



Evaluating Health Literacy in Spanish Speaking Diabetic Populations

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Context

Background

- The Spanish-speaking population is **growing rapidly**, totaling **62.3 million** Americans.²
- Spanish speaking patients have **substantially lower** health literacy scores.⁴
- The prevalence of Type 2 Diabetes (T2D) in Hispanic populations is over **double that of non-Hispanics** (8% vs 17%).³
- Spanish-speaking patients are much more likely to suffer from Diabetic complications like **blindness and kidney failure**.⁸
- Many healthcare systems in the US still **do not offer diabetic counseling and other helpful resources in Spanish**.¹⁰

Local Population:¹²

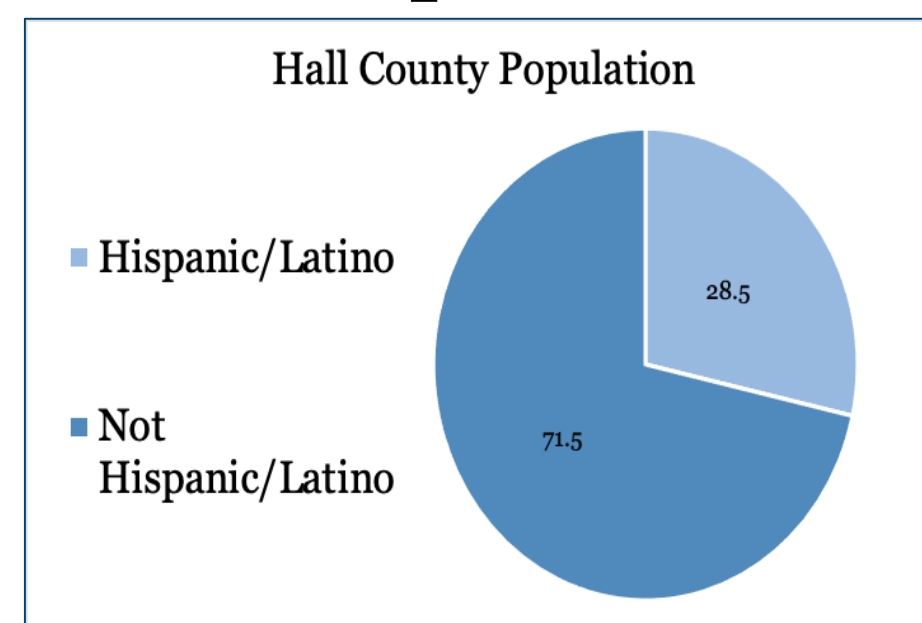


Figure 1. Demographics of Hall County Population Ethnicity

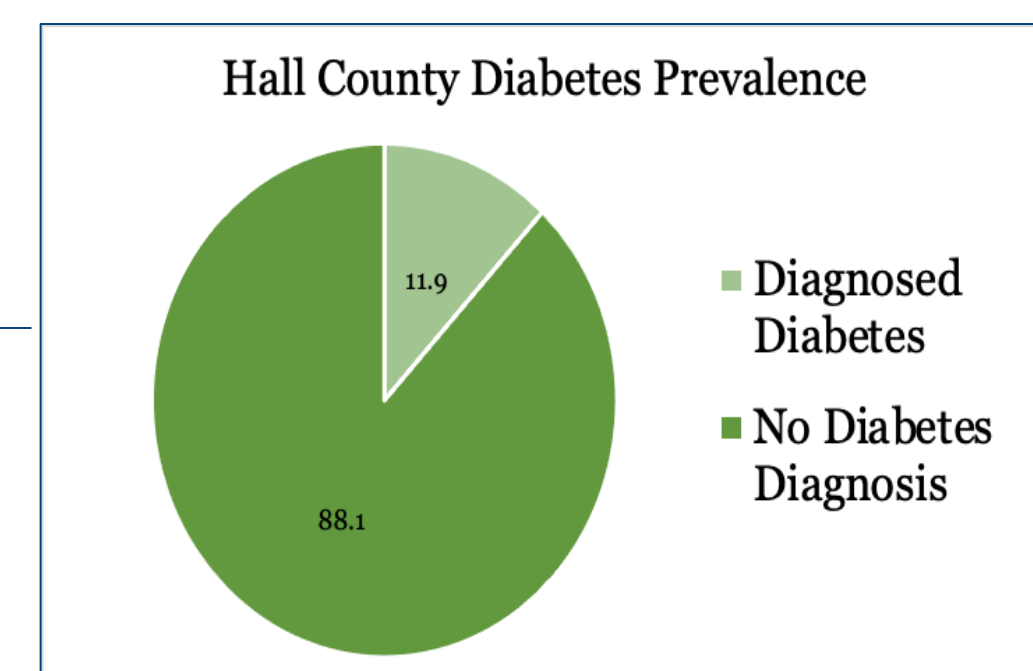


Figure 2. Diabetes in Hall County

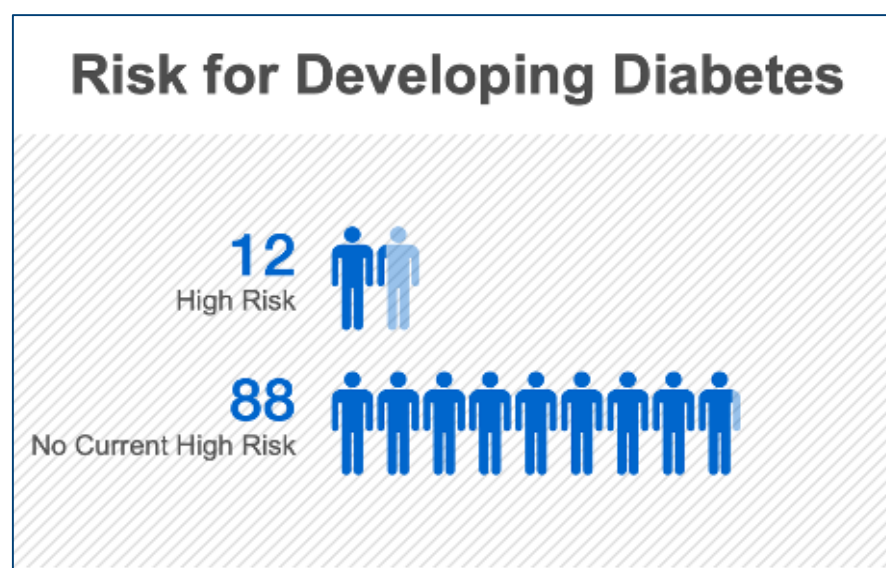


Figure 3. Hall County is classified as a high-risk county for developing diabetes, with an average above the state of Georgia.

Purpose of Study

The purpose of this study is to investigate health literacy as the source of disproportionate rates of diabetes in Spanish speaking populations through investigating A1C and BMI for Spanish speakers versus English speakers at Medical Park 2 in Gainesville, Georgia.

Research Questions

- Is there a **health literacy discrepancy** between English- and Spanish-speaking diabetic patients?
- Do Spanish- and English-speaking patients have significant statistical **differences in biological markers** indicative of diabetes?
- Is there a **correlation between A1C and Health Literacy Score**?

Methodology

Retrospective Chart Review Between

2017 - 2022

- IRB-approved
- Data sets derived from retrospective the NGHS Deidentified Clinical Research Data Platform (QLIK) Patients at Medical Park 2
- Patients selected using inclusion and exclusion factors (Table 1)
- Examine charts of Spanish-speaking vs. English-speaking patients

Inclusion Factors	Exclusion Factors
<ul style="list-style-type: none"> Have diagnosed prediabetes, Type 1 Diabetes, or Type 2 Diabetes Older than 18 Male or Female Sex Have measured A1C & BMI levels Patient at Medical Park 2 Preference for patient's whose primary language is Spanish (compare to English speaking patients) 	<ul style="list-style-type: none"> Age less than 18 Speaking any language other than Spanish or English as their first language Have not had any follow up appointments Have no lab tests conducted since becoming a patient at Medical Park 2

Table 1. Inclusion and Exclusion Factors

Survey Administration

Studied Two Patient Populations at Medical Park 2:

- Spanish-speaking with diabetes
 - English-speaking with diabetes
- 14 Questions in English and Spanish included on the survey.
Recruited via flyers posted at Medical Park 2 with study information and a QR code for the Qualtrics survey.



At the grocery store, what do you look for on the shelves?

You eat an entire package of chips. How many carbohydrates did you eat?
Accompanied by a nutritional label

Data Analysis

The data set pulled from QLIK for patients at Medical Park 2 following inclusion factors identified 129 English-speaking patients and 6 Spanish-speaking patients. While this data set is not large enough for statistical significance, there are inferences that can be drawn to promote future research as indicated. For the survey, there were only 2 responses received, and no inferences could be determined.

Average BMI

The data analysis compared the average BMI of English- and Spanish-speaking patients, showing that the Spanish-speaking population had an average BMI of nearly 4 points higher, ranking in the morbidly obese class 3. (Figure 4)

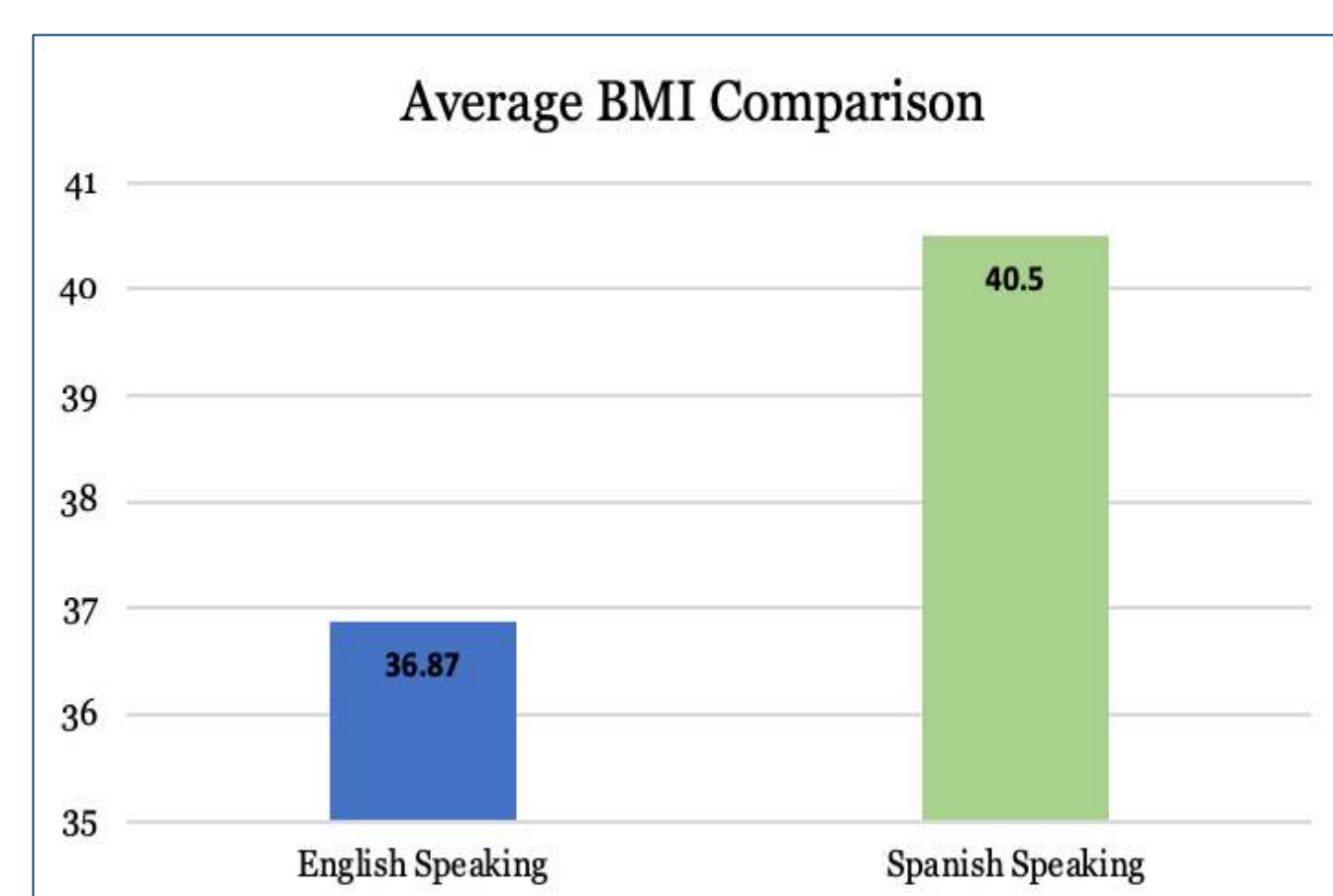


Figure 4. Comparison of average BMI for English and Spanish-speaking patients from data set.

Prevalence

Upon analyzing the data, the rates of prediabetes vs. diabetes diagnosis were examined in English and Spanish speakers. The graph indicates that there were no Spanish-speaking patients with prediabetes. (Figure 5)

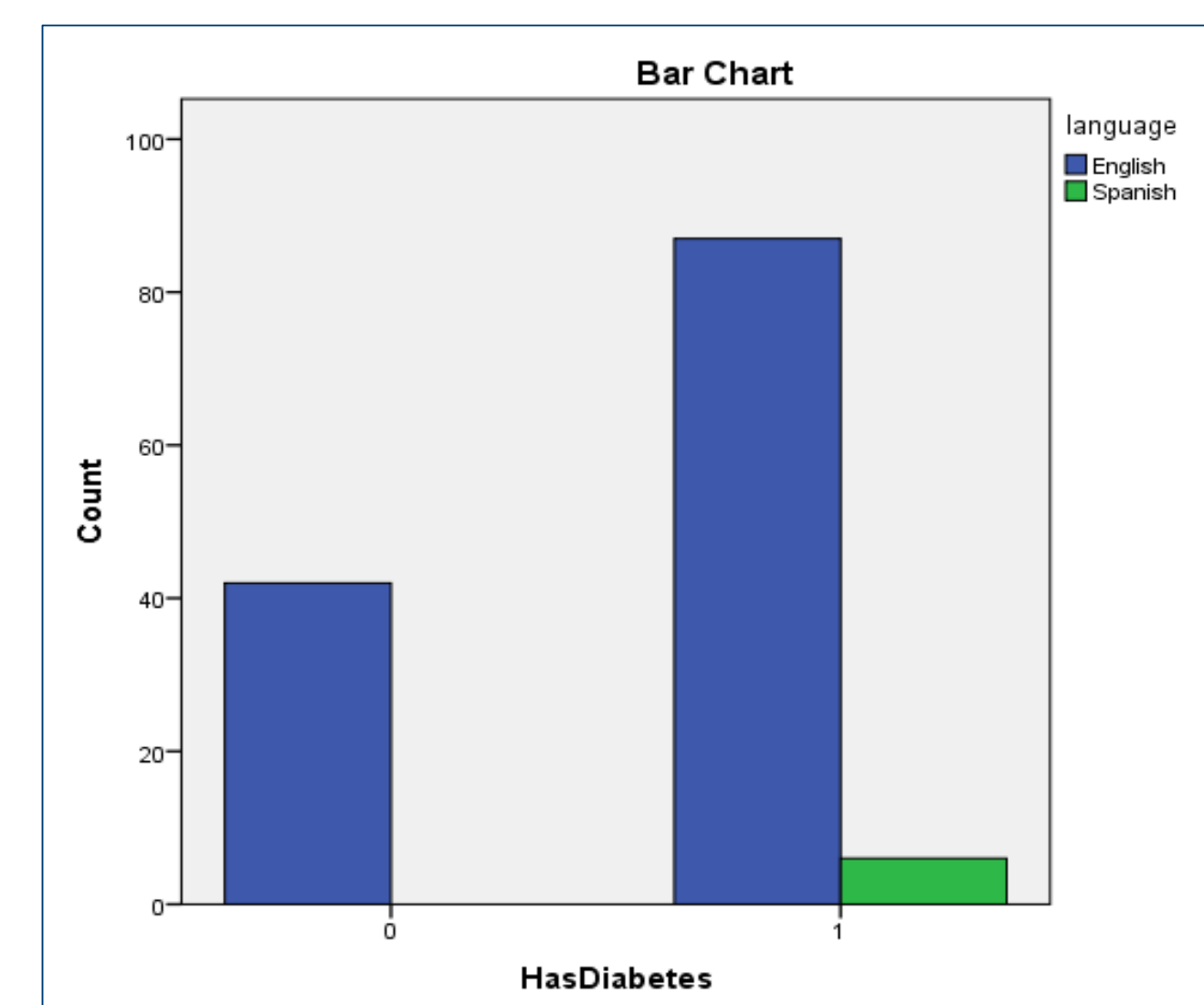


Figure 5. Bar graph comparing English and Spanish-speaking patients with prediabetes versus diabetes.

IBM SPSS 23 package was used to analyze the datasets. Both descriptive and inferential tests were utilized for both parametric and non-parametric variable.

Average A1C

The set of data looked at the average A1C for English and Spanish-speaking patients and showed Spanish-speaking diabetic patients having higher A1C levels than English-speaking diabetics. (Figure 6)

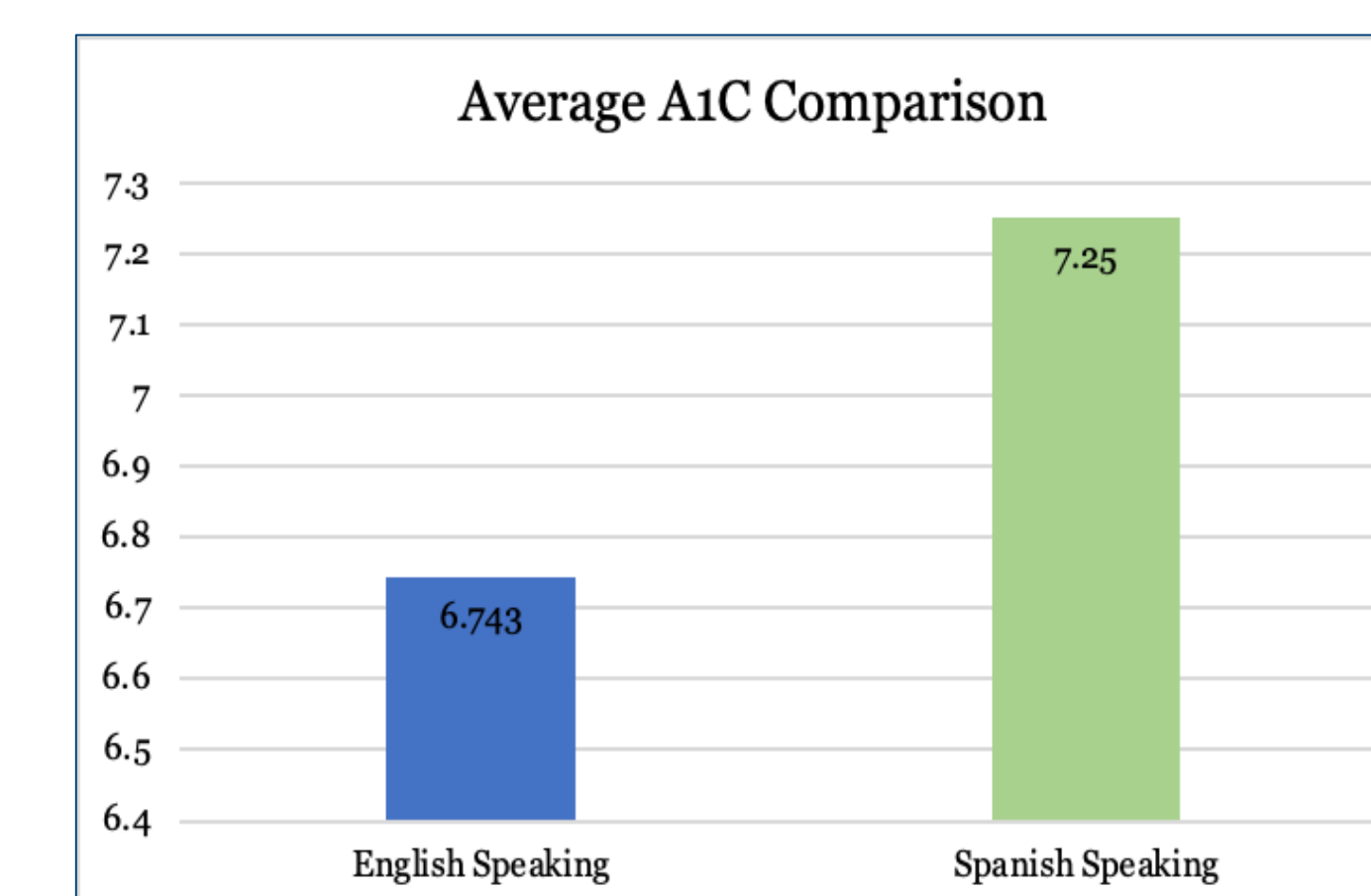


Figure 6. Comparison of average A1C for English and Spanish-speaking patients from data set.

Discussion

Data Inferences:

While not statistically significant, there are inferences that can be drawn:

- Higher A1C & BMI** in Spanish speaking patients
- More likelihood for Spanish patients to **present with Type 2 Diabetes than Prediabetes** on initial appointment

The data prompts further studies with larger sample sizes to fully investigate the statistics.

Limitations:

- Sample size of Spanish speaking patients (6)
- Limited survey responses due to delayed flyer distribution
- Time frame of one month for the study
- Initial barriers to care that Spanish speaking patients face
- Lack of documentation of Spanish as primary language in patient charts

Recommendations

- Outreach to Spanish Speaking Populations: Mobile clinics at major employers in area
- Using the patient responses to our Health Literacy survey to determine a better care plan and what level of Diabetes education they need
- Continuous administration of survey to increase sample size and better guide care
- Increasing diabetic outreach programs, especially in ESL in all healthcare systems
- Use of non-print resources that are more easily accessible via smartphone, internet resources (i.e. Phoenix Children's Hospital YouTube Videos)

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