

Diabetes Self-Management: A Cultural Approach

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Statement of the Problem

- According to Center of Disease Control and Prevention (CDC), as of 2005, 20.8 million people in the United States (7.0%) have diabetes. With 14.6 million cases of diabetes diagnosed and the rest of 6.2 million cases undiagnosed.
- The 2004 U.S. Census showed that 33.0% of San Francisco County's population is Asian.
- The National Institute of Health reported that in California Asians were 1.5 times as likely to have diagnosed diabetes as non-Hispanic Whites.
- The impetus of this initiative is, to our knowledge, no culturally competent, comprehensive diabetes support group exists for low-income, immigrant monolingual Chinese at this time.
- Chinese Community Health Plan (CCHP), in collaboration with its education center, the Chinese Community Health Resource Center (CCHRC) and other partners within the Chinese Hospital System, created Diabetes Self-Management: a Cultural Approach (DSMCA).

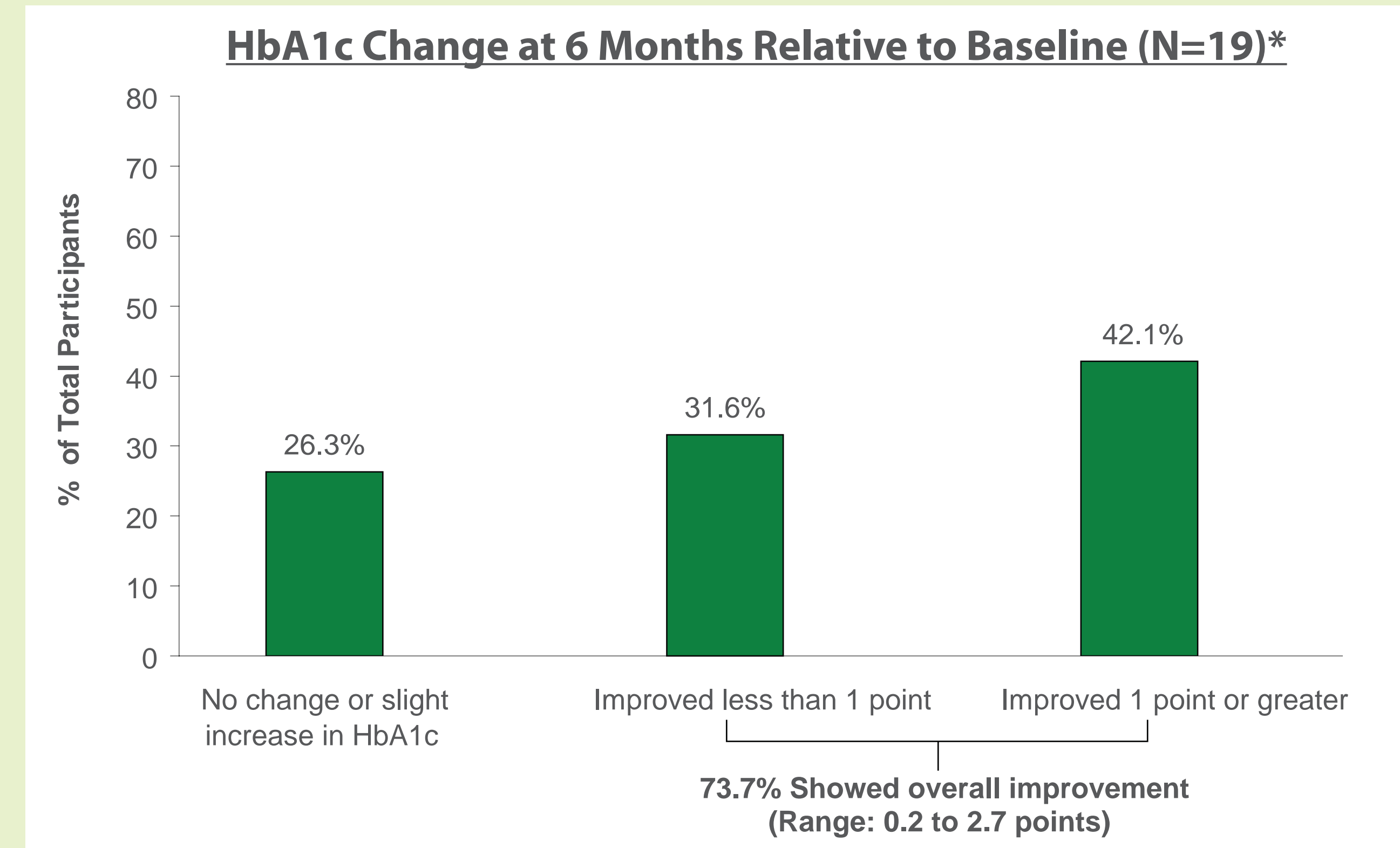
Goal and Rationale

- Goal**
To enhance diabetes knowledge and management in monolingual Chinese immigrants with Type I or Type II diabetes and their caretakers.
- Objectives**
 - To improve management of diabetes as indicated by decrease in participants' hemoglobin A1c (HbA1c) after participation in DSMCA.
 - To assess the effectiveness of support group sessions on the understanding and management of diabetes in diabetic participants.
- Rationale**
 - According to the National Institute of Diabetes and Digestive and Kidney Diseases, every percentage point drop in HbA1c reduces the risk of microvascular complications (eye, kidney, and nerve disease) by 40 percent.
 - Cultural characteristic influences the efficacy of any intervention (Langer, 1999). "Cultural tailoring" is a concept that utilizes the understanding of cultural characteristics' effects on health behaviors to design a useful invention (Pasick et al., 1996). Thus, cultural competence and linguistic appropriateness are essential factors for consideration in designing an effective initiative/intervention.
 - CCHRC's bilingual (Cantonese- English) educational seminars effectively benefited nearly 2,050 attendees in 2006, which indicated the potential usefulness of this initiative. 95% of 2006 attendees expressed that seminar information will help them improve their current day-to-day health habits.

Intervention and Implementation

- Target Population**
 - Chinese Immigrant.
 - Monolingual, Cantonese-speakers.
 - Participants were either a member of the CCHP or a caretaker of a CCHP diabetic member.
- Initiative Design**
 - A multidisciplinary approach that includes a bilingual (Cantonese-English) Registered Dietician, Registered Nurse, Certified Diabetes Educator, Health Educators, and Administrative Assistance; a dialogue with the patient's physician is maintained throughout the program.
 - Support groups were structured to administer culturally and linguistically appropriate health education and provide social and emotional support to patients with diabetes.
 - Twelve-week series comprised of 2-hour lesson and discussion offered on the first and third week of each month for a 6-month period.
 - Discussion Topics Covered
 - Introduction and evaluation process (HbA1c screenings and pre and post-questionnaires related to diabetes)
 - Diabetes overview
 - Meal planning
 - Diabetes medication
 - Blood glucose monitoring
 - Diabetes management during illness
 - Physical activity
 - Eye care
 - Foot care
 - Dental care
 - Stress management
 - Blood pressure and cholesterol
- Incentives**
DSMCA series certification of completion was awarded during the last session of the 6-month series.
- Streamlining Initiative Design**
 - Initial session duration was extended from 1.5 hours to 2 hours to allot sufficient time for topic discussions.
 - Discussion topics were restructured based upon participant feedback.

Impact



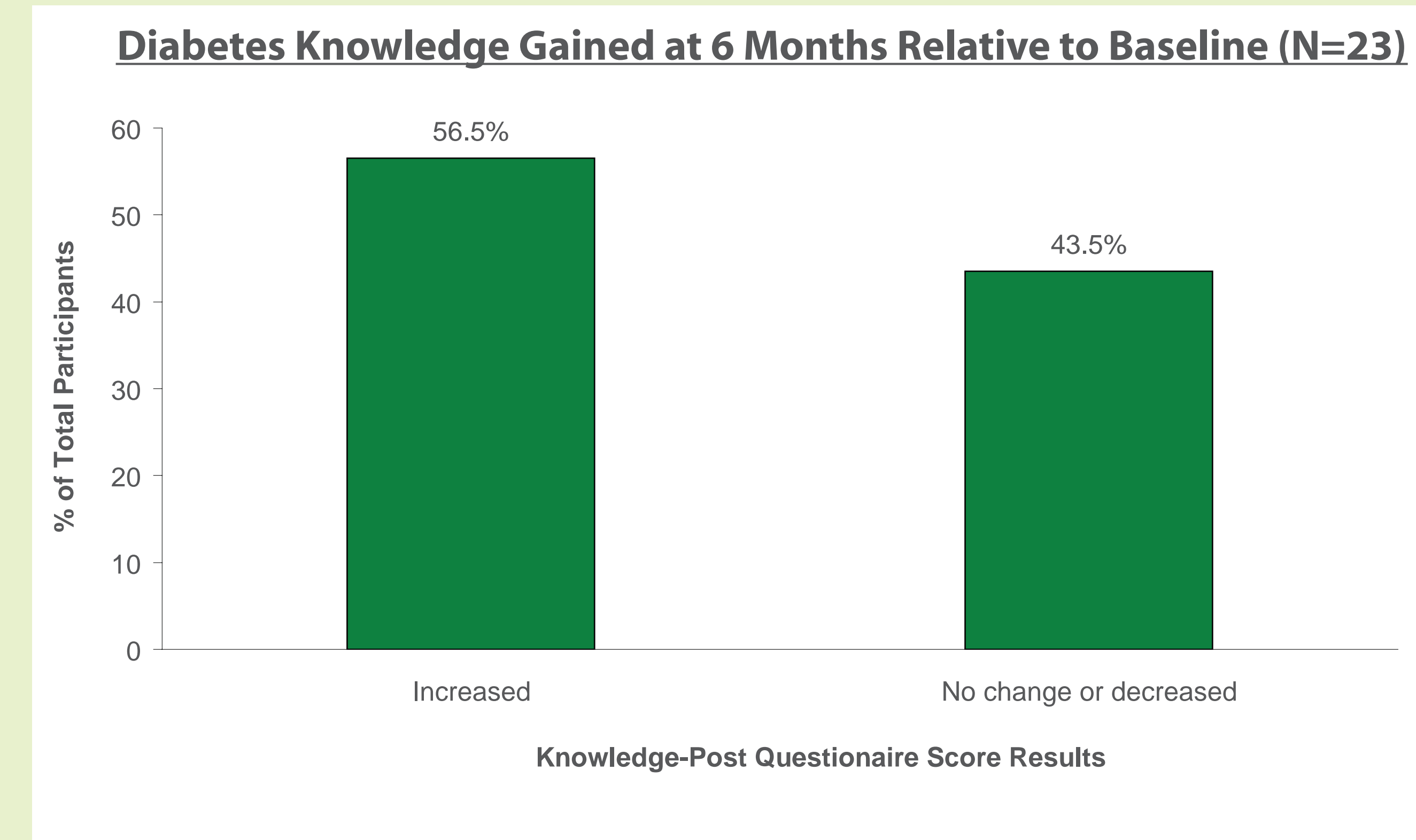
- HbA1c change at 6 months relative to baseline (N=19)
 - 42.1% (8 out of 19) participants had improvement in HbA1c ($\geq 1.0\%$ change).
 - 31.6% (6 out of 19) participants had improvement in HbA1c ($< 1.0\%$ change).
 - 26.3% (5 out of 19) participants had no improvement or negative change in HbA1c ($\leq 0.0\%$ change).

HbA1c Change at 6 Months Relative to Baseline- Repeated Analysis of Variance (ANOVA) (N=19)*

TIME	HbA1c Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Baseline	7.868	.223	7.401	8.336
6-month	7.111	.142	6.812	7.409

$F(1,18) = 16.28, p = 0.001$

* Please note: The graph above excluded outlier (n=1), participants with medication change (n=2) and participant who was medically unable to participate (n=1).



- Diabetes Knowledge Gained at 6 months Relative to Baseline (N=23)
 - 56.5% (13 out of 23) participants scored higher on the post questionnaire, relative to the pre-questionnaire.
 - 43.5% (10 out of 23) participants scored the same or lower on the post-questionnaire, relative to the pre-questionnaire.

Diabetes Knowledge Gained at 6 Months Relative to Baseline- Repeated Analysis of Variance (ANOVA) (N=23)

TIME	Knowledge Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Baseline	2.696	.291	2.092	3.299
6-month	3.739	.169	3.389	4.089

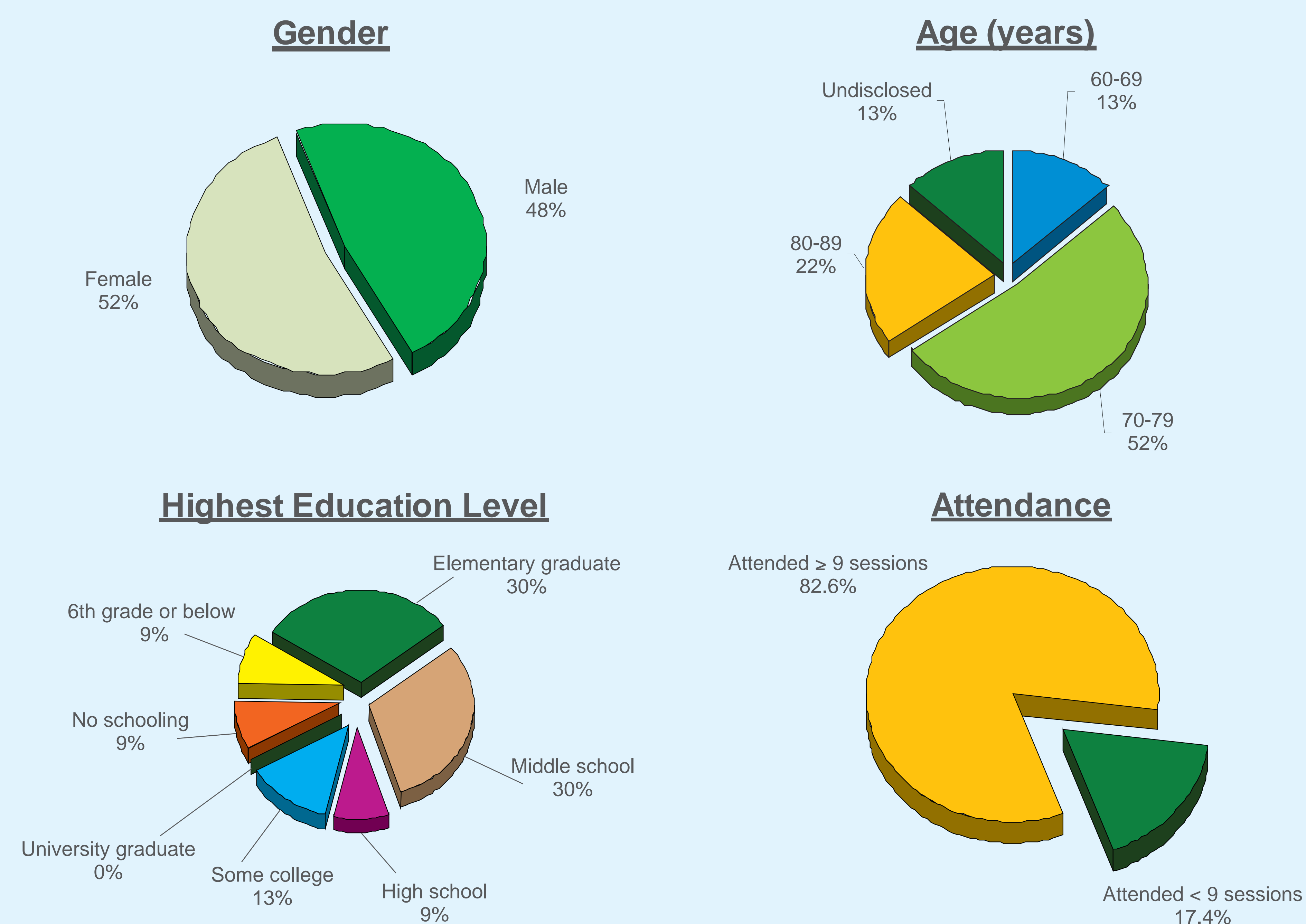
$F(1,22) = 9.35, p = 0.006$

Other Impact

- 95.6% (22 out of 23) participants reported an increase in knowledge
- 82.6% (19 out of 23) stated they were able to better manage their diabetes
- 78.2% (18 out of 23) gained emotional support
- 52.1% (12 out of 23) stated they appreciated the opportunity to gather with other diabetic patients



Population Characteristics



Evaluation Methods

- Focus group tested survey instruments were used for data collection.
- Quantitative Health Outcomes Measurements
 - Clinical improvements were measured via HbA1c screenings at enrollment, 3 months after enrollment, and completion of the series (6 months from enrollment).
 - Diabetes knowledge gained was measured via focus group tested pre- and post- questionnaires related to their knowledge and practice of ADA clinical practice recommendations (e.g. glucose monitoring, physical activity, dietary regimen).

Statistical Analysis

- Data was analyzed and interpreted by statistician and trained researcher.
- Repeated Analysis of Variance (ANOVA) was applied to analyze the statistical significant differences between the means of:
 - HbA1c change at 6 months relative to baseline
 - Diabetes knowledge gained at 6 months relative to baseline

Moving Forward

- DSMCA program demonstrates that a low technology, high-socialization structure can be a critical tool for immigrant populations in the management of chronic conditions that require constant surveillance to stave off complications.
- The environment created with this bilingual and culturally sensitive approach encouraged participation, increased knowledge, and resulted in better control of diabetes.
- The approach used in this intervention can be reproduced for other immigrant communities and other chronic conditions.

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