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Diabetes distress among healthcare providers: A qualitative study

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ABSTRACT

Aims: Diabetes-related distress stemming from the burden of managing diabetes has been measured in multiple patient populations; however, the medical management of diabetes also presents unique challenges for health care providers. The purpose of this study was to conduct a qualitative evaluation of the experiences of healthcare providers in caring for people with diabetes (PWD).

Methods: Interviews and focus groups were conducted in a sample of 22 healthcare providers. Participants were drawn from medical residency and fellowship programs, diabetes healthcare provider networks and professional organizations. Participants were queried about their experiences working with PWD.

Results: Themes were extracted and discussed by the investigator team until consensus was reached. Themes included: adherence (frustration that patients don't follow recommendations), emotions associated with treating PWDs (frustration with redundancy of treatment topics, overwhelmed by social needs of patients, worry for patient outcomes), fatigue (emotionally and physically worn-out), role definition (role as supporter and perceived responsibility for medical outcomes), and work environment (limitations of time or resources to provide care).

Conclusions: Diabetes related distress was described as a component of the caregiving experience among health care providers who treat PWD. These data indicate an emotional impact that warrants further investigation and intervention.

1. Introduction

Diabetes mellitus is a chronic and complex disease affecting over 30.3 million people in the United States [3]. As a chronic disease, diabetes requires intensive monitoring and management on the part of patients and their healthcare providers. Both type 1 and type 2 diabetes are associated with acute and long-term medical complications and comorbidities including neuropathy, retinopathy, diabetic cardiomyopathy, and overall mortality (e.g., [24,30]. Diabetes is also associated with multiple co-morbid psychological conditions such as depression and anxiety as well as psychological conditions

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that are specific to the disease such as diabetes-related distress and fear of hypoglycemia (e.g., [7,8,15,19]).

Diabetes distress, also referred to as diabetes burnout, is a prevalent psychological experience for individuals with diabetes, affecting 38–45% of adults with type 1 or type 2 diabetes in cross-sectional studies [12]. It has been defined as the experiences of emotional burden, stress, anxiety, and preoccupations of self-management that are caused by the nature of this chronic illness, as well as the demands placed on them by the disease [11]. Diabetes distress has been associated with multiple poor patient outcomes including poor glycemic control [32], decreased self-management, and poorer self-efficacy [12]. Additionally, it has been associated with a decreased motivation to engage in self-care and self-management behaviors [17,12]. Diabetes-related distress has been measured in multiple populations including: adults and children with type 1 diabetes [13,22], parents of youth with type 1 diabetes [18] and adults with type 2 diabetes and their spouses [16,31]. Notably, the effects of diabetes distress exist independent of clinical depression [14].

A population that has received little investigation related to diabetes-related distress is healthcare providers. A qualitative study conducted by Beverly and colleagues (2011) documented physicians' awareness of their patients' social and emotional difficulties and some expressed difficulty in whether or how to address these concerns in patients. Physicians in this study cited a lack of treatment options, limited training in psychological health interventions, and time constraints as factors. Physicians noted that these factors ultimately led to feelings of frustration, incompetence, and being overwhelmed.

Work-related burnout has been defined as a syndrome comprised of three distinct components: emotional exhaustion, depersonalization, and a decreased sense of personal accomplishment [20]. Emotional exhaustion, which is viewed as the first indicator of burnout, occurs when an individual's emotional resources have been drained. Depersonalization is comprised of cynical attitudes of people and viewing them as impersonal objects, rather than people. Decreased sense of accomplishment is characterized by the individual negatively judging or criticizing their work [20]. Burnout among physicians has been demonstrated to be more prevalent compared to non-physician workers [29]. In one study, more than 60% of residents and fellows, and 51% of early career physicians (i.e., within 5 years of postgraduate training) screened positive for burnout [10]. Several factors, such as excessive work demands, an imbalance between perceived job demands and skills, and a perceived lack of control over job outcomes, influence the development of burnout in physicians [23]. Physician burnout has been shown to be associated with various negative occupational, physical, and psychological outcomes. For example, burnout in physicians leads to a 2–3 times greater likelihood of suboptimal patient care [28], decreased productivity [34], decreased job satisfaction, job withdrawal, and insomnia [33].

To date burnout has been predominantly examined in physicians from a broad perspective across medical specialties. Few studies have examined the experience of burnout and distress in physicians treating patients with specific diseases, such as diabetes. Several factors unique to diabetes treatment have the potential to create a challenging work environment for healthcare providers. This is of consequence, as there are currently over 5600 practicing endocrinologists and additionally over 100,000 internists that provide direct patient contact with patients with diabetes [1]. The natural course of diabetes is chronic and tends to become increasingly difficult to manage over time. Moreover, demands to stay current on new technological advances and treatments create an ever-changing environment and an increasing burden on providers to synthesize large quantities of clinical data to determine patient treatment options and medication dosing. Patients with diabetes may have difficulty adhering to their treatment plans [6], which may create frustration amongst providers. Furthermore, a large part of any treatment plan includes lifestyle measures that inherently take time to discuss, placing increasing demands on an already demanding provider schedule. Recently, there has been a movement to shift toward reimbursing physicians based on objective outcomes, such as A1c goals, which has the unintended consequence of making physician income dependent on patient behaviors over which physicians have limited control.

In sum, physicians treating individuals with diabetes face unique emotional, interpersonal, and logistical challenges compared to other physicians and healthcare providers. No study to our knowledge has examined burnout as it relates to specific disease states. The purpose of this study was to conduct a qualitative exploration of the emotional experiences of healthcare providers engaged in diabetes medical care that are unique to the diabetes caregiving experience. We sought to describe and understand the unique features of burnout experienced by diabetes providers such as feelings of hopelessness, helplessness, and accompanying reductions in motivation for providing patient care.

2. Methods

2.1. *Research design and methodology*

The present study utilized a qualitative methodology using grounded theory [5] in order to characterize the emotional, cognitive, and behavioral experiences of diabetes healthcare providers in treating diabetes. The study collected data via individual interviews and focus groups. Interviews and focus groups were approximately 45–60 min in duration. Participants were offered the choice of in-person interviews or interviews by phone.

2.2. *Sample*

Sampling of participants was purposive: we recruited diabetes healthcare providers and certified diabetes educators (CDE) who were actively engaged in direct clinical care of PWD. A total of 22 healthcare providers were recruited for participation in the study. Sampling continued until thematic saturation was reached. Healthcare providers were drawn from medical residency and fellowship programs, local diabetes healthcare provider networks, and regional and national professional organizations.

2.3. *Data collection*

The multidisciplinary research team that developed the current study was also responsible for conducting the interviews and focus groups. Interviewers followed a set of standardized open-ended questions that asked about participants' experiences in treating diabetes. Responses were probed by the interviewers to clarify information when appropriate. Interviews were digitally audio recorded. All participants were assigned unique IDs and the transcribed text was sanitized. In addition, participants completed a demographics questionnaire constructed by the investigators of the study that assessed background information and professional responsibilities.

2.4. *Data analysis*

The three research team members (MC, ZS, and MdG) were responsible for transcribing the audio-recorded interviews. The analytic approach used by the research team was constant comparison in which team members compared descriptions of emotional or behavioral phenomena for similarities or differences in properties or dimensions [5]. Themes that emerged from interview quotes were identified and coded independently by each research team member. Researchers compared coding of themes in pairs and all codes were revised and finalized by the entire team. Codes were based on constructs observed in the relevant literature and the experiences of the research team members. The research team met approximately one to two times per month to review the transcribed and coded interviews. Codes were discussed until agreement by all team members was established.

2.4.1. *Efforts to ensure quality control*

In order to promote trustworthiness of the analyses [27], transcripts were independently analyzed by team members before discussion of coded themes. Members of the team who conducted the interviews were not permitted to conduct initial coding of those participant interviews or focus group transcripts. The senior author (MdG) did not conduct any of the interviews or focus groups which contributed to trustworthiness in the analyses as an independent lens on the themes elicited in the interviews.

3. Results

Table 1 – Participant characteristics.

Variable	M(*SD*)
Age	43.41 (16.23)
Sex	*n*(%)
Male	6 (27.3%)
Female	16 (72.7%)
Race	*n*(%)
White	19 (86.4%)
Asian	2 (9.1%)
Black	1 (4.5%)
Relationship status	
Married	16 (73%)
Single	4 (18%)
Partnered, not married	2 (9%)
Occupation	
Resident Physician	9 (40.1%)
Nurse	7 (31.8%)
Dietician	4 (18.2%)
Pharmacist	2 (9.1%)
Median weekly clinical hours	40
Median percent caseload with diabetes	70%

Participants were drawn from a diverse set of training backgrounds and perspectives (see Table 1 for complete demographic information): N = 9 medical residents, endocrinology fellows and primary care physicians, N = 7 nurse certified diabetes educators (CDE), N = 4 dietitian CDE and N = 2 pharmacists. The average age of participants was 43 years. 72.7% were female. The average number of years of clinical practice was 13.2 (S.D. 13.8). The mean proportion of diabetes in the provider clinical caseload was 71.8% (S.D. 24.6%). The majority of the sample was White (86.4%) and partnered or married (82.35%; see Table 1). Of the 22 diabetes healthcare providers who participated, four participated in phone-based focus groups (N = 1 group), five completed individual interviews in person, and thirteen participated in phone-based interviews.

Analysis of the transcriptions from the participant interviews, five themes (see Table 2) were identified: adherence, emotions associated with treating PWD, fatigue, role definition, and work environment. We describe each theme below and provide example quotes from participants that represent each theme.

3.1. *Difficulty dealing with the self-care demands, barriers, and non-adherence*

A common theme identified in the transcripts of the provider experience in providing direct care to PWD related to the central role of adherence to complex medical regimens. Within this theme, participants identified the types and range of self-care activities that patients are prescribed, common barriers that PWD encounter in the performance of self-care activities and concerns about the consequences for patients when they are unable to perform self-care activities to the prescribed level.

3.1.1. *Multiple demands of diabetes self-care*

Providers described the multiple behaviors involved in diabetes self-care regimens. Provider #016 described, "*[Diabetes involves] Lifestyle management, compliance, education, and prevention. It's unique. It's a chronic illness, like a long-term thing. It requires a lot more patient involvement, a lot of education, and periodic adjustment of medications. It Ebbs and flows much more extremely.*"

3.1.2. *Common barriers*

Providers identified multiple barriers to adherence to diabetes self-care including the difficulty and/or complexity of the

Table 2 – Description of themes.

Theme	Description
Difficulty dealing with self-care demands, barriers and non-adherence	Lack of follow-through from PWDs was impactful on providers and was perceived to be due complex psychological and social reasons
Emotions in treating PWDs	Negative emotions experienced in response to diabetes patient-specific and environmental factors
Emotional fatigue that accompanies treating diabetes	Emotional exhaustion resulting from caseload, difficulty managing patients' blood sugars, struggles with managing lifestyle changes in patients
Lack of clear role definition in diabetes care	Determining the balance between what a provider desires to achieve with realistic expectations and recognition that he/she cannot control what patients do outside of appointments
Barriers and supports in the work environment	Both positive (technology and ancillary staff are beneficial) and negative (time limitations and other resource constraints) aspects of work environment impacting the provider

recommendations made to optimize health outcomes. For example, Provider 019 stated, " *[It] Definitely makes me happy when they [patients] do their regimen; it is frustrating if they don't but I've learned in the past one and a half years to accept it because it happens a lot; instructions can be difficult to follow and you have to try different angles to help with that.*"

Providers also named multiple social and psychological barriers to self-care. Provider #014 (Focus Group member) stated: *"Frequent flyers [patient who return to care frequently] -- they need help emotionally. Sometimes being in the hospital is better for patients than living in their home life. DKA hospitalizations are a form of seeking respite care. Coming to the hospital is their way to get away from chaos at home. There's a reason [they are in the hospital] and we need to find it to help them.*"

> Provider #018 stated,*"When I first started [care for people with diabetes], it affected me more because I wanted to see fast and hard results and really push people, but now I have realized that my patients' lives are difficult and complex. They have social issues and things on their plates I can't imagine being on my plate and they have it on top of their diabetes. I don't try to get frustrated about it. I try to hit main points like, and keep trying to help them as much as I can and reeducate, reeducate, reeducate.*"

3.1.3. *Impact of non-adherence on providers*

Providers also named the impact of non-adherence on themselves a component of the caregiving dynamic. Provider #022 described the need for data from patient self-monitoring of blood glucose and the impact that the absence of this data has for the provider. He stated,

> *"[Adherence is] huge for diabetes. It's not only the medications but diet/exercise, even adhering to checking their blood sugars to give me the information to evaluate. That's a huge factor in diabetes. On the assessment end, if they are not checking their blood sugars then I can't get a good picture for what the patient is doing and what state they are in. And then if they're not taking their medications then we're not going to get the outcomes we need. [Adherence] It's everything.*"

Another provider described the logistical and emotional impact of patient psychosocial needs for the provider. She stated,

> *"I wish I had more resources. I spend a lot of extra time finding and providing more resources to my patients. More time with patients means I'm later leaving work. I commit personal time that others don't. My philosophy of nursing demands that I work harder. I try to be sympathetic to my patients and I use myself as a standard. I'm struggling so how can I expect my patients to be adherent too?*"

Articulation of elements of this theme indicated that adherence to prescribed medical regimens is not only a matter of concern for PWD. Providers articulated investment in patient well-being, understanding and compassion for common barriers to successful performance of self-care behaviors as well as a desire to prevent what is considered to be inevitable long-term medical complications.

3.2. *Emotions associated with treating PWDs*

This theme was defined as negative emotional reactions of healthcare providers as a consequence of treating PWD. Participants identified several common negative emotional experiences specific to treating PWD compared to other chronic health conditions with the most commonly identified emotions being anger and frustration. Provider 003 indicated, "*It bothers me [when I'm not getting through to someone] because I know when this person goes out, they probably still won't be capable of managing their diabetes... Yeah it bothers me because I'd hate to see someone suffer complications when it could've been prevented.*"

It was often described by the providers that these negative emotions were driven, in part, by having to repeat instructions and treatment plans across multiple appointments. For example, Provider 007 expressed, "*I tell patients one thing and they don't do it despite me telling them multiple times or they don't follow the plan. It's frustrating because if I were an attending, I would get dinged for not reaching the [A1c] goals.*"

Discouragement and feelings of hopelessness among providers was another common emotional experiences endorsed by providers treating PWD. For example, Provider 005 stated:

> *"It can be very patient specific, but if you have a someone who isn't doing well who you've seen a couple of times, who you've spent time sitting down and counseling, you've had them go see nutrition, you've had them check their sugars, and still despite all that you just can't get their A1c better and you just can't seem to figure out why. It can be discouraging to expend all this effort and have them come back 3 months later and the number is the same or worse. And I think if you pile a bunch of those visits with the same types of patients on top of one another, it can definitely feel taxing and next time they come in it's like, 'here we go again.'"*

Providers who described feelings of hopelessness identified this being due, in part, to the perception that attempts to improve patients' outcomes were ineffective. For example, Provider 018 stated:

> *"I feel bummed because I feel like I'm working at hard as I can... The other thing I think is what happened? Like why? Is it because we couldn't get medications, or they forgot to take them, like what actually happened? A number is a number but I want to know day to day on why we are not making headway. So I think I get bummed rightfully so, but I also want to know how the patient feels about it, like how do you feel about not meeting A1C goals, because some patients take it real personal and feel bad about it and I don't want them to beat themselves up feel badly about it, but let's take this now and move forward. And some patients are very nonchalant, and I feel like I need to be a coach, like let's address this, this is important. I think depends on each patient."*

Importantly, the emotional reactions to PWD experienced by providers may be due in part to responsibility-taking from the provider. For example, Provider 017 stated,

> *"[I feel] Hopelessness because with certain patients you've tried so many things and you're not getting to your target so sometimes you give up hope or get very frustrated. If something bad happens, you can feel guilty or fearful of it happening again. You feel bad if something happens to your patients that could've been the result of an insulin adjustment you made. . .If a patient has a hypoglycemic episode you can feel guilty or fearful"*

Finally, feelings of worry and anxiety were commonly described among providers in treating PWD. Provider 018 indicated, "*Depends on the patient; sometimes it's really rewarding when patients are stable, losing weight or going down on their meds. When patients are non-compliant, I get frustrated. I worry about their health and I'm worrying more about their health than they are.*"

Notably, some providers in inpatient settings described worry and anxiety in a manner more specific to their setting. Provider 022 stated,

> *"I think inpatient management of diabetes can make you anxious as well. . .. There's definitely a point where anxiety comes into it because you are afraid that it can get to a point where at the difference between an A1c of 7.5 and 7 or 7 and 6.5 and a small adjustment might cause harm, that can make me anxious... You have to do it gradually. You aren't going to cure diabetes in one session... It can be frustrating because I feel like I'm repeating myself multiple times and the patient isn't getting it or choosing not to get it. . . I think [it is] stressful if I'm not sure a recommendation is the best for that patient."*

In sum, providers described multiple negative emotional experiences that are elicited in treating PWD. Providers attributed these emotions to multiple sources: the nature of the appointments with PWD, personalized responsibility for the medical outcomes of their patients, the possibility of poor outcomes and complications, and lack of adherence to medical recommendations by patients.

3.3. *Emotional fatigue that accompanies treating diabetes*

Another theme that emerged from the interviews and focus groups with diabetes healthcare providers was the emotional fatigue that accompanies treating diabetes. Fatigue described by providers was related to the perceived repetitiveness of the content of appointments, as well a more general feeling of fatigue related to the day-to-day treatment of diabetes.

In terms of the fatigue that occurs as a result of redundant conversations, Provider 009 described the following:

> *"Sometimes I get off phone and have to take a walk and it's like 'oh my god, it's so much stuff.' I have a couple patients that are really really, like, it's interesting the one that is the most, I mean I know when I call her I have to at least plan an hour for her because we'll go through a lot of different stuff. . .It's usually me terminating conversation because we could stay on phone for 10 hours if she wanted to. . .she has deeper problems than I can help her with and it goes back to acceptance of diabetes and its always the same broken record, it's the same stuff coming up over and over and I can't find a way to get past it. . .She's always looking for another simpler solution rather than the ones that work for her which is take your insulin and monitor your blood sugar."*

Provider 007 provided useful insights into the general fatiguing nature that she experienced in treating PWDs, "*Gets me tired sometimes, which I think is relevant to physician burnout. They are very hard to treat, because of the disease, not the patient, let me clarify. Every now and then if I have quite a few on the same day [I feel emotionally drained]. It's usually towards the end of the day and I start asking questions more quickly and notice that it's me talking more than patient.*"

Another participant (Provider 017) indicated that, "*Sometimes after you've seen 7 or 8 diabetics for the day you get tired of seeing diabetic patients or if you're having a lot of patients that are uncontrolled that day, it's like 'oh it's another diabetic.' For example, if their A1C is 12 and you get frustrated having to go in and see them and it's a pattern you're seeing all day in can be frustrating.*"

Emotional fatigue was a common component diabetes providers described related to treating PWD. Provider's considered the role non-adherence and the difficulty controlling their patients' blood sugars are essential contributors to feeling emotional fatigue.

3.4. *Lack of a clear role definition in diabetes care*

It became evident in the responses that a degree of variability was present in how providers view their role in treating PWD. While many providers voiced that they take pride in their care of their patients and the patients themselves, some described that their encounters with PWD impacted their personal lives. Provider 019 stated, *"I feel like I need to go home with them and take care of them…it's really hard to, you have to remind yourself that they are adults and they can take care of themselves as long as you give them the best instructions you can, but it can be a little anxiety-provoking."*

Other providers explained they recognize the limitations they have, as Provider 003 said, *"I meet people where they are. I needed to learn this. I would get upset early in my career if people wouldn't do what I told them to do. I had to realize that there were reasons people couldn't do what I recommended."*

Regardless of how providers see their role in treating their patients with diabetes, a relationship built on teamwork was almost universal in the responses. As Provider 009 said, *"[I] Try to take the negativity out of it. We're a team… We'll find some things that work or don't work, but we'll stick together. I've had patients that I've worked with for years; long term relationships over years. [Sometimes] They are in crisis and we work it out."* Similarly, Provider 020 said, *"I have an approach where I try to involve them in their care, so I usually feel it's my responsibility to provide education and details about what's going on…try to meet in the middle, but I like to approach it so they help make the decision."*

3.5. *Barriers and supports in the work environment*

Another theme that emerged was the impact that work environment can have on providers' ability to effect change. A recurring theme that came about was a lack of time for providers to reach their goals, a factor that has been previously established in non-disease specific healthcare burnout studies. Provider 005 stated, *"I would say the time constraints can make you feel, in some cases, like you want to sit down and talk more about whatever the issue they have, their diet or exercise, but when you have a full panel of patients and only 20 min to see each of them it's hard to take that time."*

Similarly, Provider 002 stated, *"there's always something to talk about. I struggle with kicking people out, sometimes patients just want to chat."*

Other providers discussed how a lack of health insurance can impact their care, with Provider 018 stating, *"with patients without insurance, I cannot use newer drugs, so we go to insulin much quicker than other places."*

Having ancillary staff to assist was mentioned as a beneficial aspect, with Provider 005 saying, *"we have a dietician most days of the week in house and things like dietary appointments, we get them in weight loss programs. We have good nursing support."*

The impact of technology on providers care was named as a helpful tool for providers and patients. Provider 001 stated, *"glucometers are incredibly helpful even if it is older technology"*. Similarly, Provider 017 said, *"what can be helpful is that they can send in blood sugars in between visits. Depending on the [EMR], we can either get on to a website or they can send them in and will be scanned in which can be great to make changes in between visits. The pump downloads are great, so you don't have to drag that information out of the patients which saves a lot of time."*

Provider 006 stated, *"Interpreter technology is helpful. [We have a] large screen color TV that has [an] interpreter [that] speaks to the patient. Technology is not a hindrance. It's a help."*

Some participants named some limitations associated with technology including a mismatch of policy with technological trends and the complexity of some technological tools. For example, Provider 009 said, *"I love technology, but I wish we could make technology easier for working with patients. HIPAA rules limit how much technology we use. Texting patients -- they are texting me, but I can't use it because it's not protected enough. It may be the only way you can get them engaged."*

4. Discussion

The goal of this qualitative study was to explore the emotional experiences and attitudes of diabetes healthcare providers in treating PWD, with the aim of understanding the phenomenon of diabetes-specific burnout in healthcare providers. In general, healthcare providers reported similar experiences in treating PWD, both positive and negative. Based on the thematic analyses of the interview and focus group data collected from healthcare providers in the study, several common themes were identified as contributing to distress: patient adherence, negative emotional experiences, emotional fatigue, lack of clear role definition, and work environment concerns. These findings are consistent with previous work that has documented feelings of frustration, lack of competence, and fatigue in physicians treating diabetes [2].

In our study, healthcare providers acknowledged that poor adherence and lack of clear role definition were common issues they faced. It may be, as providers described, that these types of experiences can contribute to the negative emotional experiences, such as frustration and hopelessness, that they detailed. Furthermore, some providers attributed lack of patient adherence and the experience of negative emotions to emotional fatigue, which may lead to suboptimal care and a poor patient-provider relationship. It could be argued that this, in turn, may lead to worsened patient adherence. In other words, it is possible that this relationship is dynamic, such that experiences of non-adherence and lack of clear role definition lead to negative emotional outcomes and fatigue, resulting in less patient engagement with adherence, which then begets more negative emotions and fatigue. Consequently, diabetes healthcare providers may ultimately spiral into diabetes-specific distress.

In support of this proposition, providers in our study reported several emotional reactions to patients that were exacerbated by having, for example, multiple diabetes patients in a day or patients who had uncontrolled blood sugar levels. Underlying these comments were perceptions of time limitations that were at odds with the perceived needs of patients and the desire of providers to productively meet the needs of their patients. Furthermore, providers identified several behavioral outcomes resulting from feeling fatigued and being emotionally taxed: reduced collaboration, asking more closed-ended questions, talking more than their patients, and shortening appointments. These findings are important because the patient-provider relationship is considered essential to positive outcomes in T2DM (e.g., [4,26]; for a review, see [25]. Thus, as providers experience more diabetes-specific distress, they may become less collaborative, which can have negative impacts on the patient.

This qualitative study adds to the extant literature in several ways. This is the first study, to the authors' knowledge, to explore the subjective experiences of diabetes healthcare providers with the purpose of identifying the phenomenon of diabetes distress in providers. Our findings indeed suggest that diabetes-specific distress in healthcare providers may be a factor that can lead to suboptimal care in diabetes patients. This is consistent with the findings in previous research that suggests that general burnout in physicians is associated with lower quality care [9]. This is important, as T2DM affects at least 12% of adults in the United States [21]. Second, this study sampled a range of diabetes healthcare providers, beyond just physicians. This allowed us to identify common themes in treating PWD across multiple disciplines. Future research should examine the prevalence of diabetes distress among larger samples of providers to better understand this experience.

4.1. *Limitations*

The current study has some limitations that warrant discussion. First, as with many qualitative study designs, the sample size of the present study was limited at 22 participants. Future studies should include more participants in order to gather more data with respect to providers' experiences in treating PWD. Second, the sample was relatively homogenous in terms of demographic characteristics. Therefore, generalization of the themes and experiences described in this study to providers from diverse backgrounds should be done so with caution. In addition, the sample included few late career providers. Thus, the current study's findings should be interpreted cautiously when generalizing to individuals in all phases of their career. It is also worth noting that participants in the study volunteered to participate in this study. Therefore, a possible selection bias may exist such that participants who were experiencing less diabetes distress compared to other providers were more likely to elect to participate. It is reasonable to conclude that individuals willing to take time out of their day to participate in the study were more eager and excited about their profession than those providers who were unwilling to participate.

In sum, our findings suggest that there may be psychological experiences unique to healthcare providers treating PWD that may lead to negative outcomes (e.g., suboptimal care). This is consistent with our proposal that provider-specific diabetes distress is a phenomenon that affects diabetes healthcare providers. Our findings highlight the need for further examination of diabetes healthcare providers' experiences in treating diabetes, including developing a validated and psychometrically-sound scale in order to measure it. Once a measure of diabetes provider distress has been developed and becomes better understood, then efforts to reduce its occurrence would be a fruitful avenue for research.

Declaration of interest

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Appendix A. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.diabres.2019.03.018.

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