participated in DPP-based programs that used telehealth has been equal to or greater than among those participating in in-person programs [12,13,37–40].

At the interpersonal level, it was challenging to create active, supportive online communities and personal connections among providers and program participants. Other healthcare providers have also had difficulty connecting via telehealth and have called for the development of best practices and training for building rapport [30,41]. There have also

been recommendations for additional research to be conducted on strategies and devices that could help increase engagement and social connections to prevention programs that deliver services via telehealth [22].

At the organizational level, providers' comfort and familiarity with telehealth platforms and delivery was mixed, and transitioning to telehealth increased many providers' workloads, at least initially. Similarly, other healthcare providers implementing telehealth services have reported experiencing technical difficulties, a lack of support from administrative staff, and an increased workload [32,42]. Training sessions for providers can help overcome some of these challenges with platforms and telehealth delivery [43,44], and contingency plans are needed to deal with technical barriers. Additional administrative staff may be needed to support programs that rely on telehealth [32,42]. Overall, the number of healthcare providers using telehealth increased significantly during the pandemic [23,30], so provider comfort and familiarity with these virtual platforms have likely increased as well.

Despite the organizational challenges presented by transitioning to telehealth, interviewees noted that delivery via telehealth provided significant opportunities to expand the reach of the National DPP and DSMES programs, especially for individuals from various geographic areas, including rural communities, and for individuals who cannot or will not, otherwise, participate in in-person services. Telehealth delivery has been effective at reaching individuals who live in areas where transportation and access to in-person services can be limited [37–39,42,45]. As a modality, telehealth allows services to continue without disruption during travel or relocation [39]. Many telehealth participants are highly satisfied with these services because of the time savings, convenience, and reduction in travel time associated with using telehealth [24,46].

4.1. Limitations

This study has limitations. First, interviews were not conducted with program participants themselves, so the perspectives of individuals involved in the transition to telehealth were based on the impressions of experts and providers and not directly on the perspectives of participants. Since most providers interviewed were able to switch from in-person to telehealth services during the pandemic, additional perspectives may be needed from providers who were not successful in making this switch to complete a full story of this process. However, some of the experts who were interviewed could speak to the experiences of providers who were not able to transition to telehealth. The interviewees were also selected because of their positions as National DPP and/or DSMES experts and providers, and we did not collect demographic information from them. It is possible that responses to interview questions could have been influenced by demographic variables. Finally, while we did interview experts familiar with programs and services in other states and localities, majority of the interviewees were based in LAC. As a result, findings from this study may not be generalizable to other jurisdictions and areas across the U.S.

4.2. Implications for Policy and Practice

While interviewees made policy and systems change recommendations across different levels of government, the most critical changes identified were at the federal level. Specifically, interviewees mentioned the need for more flexible program requirements and adequate reimbursement of the telehealth services being delivered. Although great strides have been made in response to the COVID-19 pandemic, the rapid transition to telehealth for many of these programs remains a temporary change. Reimbursement policies for telehealth delivery instituted by Medicare, Medicaid, and private health insurers during the health crisis will likely need to continue to sustain these gains made in service delivery. In addition, these policies will need to be adjusted to allow for greater coverage and payment of services provided via telehealth, at the equivalent level as in-person sessions [47,48]. There have been calls for the Centers for Medicare and Medicaid Services, as well as for health plans, to make these changes permanent and expand telehealth delivery options

to increase coverage of chronic disease, dietary counseling, and remote support services that are needed to better manage chronic conditions [42,49,50]. To further increase access to and the convenience of telehealth services, policy changes may also be needed to allow providers to be licensed in multiple states and/or practice in a different state than their patients are receiving treatment. Policymakers can also improve upon the incentives used for providing more comprehensive services via telehealth. More research may be needed to study these policy options and to provide evidence of telehealth effectiveness for this type of coverage expansion, especially for Medicare and Medicaid populations across the nation.

5. Conclusions

The COVID-19 pandemic provided a rare opportunity for increasing access to and use of telehealth services for National DPP and DSMES programs. Despite the challenges of implementing telehealth under the difficult circumstances created by the health crisis, many providers appreciated the benefits of telehealth for participants and for their organizations. Additional program flexibility and adequate reimbursement will be key to these programs continuing to offer telehealth services.

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