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Title

Benefits of Diabetes Group Education in Chinese patients at La Jolla Internal Medicine.

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Title: Benefits of Diabetes Group Education in Chinese patients at La Jolla Internal Medicine

Abstract:

As the Chinese-speaking population continues to increase in the United States and as the rate of diabetes increases amongst them, it becomes more imperative that Chinese-speaking diabetics are educated about their disease. Given that diabetes education is more effective when delivered in a culturally appropriate way and in a group setting, we evaluated the effectiveness of group-teaching sessions that emphasized the use of story-telling and participant interaction. With minimal use of didactic teaching, patients' baseline knowledge was evaluated with pre- and post-tests that on average increased by 69.6% and LDL improved on average by 10%. There was no significant change in the hemoglobin A1C values and BMI, which was to be expected given that lifestyle changes take longer than 3 months to fully implement.

Introduction:

According to the survey conducted by the U.S. Census Bureau in 2010 [8], the Asian population constituted 4.8% of the U.S. population, an increase of 45.9% from 3.9% in 2000. Of the 4.8%, 22.8% were ethnic Chinese. In California, which had the largest minority population, 13.0% were Asians, and in San Diego, the Asian population was 10.9%. Hence, it is becoming more important to address the needs of this population group. A previous survey on the rates of Type 2 diabetes mellitus indicated that there was an increased rate amongst immigrant Asians in the U.S. as compared to those who lived in their home country [4]. However, Type 2 diabetes has been shown to be rapidly rising among Asian populations outside the U.S., in areas where there is increased modernization and westernization, such as India and China [9]. As Chinese populations adapt to more western ways of living, either through migration or modernization in China, they have shown increased risk of developing Type 2 diabetes. Since uncontrolled diabetes can lead to cardiovascular diseases, cerebrovascular events, and nephropathy, it is becoming increasingly important to ensure that Chinese diabetics understand the disease process, how it can affect their lives, and what they can do to keep it under control [10].

It has been observed that Chinese diabetics whose preferred language was Chinese had less basic diabetes knowledge than those whose preferred language was English [7]. This distinction was most likely attributed to the language and cultural barriers that the Chinese-speaking only patients had in their office visits [7]. Furthermore, a meta-analysis revealed that culturally appropriate education provided increased benefits to diabetics in minority groups [6]. The specific education that was used for Chinese populations entailed a group-based diabetes education with a fluent Chinese speaker as the teacher. [1] Evidence has not shown one-on-one teachings to be effective. [2,3, 11]. One study has shown that in a group setting, engaging the patients by having them share their stories and experiences with each other was more effective than didactic teaching [5]. The above-mentioned studies have indicated that a more effective method of increasing diabetes knowledge amongst Chinese diabetic patients is through group workshops where patients

can interact with one another and hear each others' experiences. It is through this method that patients will take increased control over their illness.

Methods:

Diabetic patients were chosen with the Epic electronic medical record. The two major criteria for the patients selected were: 1) those with a previous diagnosis of diabetes either through fasting glucose values or Hemoglobin A1C values and 2) speaking only mandarin or cantonese. Once the 8 patients were selected, patients were instructed to attend clinic on a Tuesday afternoon. Prior to the first educational meeting, the following parameters were obtained at clinic: BMI, blood pressure, fasting LDL/HDL/Triglyceride levels, HbA1C. At the start of the first educational meeting, patients were given a pre-test written in either traditional or simplified Chinese characters and asked to answer the questions to the best of their ability. Once the pretest was completed, the group discussed amongst each other and with the guidance of Dr. Yu and the medical students, the signs and symptoms of diabetes, the pathophysiology of diabetes, the complications, the recommended screening tests, and the treatments for diabetes. Patients were also encouraged to share amongst themselves what foods they eat on a regular basis, what foods they believe are beneficial to controlling their diabetes, and what physical activity they participate in. After 2 hours of discussion and education, a posttest with the same questions as the pretest was administered to all the patients.

The pretest and posttest were scored using the same answer key. The lab values and vital signs were collected again 3 months after the initial educational meeting. One patient did not return to clinic for follow up labs and vital signs.

Results:

Basic Knowledge: When reviewing the questions that patients had the most difficulty with prior to discussion, the majority of the questions fell under the category of target values of HbA1C, LDL, blood pressure, exercise time, fasting blood glucose. The majority also struggled with what foods were harmful to a diabetic. However, after the discussion, patients were able to answer questions regarding normal lab values, target exercise time, and diabetic-friendly foods.

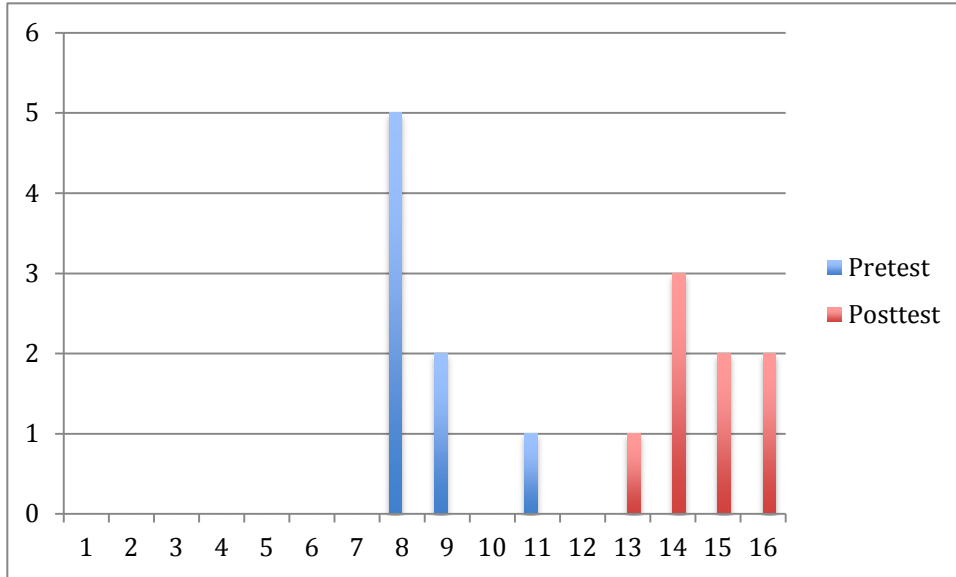


Figure 1. Pretest scores vs. Posttest scores. Maximum score out of 16. Average pretest score was 8 and average posttest score was 14.

Hemoglobin A1C: In general, Hemoglobin A1C values did not change significantly after the discussion session. Patient’s whose A1C values did increase, such as P3 and P4 reported to the physician that they had increased consumption of sweets and foods due to the holiday season.

	Pre-HbA1C	Post-HbA1C
P1	7.2	6.9
P2	6.6	N/A
P3	6.5	6.7
P4	7.1	7.8
P5	6.8	6.6
P6	6.4	6.5
P7	6.3	6.4
P8	6.5	6.5

Table 1. Hemoglobin A1C values before and after the group discussion. Initial HbA1C average was 6.6 and the average after the group discussion was 6.8.

Body Mass Index (BMI): In general, BMIs did not change significantly before and after the group discussion. Patients were not required to undress completely for taking weights. Differences in BMI may be secondary to clothing worn that day.

	BMI	PostBMI
P1	21.4	20.8
P2	19	N/A
P3	28.48	28.67
P4	25.87	26.76
P5	23.22	23.8
P6	31.42	31.42
P7	19.6	20.04
P8	22.7	23.3

Table 2. BMI values before and after the group discussion. Initial BMI average was 23.9 and the average after the group discussion was 24.9.

LDL: In general, LDL values improved by an average of 10% after the group discussion. There is a decrease in LDL values for P1,5,6,7,8. P3 and P4 had an increase in LDL because of increased consumption of foods during Thanksgiving, Christmas, and the New Year.

	LDL	PostLDL
P1	83	70
P2	108	N/A
P3	59	73
P4	129	134
P5	49	45
P6	83	82
P7	73	52
P8	91	80

Table 3. LDL values before and after the group discussion. Initial LDL average was 84 and the average after the group discussion was 77.

Discussion:

A large part of medicine is teaching patients and empowering them with the knowledge and strength that they need in order to take care of themselves. Now that diabetes is so prevalent in our population and the complications that can occur with it are so costly, it becomes more important for physicians to find new ways to inspire patients to control their diabetes such as delivering culturally tolerable presentations to patients with different backgrounds. With one educational meeting presented only in mandarin and cantonese along with active participation from the patients, in general the basic knowledge improved significantly for the patients and an improvement in LDL values was noticed. Though there was no significant change in HbA1C and BMI, one should not become disheartened by the group discussion approach. It is important to keep in mind that lifestyle changes for some individuals take longer than 3 months to implement, especially in the setting of the holidays such as Thanksgiving, Christmas, and the New Years.

In the future, it would be ideal for these patients to undergo more than one educational meeting for at least one year duration where holiday seasons will not be a large factor in the ability for them to make lifestyle changes. The data that has been collected so far does show promise that this group approach is efficient, however, more patients need to be recruited and patients need to be followed for a longer duration of time and not just for 3 months.

References:

- [1] Deakin TA, McShane CE, Cade JE, Williams R: Group based training for self-management strategies in people with type 2 diabetes mellitus (Review). *Cochrane Database Syst Rev*. 2005 Apr 18;(2):CD003417
- [2] Duke SAS, Colagiuri S, Colagiuri R: Individual patient education for people with type 2 diabetes mellitus (Review). *Cochrane Database Syst Rev*. 2009 Jan 21;(1):CD005268.

- [3] Farmer AJ, Wade AN, French DP, Simon J, Yudkin P, Gray A, Craven A, Goyder L, Holman RR, Mant D, Kinmonth A-L, Neil HAW: Blood glucose self-monitoring in type 2 diabetes: a randomized controlled trial. *Health Technology Assessment* 2009; Vol. 13: No. 15
- [4] Fujimoto WY: The growing prevalence of non-insulin-dependent diabetes in migrant Asian populations and its implications for Asia. *Diabetes Research and Clinical Practice* 15: 167-184, 1992.
- [5] Greenhalgh T, Collard A, Begum N: Sharing stories: complex intervention for diabetes education in minority ethnic groups who do not speak English. *BMJ* 2005;330:000-0.
- [6] Hawthorne K, Robles Y, Cannings-John R, Edwards AGK: Culturally appropriate health education for Type 2 diabetes in ethnic minority groups: a systematic and narrative review of randomized controlled trials. *Diabetic Medicine* 27: 613-623, 2010
- [7] Hsu W, Cheung S, Ong E, Wong K, Lin S, Leon K, Weinger K, King GL: Identification of Linguistic Barriers to Diabetes Knowledge and Glycemic control in Chinese Americans with Diabetes. *Diabetes Care* 29: 415-416, 2006.
- [8] Humes K, Jones N, Ramirez R: Overview of Race and Hispanic Origin: 2010. 2010 Census Briefs, <http://www.census.gov/prod/cen2010/briefs/c2010br-02.pdf>, 2011.
- [9] Ramachandran A, Ma RCW, Snehalatha C: Diabetes in Asia. *Lancet* 375: 408-18, 2010.
- [10] Samanta A, Burden AC, Jagger C: A comparison of the clinical features and vascular complications of diabetes between migrant Asians and Caucasians in Leicester, U.K. *Diabetes Research and Clinical Practice* 14: 205-214, 1991.
- [11] Sturt JA, Whitlock S, Fox C, Hearnshaw H, Farmert AJ, Wakelin M, Eldridge S, Griffiths F, Dale J: Psychological Issues and Education Effects of the Diabetes manual 1:1 structured education in primary care. *Diabetic Medicine* 25: 722-731, 2008.