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RESEARCH

Identifying barriers to glycemic control in patients with type 2 diabetes after completion of an accredited education program

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ABSTRACT

Objectives: The objective of this study was to identify patient-perceived barriers to achieving A1C targets after receiving instruction in an accredited diabetes education program.
Design: Qualitative research using semistructured interviews and thematic analyses.
Setting: One pharmacist-run diabetes center located within an independent community pharmacy in a suburban region of southern Indiana.
Participants: A total of 17 participants between the ages of 41-78 were interviewed in March and April 2016.
Intervention: Not applicable.
Main outcome measures: Patient-perceived barriers to attaining glycemic control after completion of a pharmacist-taught diabetes self-management education (DSME) program accredited by the American Association of Diabetes Educators.
Results: Participants reported a variety of perceived barriers to glycemic control subsequent to the receipt of structured education. Seven major themes emerged: 1) health care provider factors; 2) self-identified indiscretions; 3) psychological barriers and poor social support; 4) knowledge deficits; 5) personal injury or adverse drug events; 6) time constraints and competing life demands; and 7) financial constraints.
Conclusion: Participants reported a variety of perceived barriers to achieving A1C targets after completing DSME. Incorporation of solutions and coping mechanisms to these barriers into diabetes education programs may help patients attain glycemic control. Other factors may require individualized attention outside of DSME in follow-up episodes of diabetes care.

The incidence of type 2 diabetes in the United States remains at an unprecedented high, with the total number of cases nearly quadrupling in the past 30 years. According to data released in 2014 by the Centers for Disease Control and Prevention (CDC), 29.1 million Americans have diabetes, 8.1 million of which cases remain undiagnosed. Type 2 diabetes represents approximately 95% of those cases. Furthermore, the CDC estimates that 86 million people have prediabetes, many of which will progress to type 2 diabetes in the absence of pharmacologic or lifestyle intervention.[1]

Owing to the complexity of diabetes management, it may be challenging for patients to obtain glycemic control, often measured by achievement of A1C goals. There are a variety of barriers that may inhibit patients from reaching A1C goals, which have been described in the existing literature. A systematic review conducted by Nam et al. described several factors that may contribute to unsatisfactory diabetes management. Poor medication adherence, comorbidities, and disparaging health beliefs were all identified as potential challenges. Patients may also have to overcome several social barriers, such as a poor support system or competing life demands.[2] A longitudinal study reported by Sherbourne et al. that evaluated predictors of adherence to medical recommendations in patients with chronic diseases found that patients with diabetes that have strong interpersonal relationships are more likely to follow a plan of care. As such, patients with family or close friends who are not supportive of their lifestyle changes may find it more difficult to adhere to their treatment regimen.[3] Lack of education, limited financial resources, and poor health literacy are other reported barriers

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Key Points

Background:

- Diabetes self-management education (DSME) provides patients with a baseline understanding of diabetes pathology as well as the physical and psychological manifestations, promotes problem solving and the development of self-care behaviors, and facilitates a collaborative relationship with health care providers.
- With DSME, patients can reduce their hemoglobin A1C and learn how to manage their diabetes semi-autonomously through lifestyle modifications, medications, and coping skills.

Findings:

- Despite the reduction in A1C subsequent to DSME, not all patients who receive disease state education achieve complete glycemic control.
- The barriers to glycemic control identified by this study's participants may be incorporated into DSME programs to improve education quality and patient outcomes.

to reaching A1C targets. The review by Nam et al. also defined several health care provider–related factors that may hinder successful diabetes outcomes, such as poor patient-provider communication.[2] A study conducted by Khunti et al.[4] identified clinical inertia, in which appropriate escalation of therapy does not occur in a timely manner, as an additional obstacle that prevents adequate control of diabetes. That retrospective cohort study included more than 80,000 patients with type 2 diabetes and found that the average time to addition of a second oral antihyperglycemic agent in patients with an A1C $\geq$7.0% taking 1 oral medication was 2.9 years.[4]

Diabetes self-management education (DSME) has proven to be an effective method for enabling patients to cope with this chronic condition. One study found that DSME lowers A1C an average of 0.76% with initial education and an additional 0.26% after 1-3 months of follow-up. Additional contact time has been shown to augment these benefits.[5] DSME is commonly provided by pharmacists, registered nurses, and dietitians with the objective of changing behavior and empowering patients to autonomously manage their diabetes. Diabetes educators are commonly credentialed with the title of Certified Diabetes Educator or may possess additional training in clinical management and earn their Board-Certified Advanced Diabetes Management certification.[6] A DSME program may seek reimbursement from the Centers for Medicare and Medicaid Services by designing its curriculum to meet the National Standards for Diabetes Self-Management Education and Support and by being accredited through either the American Association of Diabetes Educators (AADE) or the American Diabetes Association (ADA).[7] AADE developed the AADE7 Self-Care Behaviors, which highlight different domains that patients should focus on for successful management, and these domains are often incorporated into DSME programs regardless of accreditation. The AADE7 include healthy eating, being active, monitoring, taking medication, problem solving, reducing risks, and healthy coping.[8] Despite the improved outcomes and reduced medical costs associated with DSME, just over half of patients receive formal education after diagnosis.[9,10]

Even with training in diabetes self-management, patients may still struggle to achieve desired glycemic control. Identifying barriers that prevent patients from reaching treatment goals after receiving education may help to improve the content of DSME. Patient feedback may also help to specifically identify barriers that are modifiable by direct pharmacist intervention. To the authors' knowledge, this was the first study of its kind, developed with the intent of enhancing the quality of DSME and reducing patient barriers to glycemic control.

Objective

To identify patient-perceived barriers to achieving A1C targets after receiving instruction in an accredited diabetes education program.

Methods

Study design

The Purdue University Institutional Review Board granted the study a research exemption. Semistructured interviews were conducted over the telephone or face to face with patients who had completed a DSME program accredited by the AADE. The program consists of four 2-hour classes taught by a pharmacist at a pharmacist-run diabetes center located within an independent community pharmacy. The pharmacy does not collaborate with a specific provider or health care system and patients are referred by area providers. These classes focus on "The 4 Ms" of diabetes (meals, movement, monitoring, and medications) and the complications of uncontrolled diabetes. "The 4 Ms" is an active-learning exercise taught by the Purdue University College of Pharmacy that takes a patient-centered approach to impart empathy and essential diabetes self-care principles to students.[11] The pharmacist-run DSME program incorporates many aspects of the AADE7 self-care behaviors with "The 4Ms" and educates participants on the available medication options, appropriate blood glucose monitoring technique and interpretation of results, carbohydrate counting, reading nutrition labels, the benefits of exercise, development of coping skills, and strategies to prevent complications. To be eligible for study inclusion, participants had to be 18 years of age or older with an A1C test collected approximately 3 months after completing the DSME program to be screened for participation. Participants who had not achieved glycemic control were contacted for study inclusion. Glycemic control was defined as an A1C of 6.5% or less, as recommended by the American Association of Clinical Endocrinologists. Because the DSME program evolves when new recommendations become available, only patients that completed the DSME program within the preceding 2 years were asked to participate to minimize variability between the received educational content.