

New diabetes education program yields improved blood sugar control

April 11 2011

An intensive program that taught low-income, poorly educated diabetics to better manage their disease resulted in significantly improved long-term blood sugar control, according to Johns Hopkins researchers who designed and implemented the program.

The findings, published online in the [Journal of General Internal Medicine](#), offer clinicians a proven new tool to help those with poorly controlled diabetes make lifestyle changes to improve their health, the researchers says. They noted that many educational programs for people with diabetes typically have little impact and the benefits wear off after the programs end.

"We know that people need information to manage their disease, but having knowledge of the facts is not enough for behavioral change," says Felicia Hill-Briggs, Ph.D., an associate professor in the Division of General Internal Medicine at the Johns Hopkins University School of Medicine and the study's lead author. "With this novel approach, we have found a way to give people the skills to solve problems in all areas of their lives so that they can take diabetes off the back burner and start caring for their health."

In the small study, 56 participants were randomized into one of two groups. One got the intensive, nine-session, problem-solving course that covered not only standard diabetes self-management and care, but taught problem-solving as a skill to help manage the financial, social, resource, and interpersonal issues that often stand in the way of their managing

their diabetes. The other group got a condensed two-session version of the program.

Three months after the end of the program, participants in the intensive group saw their hemoglobin A1C levels — a long-term measure of blood sugar — fall by an average of .7 as compared with their levels before the start of the program. Levels below 5.7 are considered normal, while the target for people with diabetes is below 7.0. One participant stopped needing insulin after the completion of the program, Hill-Briggs says. The participants in the condensed program saw no improvement in their A1C levels.

Many who took part in the intensive program saw high cholesterol and high blood pressure drop as well. What struck Hill-Briggs most about her research was that A1C levels improved three months after the program was over. This is in contrast to many diabetes interventions, particularly with lower socioeconomic groups. "When the program stops and support is taken away, the behavior stops and the benefits stop," she says.

Hill-Briggs says she thinks one of the reasons for the sustained improvement in her study is that if problem solving as a life skill has been taught successfully, people see those skills improve as they use them more.

More than 25 million Americans have type 2 diabetes, and the number of diagnoses has been steadily rising with 1.9 million new cases diagnosed in 2010. Like many chronic illnesses, diabetes disproportionately affects older people, and its prevalence is higher among racial and ethnic minorities. The annual economic burden of diabetes is an estimated \$132 billion and increasing, mostly attributable to costly complications of the disease.

Hill-Briggs says the intensive program — like many other diabetes

education programs — first focused on how to better manage the disease and prevent further dangerous complications such as kidney disease, poor circulation requiring foot and other amputations, and blindness. Facilitators explained the importance of a healthy diet, exercise, adherence to medication and self-monitoring. They did so using materials designed for a fifth-grade reading level to better reach this group, in which one in three participants had very low literacy skills.

But the program didn't stop there. It went on to ask why participants were having difficulty making [lifestyle changes](#) and adhering to care. Some said they didn't have access to healthy foods near their homes. Others said it was too expensive to eat healthfully. Some said they didn't take their medications because they couldn't afford them. Many had family challenges, caretaking demands, and even neighborhood violence that affected their ability to care for their diabetes.

In response, the program taught participants problem solving as a way to manage these challenges. Participants applied their problem-solving skills in individual ways to address their own unique life situations. Some, for example, began to see their budgets in terms of must-haves and wants. Often, she says, participants saw rent and electricity as must-haves and not diabetes medication, because their chronic disease didn't bother them enough to be considered an urgent need. With an understanding of the role of their medicines, participants described moving them to the must-have list and taking off something else that was a want.

For those who thought medication did not work, possible solutions they came up with included taking it consistently as prescribed for a week, then testing [blood sugar](#) to see what had happened. When results were good, subjects were encouraged and the results reinforced the need for consistent self-care.

Participants were also taught about making the best choices when foods such as fresh fruits and vegetables were not available. Often, only canned products are available in neighborhoods with little access to large grocery stores. Two participants, on their own, convinced their small local grocers to stock the low sodium varieties of vegetables, enabling them to make healthier choices.

"We helped people integrate diabetes care into everything else that was going on in their lives and in the context of how those things affected their health," Hill-Briggs says. "The struggle is these other things seem more immediate, because if today they're having a crisis, that is the focus. The diabetes is always there. We helped them understand that their diabetes can be a priority, and problem solving lets us meet them where they are. We help them improve their [diabetes](#) self-care by using a reliable skill to tackle the problems that come up everyday that used to throw them off their game plan."

Provided by Johns Hopkins Medical Institutions

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