

Supporting Lifestyle Change With a Computerized Psychosocial Assessment Tool

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There are now more than 12,400 certified diabetes educators practicing in the United States.¹ Their primary role is to provide diabetes education, diabetes self-management training, and lifestyle change support.

The prevalence of type 2 diabetes, which comprises 90–95% of diabetes cases, is increasing at an alarming rate, reflecting recent cultural changes in our eating and exercise habits and a sharp increase in the prevalence of obesity and its associated insulin resistance.² The need is becoming more urgent for innovative and effective behavior change strategies in diabetes management. Further, as Glasgow and Eakin^{3, p.144} have noted, “to impact diabetes management, behavioral assessments, interventions, and models should be practical and efficient, be readily understood by non-psychologists, and address issues that diabetes patients and providers (rather than psychologists) perceive as important.”

Historically, we have not done a good job in conducting behavioral research that translates behavior change theories and concepts into brief educational interventions that can work in busy clinical settings. Instead, we have focused almost exclusively on academic behavioral research studies that do not get down into the clinical “trenches.” Rollnick et al.,^{4, p. vii} for example, noted that, “despite the abundance of research on treatment adherence [in chronic illness], there is a paucity of teachable methods that have emerged from this body of work.”

Harnessing the power of computerization to gather patient questionnaire data, create user-friendly summary reports, and free educators to spend more time counseling patients also

makes sense as a behavioral intervention support strategy given the time constraints and logistical challenges diabetes educators typically face.

The Accu-Chek Interview,⁵ a patient assessment tool, was developed to meet the need to translate a promising behavior change theory into practical strategies for diabetes educators and to utilize computerization in the patient assessment process. The tool is based on motivational interviewing (MI), a patient-centered behavior change counseling approach that has emerged from the addictions field as an alternative to traditional “clinician-as-expert” approaches.⁶

MI is now being applied to the management of a range of chronic illnesses, including diabetes.^{7,8} This approach is especially useful with ambivalent or resistant patients because it focuses on patients’ own life circumstances, interests, and values to create the conditions for meaningful change.⁴ Patients’ motivation or readiness to change health-related behavior is influenced by both their perception of the importance of change and their perception of self-efficacy (confidence) regarding the ability to overcome practical barriers to change if change were deemed important enough.⁴

Communication and Self-Care in Diabetes

Effective communication between patients with chronic illnesses and their clinicians is a key factor in developing a realistic and workable treatment plan that can be sustained over time.^{9–11} Actively involved diabetic patients who identify their current problem areas and work with their clinician to help craft their treatment

plan are more successful in terms of medical outcomes and quality of life.^{7,8,12,13}

The successful management of diabetes requires a strong focus on patient lifestyle and health behavior change and the early identification of psychological or social problem areas that can affect patient quality of life and undermine treatment adherence. Patient adherence to the treatment plan must be achieved within the context of helpful or unhelpful peer and social pressures, domestic and economic responsibilities, and distracting life events.⁸

Although a sound medical plan and regular clinic visits are cornerstones of clinical care, the majority of daily diabetes management is carried out by patients. This necessitates a patient-centered rather than clinician-centered view of treatment.^{11,14}

Diabetes educators are trained in a biopsychosocial model of diabetes education and use behavior-oriented strategies, such as goal-setting and individualization of treatment, in their counseling.¹ However, few receive formal training in communication skills and behavior change counseling strategies.³ Pencil-and-paper questionnaires assessing psychosocial functioning are rarely helpful to busy clinicians who have not received training in their use, scoring, and interpretation. Therefore, diabetes educators in routine practice may not assess psychosocial issues in diabetes in a systematized manner.

A New Assessment Strategy

The Accu-Chek Interview, developed by the Joslin Diabetes Center of Boston and Roche Pharmaceuticals, Inc., is an educator resource that has

been field-tested and finalized and is now being distributed free of charge to interested clinicians and researchers.

This project grew out of the Joslin staff's longstanding interest in the use of patient questionnaires to assess psychosocial functioning and was based on the pioneering work of Glasgow et al.,¹⁵ who developed an office-based, computerized assessment tool using a touch screen, automated scoring algorithms, and patient summary reports to improve management of dietary adherence in older patients with type 2 diabetes. Their demonstration of the feasibility of office-based, computerized, patient assessment tools stimulated our development of a psychosocial research tool,^{16,17} followed by the development of the clinically oriented Accu-Chek Interview.⁵

How The Assessment Works

The program, which is in the form of a CD-ROM and has an accompanying brief intervention manual,¹⁸ was pilot-tested for its acceptability, content, and ease of use⁵ and underwent an extensive technical review to ensure its functionality with various personal computer systems and printers.

During a patient's own time before a scheduled clinic visit, it can be used to capture a snapshot of some current psychosocial issues from the patient's perspective. The Joslin Diabetes Center keeps a cart bearing a computer with printer link that can be wheeled to any convenient, private location in the clinic for patients to complete the questionnaire and print off a summary report.

Subsequent versions will be available through the Internet, so that patients with computers and Internet access can complete the assessment at home and either e-mail or hand-carry it to their provider. From our experience, limited computer access and technical support is a barrier to adoption of computer software programs in many diabetes clinics.

The assessment takes 10–15 minutes to complete. At the end of the questionnaire, the program prints out a one-page report (Figure 1), which can be reviewed by the patient and/or shared with the health care team and be included in the medical record.

No assessment information is saved as a database; the printed report is the only output obtained. This approach to capturing and presenting the data was adopted to ensure that patients would feel in control of their personal data at all times, especially on sensitive issues such as depression, and that no one could access a patient's responses from a database later on.

Experience to date indicates that computer-savvy patients have little difficulty navigating the tool. Patients who are not experienced in computer use need more guidance but seem to easily pick up the skills they need to fill in the blanks and navigate the screens of the assessment. Individuals with literacy or visual problems can have the instructions and questions read to them. Patients and educators have found the printed report easy to read and interpret.⁵

What The Assessment Covers

The assessment is not intended to be exhaustive or comprehensive in content. Caution was used so as not to create a tool that would be impractical (i.e., too long or too difficult to navigate). Instead, the assessment focuses on the following selected important psychosocial problem areas that can be tackled in typical educator sessions.

Diabetes-related emotional distress. This is assessed using the 20-question Problem Areas In Diabetes questionnaire, a reliable and responsive questionnaire.^{19–22} Patients identify three specific emotional areas (e.g., fear of diabetes complications, guilt and anxiety around treatment, anger, loneliness, lack of support) as being of highest concern and indicate an overall distress level (high: one standard deviation above the mean; moderate: above or at the mean; or low: below the mean).

The three identified emotional “hot spots” are included in the report so that diabetes educators can explore them further with their patients. The manual provides some practical suggestions for tackling high levels of diabetes emotional distress.

Major depression. Depression is associated with poorer blood glucose control and occurs in 15–20% of patients with diabetes. It is frequently overlooked in clinical practice despite

the effectiveness and availability of psychological and pharmacological treatments.^{23,24}

The program screens for depression using nine questions reflecting the diagnostic criteria for depression in the American Psychiatric Association's *Diagnostic and Statistical Manual* (Fourth Edition).²⁵ It automatically skips questions that are not relevant. For example, if a patient does not endorse either depressed mood or loss of interest in usual activities (two key diagnostic symptoms of depression), the program skips the remaining seven questions used in the depression screening.

The report includes up to five depression symptoms identified by patients. Endorsement of suicidal thoughts is always documented.

Severe and mild hypoglycemia. Hypoglycemia is assessed using two questions relating to the presence of characteristic symptoms of low blood glucose and whether assistance was needed from others during episodes of low blood glucose. These symptoms can be distressing to experience but can be overlooked clinically and not discussed.²⁶ Also, patients may put themselves or others at physical risk while low (for example, if a patient drives while having a low blood glucose level). Hence, detection of hypoglycemia is important.

Nicotine dependence and cigarette use. Cigarette smoking represents a high-risk activity for individuals with diabetes, but it is frequently overlooked in educational evaluations. This tool assesses nicotine dependence and cigarette use through two items adapted from the Fagerström Tolerance Test for Nicotine Dependency.²⁷ Strong nicotine dependence may require pharmacological support (e.g., nicotine patch and/or bupropion, an antidepressive) to increase the chances of successful smoking cessation.

Patients' responses to questions on diabetes-related emotional distress, major depression, hypoglycemia, and nicotine dependence are summarized in their printed reports. This is done using a system of traffic stoplight icons. Red, yellow, or green stoplights denote the relative seriousness of the problem—high, moderate, low degree of seriousness, respectively. This sys-

Accu-Chek Interview Report

Assessment Date: 12/31/2000

Name: Mary Smith
ID: 123456789-01
Date of Birth: 01/01/80
Gender: Female
Body Mass Index: 30.9

Diabetes Treatment: Oral, Insulin
Monitoring Blood Glucose: 2 times a day
Smoker: Yes (1 pack)
Clinic visits past year: Two
Hypoglycemia: Yes (Severe)

Self Management Focus: Food and Eating	Emotional distress	Depression	Hypoglycemia	Nicotine dependence
<ul style="list-style-type: none"> > Improvement in this area is of HIGH importance to the patient. > Patient confidence that changes can be made in this area is MODERATE. 				
	High	High	High	Moderate

Self Management Concerns:

Accu-Chek Interview has asked your patient to identify a diabetes treatment topic that he or she is most willing to discuss. You may find it valuable to begin your conversation with this topic.

Findings		Actions
Area of concern:	Food & Eating	Your patient is experiencing barriers to success in changing his or her behavior. Explore with the patient three areas where help is most needed: 1. Hard to avoid high fat foods 2. Eat when bored or stressed 3. No time to eat healthy foods
Importance of change:	High	
Belief can make changes:	Moderate	

Diabetes emotional distress:

Accu-Chek Interview assesses your patient's emotional distress related to the demands of living with diabetes.

Findings		Actions
Overall emotional distress:	High	Review with your patient these 3 areas where most emotional distress is felt: 1. Discouraged about treatment plan 2. Fear of diabetes complications 3. Dissatisfied with my doctor

Depression Screening:

Accu-Chek Interview assesses whether your patient appears to have symptoms of major depression. Depression can seriously undermine your patient's ability to manage his or her diabetes.

Findings	Actions
<ul style="list-style-type: none"> 1. Depressed mood 2. Loss of interest 3. Concentration problems 4. Fidgety or slowed down 5. Sleep problems 	Probable Depression. Consider treatment or referral.

Figure 1. Sample report from Accu-Chek Interview.

tem was well received by clinicians in summarizing clinical outcomes in a recent diabetes disease management project.²⁸

The printed report also includes other clinical and treatment-related data likely to be useful to educators, such as patients' name, clinic number, age, sex, body mass index, treatment type, and frequency of clinic visits.

Self-Care Motivation

In addition to screening for psychosocial problem areas and high-risk behaviors, the assessment tool helps educators explore crucial patient perceptions regarding potential areas of improvement in diabetes self-care. Concepts from the MI approach to behavior change counseling⁴ have been incorporated to guide this portion of the assessment.

As mentioned above, MI is a pragmatic approach developed for use in the area of addictions. Its focus on patient ambivalence and resistance to health behavior change, common clinical themes in addictions counseling, make this approach potentially applicable to a range of chronic medical illnesses, including diabetes. MI has been successfully applied in the areas of alcoholism, substance abuse, and nicotine addiction.²⁹⁻³⁶ Encouraging results have also been reported for interventions in diabetes, obesity, physical activity, hypertension, eating disorders and other psychiatric illnesses, pain, cardiac rehabilitation, and fruit and vegetable intake.^{7,37-44}

In the MI approach, patients' perceived importance of change in self-care and perceived self-efficacy are seen as key constructs underpinning their degree of motivation (or readiness) to change their health behavior.

- Perceptions of the importance of change in self-care are based on patients' weighing of the pros and cons of changing versus not changing. ("Why should I change?")
- Perceptions of self-efficacy indicate how confident patients are that they can overcome barriers and achieve behavior change should they decide to change. ("Will changing be difficult? How can I do this?")

Educators should measure, explore, and strengthen both types of patient perceptions to encourage behavior

change in patients.

Consistent with a patient-centered approach, MI stresses good listening and rapport-building skills (e.g., asking patients' permission before discussing new topics or providing information, presenting options, asking open-ended questions to stimulate discussion, using reflective listening, and using summarization). MI specifically stresses the importance of increasing patient "change talk" (i.e., positive talk about making changes) and understanding the patient's perspective and priorities when building a treatment plan. In addition to good listening skills, it involves the use of menus to provide patients with a range of options regarding both the focus of the clinic visit and strategies implemented to tackle identified problems. These techniques can reduce patient ambivalence about and resistance to behavior change.^{45,46}

Importantly, MI is directive, in that clinicians using this approach actively emphasize arguments in favor of behavior change when summarizing patients' reflections on the pros and cons of behavior change. The Joslin Diabetes Center is developing an intensive 1-month training course in MI to support educator use of the Accu-Chek Interview.

The Accu-Chek Interview presents the following menu of seven diabetes self-care topics to patients and invites them to select one for discussion:

- Self-monitoring of blood glucose
- Food and eating
- Exercise
- Hypoglycemia
- Smoking
- A blank in which patients can type their own topic
- An option for "No topic today, thanks."

The printed report includes the self-care topic patients select to work on and patients' ratings (high, moderate, or low) of importance of the topic and their confidence regarding ability to make changes related to the topic. When patients rate importance or confidence as moderate or low, they can be prompted for further thoughts on what would have to happen for these ratings to improve.

Patients' thoughts can suggest key areas for educators to tackle to help patients move ahead. Most important-

ly, this process encourages patients to do the talking, to articulate what the issues are, to identify the pros and cons, and to brainstorm possible ways to make changes.

The assessment tool allows patients to identify three specific self-care barriers in the topic they have selected, which are also included on the printed report. To supplement patients' and educators' own ideas, the accompanying manual contains practical suggestions for tackling each self-care barrier listed.

Summary

The Accu-Chek Interview is an adjunctive tool to support behavior change interventions carried out by diabetes educators and other health care providers. Its use of computerization reduces the time and staff burden of performing patient assessments. Its focus on diabetes-related emotional distress, depression, hypoglycemia, nicotine dependence, and self-care motivation can help patients and educators work together to address important but frequently overlooked problems and to develop strategies to address them.

To obtain a free copy of this assessment tool, write to Roche Diagnostics Corporation, Health Management and Education Department—Diabetes Care, 9115 Hague Rd., Indianapolis, IN 46250-0457.

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