Experiencing Type 2 Diabetes Mellitus: Qualitative Analysis of Adolescents' Concept of Illness, Adjustment, and Motivation to Engage in Self-Care Behaviors

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The Diabetes Educator published online 7 May 2012
DOI: 10.1177/0145721712445214

The online version of this article can be found at:
http://tde.sagepub.com/content/early/2012/05/03/0145721712445214

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What is This?
Experiencing Type 2 Diabetes Mellitus

Qualitative Analysis of Adolescents’ Concept of Illness, Adjustment, and Motivation to Engage in Self-Care Behaviors

Purpose

The purpose of this study was to explore the perspectives of adolescents diagnosed with type 2 diabetes mellitus (T2DM) in terms of how youths conceptualized the effect of T2DM on daily life, adjustment to the illness, and motivation related to diabetes self-care management. The aims of the study were to gather essential information in order to develop appropriate intervention techniques and inform future studies intended to understand the psychosocial experiences of youths with T2DM.

Methods

Eight adolescents diagnosed with T2DM were recruited from an outpatient pediatric diabetes clinic at a Midwestern children’s hospital. A qualitative interview was developed, which was scheduled to last about 30 to 45 minutes. Data were analyzed using the consensual qualitative research methodology, wherein qualitative coders developed core ideas and themes related to the adolescent experience of T2DM.

Results

Three main themes were identified, including how the youths conceptualized the impact of T2DM, adjustment to self-care, and motivation to perform self-care behaviors. Knowledge related to the cause of T2DM and
adjustment to completing self-care behaviors was varied among youths. Few adolescents spoke about motivation sources, although when mentioned, it typically involved witnessing negative health consequences in family members or friends with T2DM.

Conclusions

The data represent essential initial information related to youths with T2DM, which will help guide in developing future studies designed to understand the psychosocial experiences of youths with T2DM and appropriate intervention techniques. Future research that aims to increase internal and external motivation may be able to subsequently impact adherence to self-care behaviors.

Diabetes mellitus refers to a group of metabolic disorders that affects the body’s ability to produce and utilize insulin. Type 2 diabetes mellitus (T2DM) develops when the production of insulin is insufficient and/or the body develops a resistance to its role in maintaining blood glucose. It accounts for 90% to 95% of all adult diabetes cases,1 with African Americans and Mexican Americans twice as likely to be diagnosed when compared to non-Hispanic whites.2 The prevalence of T2DM has significantly increased over the last 2 decades, especially in youths, and it is estimated that the incidence of T2DM will increase by 4% by the year 2030.3 Uncontrolled diabetes can lead to serious health consequences, such as coronary artery disease, stroke, kidney failure, blindness, neuropathic pain, amputation, and high blood pressure.1 In children and adolescents, T2DM can lead to early-onset puberty and increased morbidity.4 These youths are also at increased risk for problems with psychosocial adjustment, greater body dissatisfaction, depression, anxiety, and behavioral difficulties.5 Although some interventions have reported positive findings in reducing the risk for T2DM,5 more research is needed to determine how to best design treatments for managing T2DM and improving adherence to self-care behaviors in youths.

Management of T2DM requires adherence to a set of self-care behaviors, such as blood glucose monitoring, diet recommendations to regulate carbohydrates, and daily exercise with the goal of preventing hyperglycemia and hypoglycemia.5 Additionally, if a youth with T2DM is diagnosed with insulin resistance, daily medication is typically prescribed to enhance the body’s natural production of insulin. Given the complexity of this regimen, the youth’s concept of diabetes and general knowledge, adjustment to treatment adherence, and sources of motivation are important factors to understanding how youths cope with managing diabetes. Several interventions aimed at increasing self-care behaviors in adolescents with type 1 diabetes mellitus (T1DM) have improved over the last several years,6 and exploration of these areas in youths with T2DM has only recently begun. It is essential to determine whether interventions designed for youths with T1DM will be effective for those with T2DM.

Mahajerin and colleagues3 conducted a survey of adolescents (mean age, 15 years) in 5 high schools to explore knowledge of T2DM. Of the 664 students who completed the survey, the majority (95.5%) had cursory knowledge of T2DM, but slightly less than half (48.9%) identified obesity, lack of physical activity, diet, and family history as risk factors. Only approximately 33% reported the significant health complications (eg, kidney disease, eye problems, nerve damage) associated with mismanagement of T2DM. Five percent to 18% of the participants were noted to be overweight or obese, only 11.9% reported a conversation with a physician about diabetes, and 15.8% of the participants reported no concern about developing T2DM. These results highlight the importance of understanding how youths conceptualize T2DM in terms of risk and life impact. Specifically, if an overweight youth does not perceive a risk for T2DM or does not understand the mechanisms behind T2DM, the youth may not be motivated to engage in self-care behaviors or may believe that T2DM will resolve with time without intervention.

Motivation to adhere to self-care behaviors within T2DM could serve as an area of intervention for adolescents, as has been demonstrated with youths who have T1DM. Adults recently diagnosed with T2DM (n = 237) were surveyed at several time points to determine the role of motivation in diabetes self-management, specifically surrounding healthy eating.6 Results at the first time point indicated that more autonomous motivation, or motivation derived from the individual’s desire to take control of health maintenance, was the strongest indicator of sustaining adherence to the diet recommendations.6

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Volume XX, Number X, Month/Month XXXX
Interestingly, changes in controlled motivation, or motivation derived from shame perceived from others, resulted in improved dietary self-care at later time points. The results from this study suggest that the combination of motivation based on the individual’s personal value system as well as the outside motivation from family and health care professionals may serve as the best predictor of self-care. However, this study was conducted with adults and only focused on dietary self-care and not other diabetes regimen tasks. Thus, an investigation into the motivational sources of adolescents with T2DM could serve as a starting point for tailoring interventions for this population.

Due to the increase in prevalence of T2DM in youths and the physical and psychological consequences of the illness, knowledge of adolescents’ experiences with T2DM may prove useful in developing appropriate interventions. Management of T2DM can become more complex, given that it is often related to obesity and interventions designed to increase diabetes self-care behaviors may not be appropriate for this population. Before large-scale interventions can be altered or designed, an assessment of teenagers’ experiences of T2DM is needed. Qualitative research is an important tool in assessing the experiences of adolescents with T2DM. Past investigators have utilized this approach when attempting to understand the actual lived experience of youths rather than attempting to assess predetermined ideas as seen in questionnaires. Additionally, a qualitative examination of youths’ experience with T2DM is a helpful approach in gathering information needed to theorize underlying constructs in raw data to determine the most relevant variables to assess and intervene at a later time to help elicit behavioral change. The current study represents a portion of a larger study, which aimed to qualitatively explore the experiences of adolescents with T2DM. Given the growing importance of understanding how these adolescents experience T2DM, the current study analyzed themes collected from interviews on adolescents’ perspectives of T2DM, adjustment to the illness, and motivation related to diabetes self-care.

**Methods**

**Participants**

Participants were adolescents diagnosed with T2DM and were English speaking. Patients were excluded from the study due to developmental delay or thought disorder based upon clinical judgment and the patient’s history. Institutional review board approval was obtained. Eight youths completed interviews between January 2008 and January 2010. Two (25%) youths were boys, and 6 (75%) were girls. The youths ranged in age from 11 to 16 years old (M = 13.5 years; SD = 1.69). Six (75%) of the youths identified as African American, 1 identified as Mexican American, and 1 did not report an ethnicity. Information on those who did not consent is not available for comparison.

**Measures**

A qualitative semistructured interview was developed for the study derived for the purpose of exploring experiences of adolescents with T2DM. The full length of the interview assessed perceptions of the cause of T2DM, relationship with the medical team, person or people involved in the youth’s diabetes management, social support from friends, disclosure, adherence in general as well as in school, and family perceptions of T2DM. The primary investigator as well as a team of trained research assistants and faculty members familiar with the literature developed the questions, as suggested by Hill and colleagues. The interviews were approximately 30 to 45 minutes.

Demographic information was obtained at the beginning of the interview. Participants were asked questions related to age, gender, race/ethnicity, and duration of diabetes diagnosis.

**Procedure**

Participants were recruited from an outpatient pediatric diabetes clinic at a large, Midwestern children’s hospital. Trained research assistants received a list of patient appointments from the diabetes clinic for the week. Consent and assent were obtained during the youth’s clinic appointment. The youth had the option to participate in the interview at the end of the diabetes clinic appointment, to arrange another time to meet in the clinic for the interview, or to be interviewed over the telephone. All interviews were audiorecorded and transcribed. Following completion of the interview, youths were mailed $20 gift cards to an electronics store.

**Data Analysis**

The consensual qualitative research methodology was utilized to code the in-depth adolescent experiences...
of T2DM. Consensual qualitative research is a replicable method that instills scientific rigor by using multiple researchers to form a consensus on decisions and verify results, which minimizes bias by sharing a variety of interpretations and viewpoints that capture the data. The consensus process is a critical part of the methodology that increases the validity of the findings.8

At each stage of the analysis, the primary team reviewed the data independently and then came together to reach consensus. There are 3 procedures for analyzing the data, including identifying domains (ie, developing themes by dividing up the responses), core ideas (ie, summaries of each domain), and cross analysis (finding common themes within each core idea across all cases). Lastly, the auditor views the judgments during each step of the analysis. The role of the auditor is to check the accuracy of the interpretations and may suggest combining, changing, or deleting judgments at each stage to make sure all data are represented.9,10

The primary team included trained graduate students who served as the coders and the auditor. Training and consultation occurred throughout the study. Before the data analysis, members discussed their expectations and biases. The primary team had prior expectations that the data may elicit aspects of social support, peer influences in self-care behaviors, aspects of diabetes knowledge, self-efficacy, and motivation. Members of the coding team also had personal and familial experiences with diabetes.

Results

Preliminary Analyses

The interviews were primarily conducted over the telephone (62.5%; n = 5), with 3 conducted after the diabetes clinic appointment. The length of the interview was only available for 6 of the 8 interviews due to the recording being destroyed following transcription without obtaining the length. The 6 interviews ranged in length from 15 minutes to 20 minutes, with an average length of 18 minutes. Three of the participants reported being diagnosed with diabetes for approximately 2 to 3 weeks, 4 reported a diagnosis of a “couple months,” and 1 participant reported a diagnosis of “3 to 4 years.”

Hill and colleagues’8 definitions of the category types were utilized (eg, general, typical, variant, rare). A theme was noted as general if it was observed in 7 or 8 interviews, as typical if it was in 5 or 6 interviews, variant if coded in 3 or 4 interviews, and rare in 2 or fewer interviews. Several subdomains were derived from each theme. See Tables 1, 2, and 3 for the prevalence, frequency, and examples of the various subdomains. In describing the adolescents’ experiences, names were changed to protect confidentiality.

Concept of Illness

A theme that emerged from the analysis of adolescents’ experience with T2DM was their concept of diabetes. Concept of illness is the youth, the youth’s family, and others in the youth’s life understanding the facets of T2DM.

A general theme was that the participants expressed a variety of beliefs about the cause of diabetes, citing family history, lack of activity, and eating poorly. For example, Darren stated that “eating a bunch of junk food and pasta and all that type of stuff” was one of the reasons he was diagnosed with T2DM. Participants also expressed certain beliefs about behavior as a result of having T2DM. In this general theme, the youth expressed beliefs about performing and experiencing self-care behavior such as fear of performing self-care in front of others and the transition to when self-care behaviors became routine. Youths typically described experiences with self-care that were both easy and difficult for them. For example, LaKaren stated that performing her self-care behaviors is fun for her because she knows that it is helping her body. Generally, youths also expressed beliefs about lifestyles and whether their life has changed due to diabetes. Responses ranged from feeling different and odd to reporting no differences despite the need for insulin injections and blood glucose monitoring.

Another typical theme was youths describing conflicting beliefs about education in reference to diabetes, with one youth expressing that education should be broken down into separate sessions, while another youth believed that learning for her would have been easier if all the information was given at once. Youths also generally spoke about beliefs about their relationships with friends and relatives within the context of having diabetes. Shakia described that “it’d be a lot harder if your friends and people would look at you different and treat you different, but since they don’t do that, it always easy; they don’t judge you or anything from it, so there’s no really . . . it’s not hard.” Her experiences were different from other youths who mentioned that friends do not always
Table 1
Concept of Illness Examples

<table>
<thead>
<tr>
<th>Subdomain</th>
<th>Example</th>
<th>Prevalence</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beliefs about cause</td>
<td>“Umm... eating a bunch of junk food and pasta and all that type of stuff.”</td>
<td>8 (general)</td>
<td>17</td>
</tr>
<tr>
<td>Beliefs about self-care behaviors</td>
<td>“At first, I didn’t want anybody to see me. At first... cause I was scared. And I didn’t like anybody to see me, and then I got use to it; I didn’t really care if anybody saw.”</td>
<td>8 (general)</td>
<td>31</td>
</tr>
<tr>
<td>Beliefs about self-care behaviors that are easy</td>
<td>“But once... it’s a lot to remember, but then it’s not because you just get use to it; you adapt to it.”</td>
<td>6 (typical)</td>
<td>14</td>
</tr>
<tr>
<td>Beliefs about self-care behaviors that are difficult</td>
<td>“It’s easy. It never gets really hard. It’s all pretty easy.”</td>
<td>7 (typical)</td>
<td>29</td>
</tr>
<tr>
<td>Beliefs about lifestyle changes</td>
<td>“The same. Not a lot of my friends, well, yeah, it’s pretty much the same. They don’t, like, people don’t look at you differently, less people, since diabetes is, like, a thing where you can poke, but you don’t poke out in public and stuff. It’s pretty much the same as being without diabetes. People don’t look at you different or anything. It’s the same.”</td>
<td>8 (general)</td>
<td>47</td>
</tr>
<tr>
<td>Beliefs about diabetes education</td>
<td>“Like, the doctors... like, it easy they don’t give you everything at one time. Like, they have one appointment like 3 weeks ago and then this one.”</td>
<td>5 (typical)</td>
<td>11</td>
</tr>
<tr>
<td>Beliefs about peer support</td>
<td>“[Learning would be easier] if they told you everything at appointment.”</td>
<td>4 (variant)</td>
<td>12</td>
</tr>
<tr>
<td>Beliefs about family support</td>
<td>“They [friends] don’t understand it, but they know I gotta do it.”</td>
<td>8 (general)</td>
<td>31</td>
</tr>
<tr>
<td>Beliefs from providers concerning diabetes experience</td>
<td>“Umm, well, my mom tells me that I have to eat healthy, exercise, don’t eat the, um, bad food, eat healthy, and eat small portions of it.”</td>
<td>7 (typical)</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>“And then that’s pretty much what they think... that exercise and watching what you eat can have a lot to do with it.”</td>
<td>8 (general)</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>“They said that, uh, I can’t get rid of it, but I can do stuff to make it better.”</td>
<td>7 (typical)</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>“Me eating wrong” as cause</td>
<td>8 (general)</td>
<td>31</td>
</tr>
</tbody>
</table>
Table 2
Adjustment Examples

<table>
<thead>
<tr>
<th>Subdomain</th>
<th>Example</th>
<th>Prevalence</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perception of adjustment</td>
<td>“I keep living the way, like, I keep going on and doing everything I used to do, but just more exercise, less eating bad, but otherwise, your life doesn’t really change as much.” “You, like, have to watch what you eat, like, you can’t have too much stuff, like sugars, but you can have it, just not as much as I use to . . . you’re able to eat and exercise like everyone else. Or like . . . yeah.”</td>
<td>5 (typical)</td>
<td>12</td>
</tr>
<tr>
<td>Blood glucose monitoring</td>
<td>“Like, I have another needle where you can adjust the level and you can poke your palm, your wrist, or your leg. You don’t always have to poke your finger. You know, sometimes your finger might get sore or something after a while, and I play the violin so sometimes it hurts if I put my, like, finger right on the string. So then I can start poking, like, my thumb or my palm or somewhere else that it doesn’t . . . like, I don’t use that much.”</td>
<td>5 (typical)</td>
<td>17</td>
</tr>
<tr>
<td>Time</td>
<td>“Yeah, you have to allow more time for everything.”</td>
<td>1 (rare)</td>
<td>3</td>
</tr>
<tr>
<td>Diet</td>
<td>“When I’m, like, out with them [friends] at the store . . . and I want some too, so bad, and I just go ahead and grab them.” “You know, we [my mom and I] try to stay away from junk foods and all that stuff.”</td>
<td>6 (typical)</td>
<td>12</td>
</tr>
<tr>
<td>Exercise</td>
<td>“We [friends and participant] exercise a lot now.”</td>
<td>3 (variant)</td>
<td>6</td>
</tr>
<tr>
<td>High or low blood glucose</td>
<td>“I wear jeans all the time, so I don’t know if I’m just getting sweating ‘cause I’m sweaty or sweaty because my blood sugar is low, so I usually travel with a friend.”</td>
<td>2 (rare)</td>
<td>6</td>
</tr>
<tr>
<td>Learning</td>
<td>“. . . wrote notes on it [information from training sessions] because, I don’t know why, but I have a really bad memory. Like, we talk about it, I listen, I understand it, but then a couple moments later, after we’re done, I don’t know what we just talked about.”</td>
<td>3 (variant)</td>
<td>4</td>
</tr>
<tr>
<td>Beliefs about controlling or managing behaviors</td>
<td>“When I get mad, I try and calm myself down ‘cause I don’t want my blood sugar going way up.” “I eat, like, a lot of fruit and stuff.” “Well, I’ll try to walk and run and jog, play with my sister . . . my little sister.”</td>
<td>4 (variant)</td>
<td>6</td>
</tr>
<tr>
<td>Shots/medication</td>
<td>“You have to take shots.”</td>
<td>3 (variant)</td>
<td>7</td>
</tr>
<tr>
<td>Self-care</td>
<td>“I have to do it before . . . I do it before I leave home, and they just recently told me I have to do it at school, and I do it in the evening.”</td>
<td>1 (rare)</td>
<td>1</td>
</tr>
</tbody>
</table>
understand the experience of having diabetes and sometimes that makes it both easy and difficult to cope. Youths spoke about their relatives’ views of diabetes, including the cause and how the youths should or could act in order to improve their health. **Beliefs from others and about others concerning the diabetes experience** were typically found when the youth described beliefs regarding the experience of diabetes from others (eg, family, friends, medical team, etc). These beliefs tended to reflect statements made from the medical team regarding the cause of diabetes and their family members who also had diabetes or knew someone who had diabetes.

### Adjustment

Another theme generated from the interviews with the youths was statements related to adjustment to T2DM, not only in regard to specific self-care behaviors but also changes that needed to occur due to the diagnosis of T2DM. **Perception of adjustment**, as relating to life before diabetes or in comparison to others without diabetes, was a typical theme expressed by the youths. The majority of the youths reported at least some change in their life; however, most spoke about the changes in a positive manner, suggesting that it had been easy to adjust to their diagnosis. Youths mentioned **blood glucose monitoring, time, diet, shots and/or medication, and exercise** as self-care behaviors to which they had adjusted in their life, ranging from rare to typical themes in the interviews. For example, 3 of the 8 youths reported needing insulin shots. One youth described needing to learn how to change the needle depth and rotating sites to prevent pain from needle sticks. Another adolescent described adding more time to her morning and evening routines to accommodate her self-care behaviors. Five of 6 youths mentioned eating a more balanced diet as a required lifestyle adjustment. Five of 6 youths mentioned eating a more balanced diet as a required lifestyle adjustment. One participant provided an example of his healthy eating changes: “a bologna sandwich, some broccoli or corn, and maybe, um, a little teeny cup of rice. Then at the end, you can have cake.” Several youths described new exercise routines that often involved friends to boost morale and ensure that they would comply with the recommendations.

Youths rarely described situations in which they had to adjust the way they think or act due to high or low blood glucose levels. One participant stated, “I wear jeans all the time, so I don’t know if I’m just getting

### Table 3

<table>
<thead>
<tr>
<th>Subdomain</th>
<th>Example</th>
<th>Prevalence</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivated by immediate consequences</td>
<td>“So I just think about that when I take my shot, so that way, I know I’ll still be alive; so that way, I deal with it.”</td>
<td>3 (variant)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>“[Exercise and follow a diet] so you don’t have to get high numbers or go to the hospital or anything bad like that.”</td>
<td>6 (general)</td>
<td>8</td>
</tr>
<tr>
<td>Motivated by potential future consequences</td>
<td>“Like, my aunt doesn’t take it all the time; she takes it when she wants to, and now she’s on dialysis. So, I’m not going to do that.”</td>
<td>1 (rare)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>“When you realize that people have it worse than you, that if you don’t manage it while you have it, like, if I don’t get it under control now . . . and then I’ll have to poke myself all the time.”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motivated by preventative consequences</td>
<td>“Like Elena [diabetes educator] said, you’re on the fence, and you could, like, fall into having diabetes, or you could watch what you eat and exercise and everything and stay away from it. It’s all up to you; it’s not up to diabetes.”</td>
<td>1 (rare)</td>
<td>2</td>
</tr>
</tbody>
</table>
sweating ’cause I’m sweaty or sweaty because my blood sugar is low, so I usually travel with a friend.” Others developed beliefs about controlling or managing behaviors, which was a variant theme, as a way to adjust the new demands. For example, youths often attempted to utilize psychological (eg, “When I get mad, I try and calm myself down ’cause I don’t want my blood sugar going way up.”) and behavioral (eg, “I eat, like, a lot of fruit and stuff.”) techniques to control T2DM. One youth spoke about general adjustments needed to perform self-care behaviors in that she recently was required to test her blood glucose at school and occasionally forgets to test. Interestingly, 3 youths also stated how they adjusted to diabetes through learning, emphasizing what they needed to do to gain the skills necessary for the self-care behaviors.

Motivation

A final emergent theme from the interviews was motivation or awareness of consequences for performing (or not performing) self-care behaviors. There were 3 primary forms of motivation identified by the youths. Two youths, making it a variant theme, specifically mentioned being motivated by immediate consequences, such as low or high blood glucose levels. They perceived that these low or high blood glucose levels may result in immediate negative health threats (eg, hospitalization, extra needle injections, fainting). As a more general theme in motivation, 5 youths described being motivated by future consequences due to witnessing negative health consequences in family members or friends with diabetes. Renia, who has 2 friends with T2DM, stated, “When you realize that people have it worse than you, that if you don’t manage it while you have it, like, if I don’t get it under control now . . . and then I’ll have to poke myself all the time.” In observing a family member’s experience with T2DM, LaKaren stated, “Well, how I look at it that’s scary [future health consequences] is if I don’t eat right.” Lastly, one participant reported being motivated by preventative consequences (rare theme) and was adherent to her self-care regimen in order to maintain a certain level of health.

Discussion

In the analysis of the experiences of adolescents with T2DM, the interviews demonstrated that adolescents have particular conceptualizations of having and managing T2DM. General themes were related to adjusting to a diagnosis and life with T2DM as well as factors that motivate these individuals to address the demands of T2DM. Adolescents with T2DM in the present study felt that diabetes is caused by genetics, lack of exercise, and poor eating habits. Furthermore, every participant in the interview described at least one situation where they needed to change their lifestyle (ie, completing self-care behaviors in school, adjustments to daily routine) because of diabetes. These changes usually included adding extra time, exercising, maintaining a balanced diet, and navigating their relationships with friends. Not only did adolescents indicate specific but shared beliefs about T2DM, but they also expressed ways in which they adjusted to having T2DM. Adjustment was described in terms of behavior change consistent with diabetes self-care behaviors, but participants also expressed having to adjust to the time it takes to perform the required self-care behaviors. Furthermore, participants noted that there was a psychological adjustment to having T2DM (ie, “I just gotta do what I gotta do.”).

Participants in the study also described the important role that friends and relatives have in shaping their understanding of diabetes, how diabetes affects their lives (ie, motivation to adhere to self-care behaviors), and how they should take care of their diabetes. Different types of motivation for completing their diabetes self-care behaviors were endorsed. These motivators were generated by both immediate and potential future consequences of poor adherence to diabetes self-care behaviors, both experienced by them (ie, going to the hospital for a low blood glucose level) and experienced by others (ie, a grandfather did not take care of his diabetes). As noted by Nouwen and colleagues,6 motivation derived from an individual’s desire to take control of health maintenance was an important factor for adults with T2DM and may also be for adolescents with T2DM. Although causal claims were not possible, youths in the current study who experienced motivation based on both the individual’s personal value system and outside motivation from family and health care professionals were more positive about their diabetes experiences. Nouwen and colleagues6 suggested that this combination may serve as the best predictor of self-care behaviors. Thus, interventions aimed at developing motivation in multiple realms of the adolescent’s life that integrate friend and family involvement and internal values may be beneficial in increasing adherence to self-care behaviors.
Youths also articulated that sometimes diabetes self-care behaviors are easy to complete and other times they are difficult but that, overall, they are able to successfully perform their self-care behaviors. One way to help adolescents with T2DM adjust to the diabetes regimen may be breaking down self-care tasks into aspects that are easy and difficult for that particular youth. For example, one youth reported difficulty in situations where she wants a snack that deviates from her diet plan. Past research has noted the importance of strong problem-solving skills in the successful care of T1DM.\textsuperscript{11,12} These skills could be applied to the situation above. Problem-solving skills may be an important addition to interventions for adolescents with T2DM to navigate difficulty with certain aspects of self-care behaviors.

One limitation of the study was the short interval between the time of diagnosis and the interview for some participants. Several of the youths had only recently been diagnosed, and therefore, the concept of the illness, adjustment, and motivation described during the interview may only represent initial reactions to T2DM. However, the themes derived from these interviews still provide useful information in shaping the experiences of adolescents with newly diagnosed T2DM as well as determine the trajectory in how these youths cope with the diagnosis. Another limitation is the sample size as there were recruitment difficulties due to appointment cancellations and youths who did not attend the scheduled appointment. Given the dynamic data collected from the interviews, larger scale studies are needed to replicate the findings and further explore the experiences of adolescents with longer T2DM diagnostic histories.

Despite the growing trend in adolescents being diagnosed with T2DM, there is little research on the experience of these adolescents. Overall, the current study provides evidence for acknowledged beliefs in the cause and treatment of T2DM (eg, caused by genetics, eating poorly, and lack of exercise) but also new beliefs (eg, adjustment and motivation to adhere to past, present, and future self-care behaviors). Results also indicated that youths perceive some aspects of T2DM to be easy, while others struggle with the adjustment. The current data represent essential information in developing future studies designed to understand the psychosocial experiences of youths with T2DM and determine appropriate intervention techniques. The study offers valuable information and insight into the experiences and beliefs of adolescents with T2DM that can lead to better interventions to address differences in adherence to diabetes self-care behaviors.

### References