

Community Health Project
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Title: Diabetes Education and Promotion of Healthy Lifestyle Practices in Type 2 Diabetics

Description:

I prepared and gave a powerpoint presentation entitled “Learn About Type 2 Diabetes” to patients of Dr. James Magee and Dr. Susan Marcotte at the Palos Community Clinic. After the presentation, we also had a Q&A session to answer any specific questions. To assess usefulness and understanding of the informational session, I had the attendees fill out pre-session and post-session questionnaires.

Short-term goal:

Many patients being treated for diabetes may not fully understand how diabetes develops and how important healthy lifestyle practices are in the successful management of type 2 diabetes. Therefore, the short-term goal of this project was to use a simple and easy to understand powerpoint presentation that would serve as a stimulus for diabetes patients to better understand the concept of diabetes, and to encourage them to take an active role in their diabetes management.

Long-term goal:

To provide diabetes education that will ultimately promote better long-term self management of diabetes. By educating patients about the concept of diabetes, recommended guidelines, medications, home monitoring, exercise, and nutrition, our long-term goal is to see improved glycemic control, better HbA1c levels, and fewer long-term complications.

Rationale:

Why this project goal is an important health concern for the overall population:

Type 2 diabetes is an increasing health concern in the U.S. and around the world. It is important to consider the massive cost of diabetes to the U.S. In 2002, the total cost of diabetes in the U.S. was \$132 billion. (1) Direct medical costs amounted to \$92 billion, and indirect costs (lost productivity) amounted to \$40 billion. (1)

In 2005, the prevalence of this multifaceted chronic condition was 7% (20.8 million people) of the United States population. (1) However, it is estimated that 6.2 million people were still undiagnosed as having diabetes. (1) When looking at national statistics by age group, the total prevalence of diabetes was highest in the age group of 60 and over. (1) In 2005, there was an estimated 1.5 million new cases of diabetes in those 20 and over. (1) However, the greatest number of new cases of diabetes was in the age group of 40-59. (1) This is an indication that the process of diabetes begins well before clinical diagnosis. According to statistics from the American Diabetes Association, by the time a patient is diagnosed with diabetes, the patient has already had it for 9 years. (2) This increases the risk of developing diabetes complications later on in life. In fact, long-term damage to the circulatory system may begin during pre-diabetes.

This data is important because when the affected majority age group is considered, the importance of diabetes education in the prevention of serious long-term complications is paramount. Studies show that for each percentage point drop in HbA1c, there is a 40% decreased risk of developing microvascular complications. (1) A systematic review conducted by organizations including the CDC and the National Institute of Diabetes and Digestive and Kidney Disorders (NIDDK) found that glycemic control was improved when diabetes education was provided in a community group setting with other type 2 diabetics. (3)

Why this project goal is important to this specific community:

The American Association of Clinical Endocrinologists (AACE) published a report in 2005 called the "State of Diabetes in America." (4) In this study, HbA1c values were compared on a national and statewide level. Based on data from 2003-04, it was found that on a national level, 67% (average) of the population was above the AACE recommended HbA1c goal of 6.5% or less. (4,5) In Illinois, 72.6% of the population had HbA1c levels above 6.5%. (4,5) This same study also reports that 98% of type 2 diabetics in the U.S. know that glycemic control is important, but 61% do not know what HbA1c is. (4)

According to data accessed from the Cook County Department of Public Health, 1.9% of all deaths in Orland Park between the years of 1995-97 were due to diabetes. (6) Between the years of 2000-02, 2.6% of all deaths in Orland Park were due to diabetes. (6)

Hopefully, continued efforts in the promotion of glucose monitoring, nutrition, and exercise through community based education will ultimately lead to more frequent screenings and decreased long-term complications of diabetes.

Method:

A 2001 study from the Morbidity and Mortality Weekly Report (MMWR) has shown that diabetes education given in a community setting resulted in decreased HbA1c levels by 1.9 percentage points. (7) This study was conducted with the participation of patients with type 2 diabetes only. Based on this data, I chose to give a community based diabetes presentation at the Palos Community Clinic. Palos Hospital currently offers diabetes education classes taught by certified diabetes educators, but the Palos Community Clinic does not have any such program. Although the Palos Community Clinic is affiliated with Palos Hospital, I thought it would be a good idea to have a presentation there because it is a convenient location for the patients who visit the clinic on a regular basis. I distributed a letter to all the physicians in the group practice and requested help in recruiting patients who would be ideal candidates for my project. I also posted fliers in the patient rooms to advertise for the event. In order to gather some background information and assess diabetes self-management behaviors, I had each attendee fill out a pre-session questionnaire. During the presentation itself, we discussed the following topics: basic pathophysiology of type 2 diabetes, long-term complications, importance of monitoring diabetes on a regular basis, lab tests, medications and how they work, nutrition, and exercise. Following the presentation, Dr. Magee was present to answer specific questions. In order to assess understanding and usefulness of the session, attendees also filled out a post-session questionnaire. I also distributed glucose logs (downloadable from the American Diabetes Association website) in order to promote home glucose testing, and to make it easier for patients

to bring in their list for the next doctor's visit. Other handouts we had available were food list cards and a diabetes guide from the American Association of Diabetes Educators.

Community Resources

I was able to utilize a great deal of information, ideas, and statistics about diabetes from the American Diabetes Association (www.diabetes.org). This website is excellent in terms of providing information about diabetes that is relevant to patients, health care professionals, and educators. Dr. James Magee and Dr. Susan Marcotte also gave me ideas and advice in terms of how to proceed with my project. I also approached Dr. Susan Cornell at Midwestern University in the College of Pharmacy for advice because she had been involved with the C.H.A.T (Collaborative Health Advocate Team) organization on campus. C.H.A.T is a multidisciplinary organization composed of osteopathic, pharmacy, and physician assistant students committed to diabetes education in the community. Dr. Cornell also allowed me to use several slides from her diabetes powerpoint slides. For the presentation itself, I was able to use a conference room available at the Palos Community Clinic.

Culture

In terms of demographics, the Orland Park area is predominantly white (95.8%). (8) Language and communication barriers were not a major concern for this session. One patient, however, was not able to fill out the pre and post session questionnaires right away because his written English was not very strong, and he wanted his daughter to help him out. He did emphasize, though, that his understanding of English was very good. Just from my conversation with him, I felt that his spoken English was relatively clear and succinct.

With respect to the setting of my presentation, I wanted the atmosphere to be informal. All of the patients who attended were middle aged to elderly, and came from diverse backgrounds. I wanted the patients who attended to feel that they were in a comfortable environment, but at the same time, that their privacy was respected. Since I had each patient fill out questionnaires with personal information on them, I made sure at the beginning of the session that they knew their information would be kept confidential.

Outcome/Results

Four people attended the diabetes presentation. All attendees filled out and submitted the pre and post-session questionnaires. The pre-session questions were designed to assess current lifestyle behaviors, and the post-session questions were asked to assess understanding of the presentation. Since the responses on the questionnaires are of a subjective nature, objective criteria are not available at this stage. The ideal way to evaluate effectiveness of this educational intervention would be to look at HbA1c values a few months from the time of the presentation. However, initial objective data has been collected in the form of laboratory data, and it will be interesting to see how this changes in the future. I was able to collect the most recent HbA1c, fasting blood glucose, lipid profile, and BMI values for 3 out of the 4 patients. The patient with unavailable data, while diabetic, was not a patient at the clinic (he was the spouse of a patient), and I could not access those records. Questions asked after the presentation were related to diabetes monitoring, home glucose testing, and glucometers. Following are the summarized results of the pre and post-session questionnaires. Below the questionnaire results are the lab data for the 3 patients whose values were available.

Pre-session questionnaire results:

	Patient #1	Patient #2	Patient #3	Patient #4
1. Highest level of education?	Primary school	Some college	12 th grade	12 th grade
2. Last visit to doctor? (as of 8/10/06)	8/4/06	8/10/06	7/06	3 weeks ago
3. Number of medications?	No answer	6 meds	4 meds	Insulin, actos, lipitor, blood pressure meds
4. Been to a diabetes ed. program before?	Yes	No	Yes	Yes
5. Monitor blood glucose at home?	Yes	I will	No	Yes
6. Do you exercise regularly?	Yes—45-60 minutes/day	No	No	No
7. Do you smoke? If yes, how much?	No	No	No	No
8. # of times a year you get foot exams?	Never	Never	Zero	None
9. Do you feel diabetes is disabling? If yes, why?	No answer	Yes—because of diet—I never watch my food intake.	No	No
10. Any issues about diabetes you would like to understand better?	No answer	Yes	No	No

Post-session questionnaire results:

	Patient #1	Patient #2	Patient #3	Patient #4
1. How helpful was this session?	N <u>1</u> 2 S 3 4 V 5	N 1 2 S 3 4 V <u>5</u>	N 1 2 S 3 <u>4</u> V 5	N 1 2 S 3 <u>4</u> V 5
2. How confident were you in the management of your diabetes before today?	N <u>1</u> 2 S 3 4 V 5	N <u>1</u> 2 S 3 4 V 5	N 1 2 S 3 4 V <u>5</u>	N 1 2 S 3 <u>4</u> V 5
3. How confident do you feel in the management of your diabetes now?	N <u>1</u> 2 S 3 4 V 5	N 1 2 S 3 <u>4</u> V 5	N 1 2 S 3 4 V <u>5</u>	N 1 2 S 3 <u>4</u> V 5
4. Did your understanding of diabetes improve after this session?	No	Yes	Yes	Yes
5. Were your questions answered today?	No answer	Yes	Yes	Yes

* N = Not at all; S = Somewhat; V = Very

** Patient responses above are in blue

Lab Results for Patients #1, 2, and 4:

	Patient #1	Patient #2	Patient #4
BMI	31.2	27.4	44.9
Most recent fasting blood glucose	109	144	100
Most recent HbA1c	7.0%	7.1%	10.9%
Most recent lipid profile values	Tot. cholesterol: 159 mg/dl LDL: 92 mg/dl Triglycerides: 182 mg/dl HDL: 31 mg/dl	Tot. cholesterol: 184 mg/dl LDL: 90 mg/dl Triglycerides: 185 mg/dl HDL: 57 mg/dl	Tot. cholesterol: 308 mg/dl LDL: 237 mg/dl Triglycerides: 151 mg/dl HDL: unavailable

Discussion:

Challenges

A major challenge I faced was recruiting enough patients to attend the presentation. My initial intent was to give the presentation to a group of 25-30 patients. In addition to posting fliers in each of the patient rooms and distributing letters to the other physicians in the group, I also individually mentioned this project whenever a diabetes patient came in for a check-up. Dr. Magee also assisted me by calling a few other patients who he thought may benefit from a session like this. However, I believe the low attendance on the night of the presentation (8/10/06) was partly due to adverse weather conditions.

Suggestions for improvement/modification

One way to improve this project would be to give the presentation earlier in the 12 week rotation. In my case, for example, I had a low turnout for my presentation. As a result of this, I would have preferred to give another presentation in order to gather more data, but because of time constraints, this did not work out. Giving the presentation earlier would also allow for a follow-up of the patients' progress (HbA1c levels) later in the rotation.

Cultural issues

Throughout the course of my project and during the presentation itself, I did not encounter any significant language or communication barriers, other than what was mentioned in the *Methods* section.

However, I did encounter a cultural issue during an individual conversation with a patient after the presentation. We were discussing dietary modifications that could be made (ex. skim milk instead of whole), and the patient said that this would be the most difficult change for her in her diabetes management because she did not want to change the types of foods she had been eating since she was a child. I felt this was an important issue that many patients with type 2 diabetes face, because it can be difficult to change longstanding dietary patterns as well as methods of traditional cooking.

“What did I learn?”

During this project, I saw the difficulties involved in the clinical management of type 2 diabetes patients, as well as the importance of patient education. During a patient visit for diabetes, many important issues related to self-management may be touched on, but there may not be enough time to discuss any one topic in detail in a busy office setting. For this reason, community based education programs play an important part in teaching healthy lifestyle changes. Many patients, for whatever reason, may not realize that type 2 diabetes is a preventable and highly controllable condition. I learned that diabetes patients can greatly benefit from education programs and that there needs to be more awareness among the patient population that such programs are available.

Suggested ways to evaluate effectiveness

The best way to evaluate effectiveness of the educational intervention would be to follow up in a few months (possibly the next routine checkup), and to compare HbA1c levels from before and after the presentation. Other tests that would be useful to monitor general diabetes health would be fasting blood glucose, blood pressure, lipid profile, urine microalbumin, and proper foot care. During each visit, it is also important to continue emphasis on home glucose monitoring.

Suggested ways to extend or continue the project?

I feel it may be beneficial to break up the topics covered in one presentation into several separate presentations. This way, more time can be spent on individual topics so that patients do not feel overwhelmed with too much information at once. For example, an initial session can cover the basic concepts of diabetes, a second session can cover the different medications involved, a third session can cover diabetes monitoring, and a fourth session can be a discussion of nutritional management and exercise.

References:

1. Centers for Disease Control and Prevention. National diabetes fact sheet: general information and national estimates on diabetes in the United States, 2005. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2005.
2. American Diabetes Association. www.diabetes.org.
3. Effectiveness of Diabetes Self-Management Education Interventions. Updated Dec. 27, 2002. Guide to Community Preventative Services (Systematic Reviews and Evidence Based Recommendations) www.thecommunityguide.org/diabetes
4. State of Diabetes in America: A New Report Reveals America's Diabetes Health is in Jeopardy. May 18, 2005. www.aace.com
5. State of Diabetes in America website. http://www.stateofdiabetes.com/state_compare.htm.
6. Cook County Department of Public Health. Community Profile: Orland Park village (pt.) in Cook County, Illinois: 2001 – 2003. <http://www.cookcountypublichealth.org/staging/statistics/pdf/9901Profiles/Orland%20Park.pdf>
7. MMWR/Recommendations and Reports.-September 28, 2001/Vol.50/RR-16.-Strategies for Reducing Morbidity and Mortality from Diabetes through Health-Care System Interventions and Diabetes Self-Management Education in Community Settings.
8. Village of Orland Park website. http://www.orland-park.il.us/econdev1/html/econ_set.html