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# Healthcare Utilization Among Hispanic Immigrants with Diabetes: Investigating the Effect of US Documentation Status

Elizabeth K. Do

*Virginia Commonwealth University, doek@vcu.edu*

Robin K. Matsuyama

*Virginia Commonwealth University, rmatsuyama@vcu.edu*

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## INTRODUCTION

Hispanics are one of the nation's largest and fastest growing minority groups.<sup>1</sup> Currently, they make up about 15% of the United States (US) population. If population trends continue, it is projected that Hispanics will more than double by 2050 and make up approximately 29% of the US population. A vast majority of this population will be of Mexican American and Central or South American descent.<sup>2</sup>

Compared to the rest of the US adult population, Hispanic adults tend to have a lower prevalence of many chronic health conditions.<sup>3</sup> However, health population-based studies report that Hispanics are disproportionately affected by diabetes<sup>4,5</sup> and tend to have worse glycemic control, in comparison to non-Hispanic whites.<sup>6,7</sup> According to the Centers for Disease Control and Prevention, diabetes is the fifth leading cause of death among Hispanics in the US and is a leading cause of heart disease, stroke, kidney disease, blindness, and amputations.<sup>8</sup>

Given that minority immigrant populations often experience health disparities in the United States, often as a consequence of access and utilization,<sup>9, 10</sup> it is important that these disparities are addressed when identified. Among the Hispanic population in particular, disparities exist in the access to health care for chronic diseases and conditions.<sup>11</sup> Differences in access to quality health care, social and cultural factors, or genetics may explain disparities in diabetes prevalence.<sup>8</sup>

Previous literature has acknowledged the barriers to health care access (i.e. insurance coverage,<sup>12, 13</sup> English language proficiency,<sup>1, 12</sup> and level of acculturation<sup>12, 14</sup>). Mainous et al. (2006) showed that Hispanics with low acculturation were more likely to be without a routine place for health care, have no health insurance, and have low levels of education.<sup>14</sup> Research has also identified where the Hispanic population generally seeks health care services (i.e.

community or public health centers<sup>1</sup>, doctor's office<sup>1</sup>, or emergency room<sup>1,15</sup>). All of these factors have an effect on healthcare utilization, or the frequency by which individuals go to see a healthcare provider. However, studies have not determined whether healthcare utilization is affected by documentation status (i.e. undocumented and documented immigrants).

The aims of this study are two-fold: (1) to determine if documented and undocumented Hispanic immigrants with diabetes differ by health insurance status and having a usual place of care and (2) to investigate the effect that documentation status has on health care utilization among diabetic Hispanic immigrants. Since health insurance enrollment requires proof of citizenship, undocumented immigrants may be left without health care coverage. This limits where they are able to go for affordable health care services. Thus, we are first hypothesizing that documented Hispanic immigrants with diabetes are more likely to have health insurance and a usual source of care compared to undocumented Hispanic immigrants with diabetes. If we assume that having health insurance and a usual source of care increases the likelihood of having visited a healthcare provider in the last six months, we can then hypothesize that undocumented Hispanic immigrants will be less likely to have visited a healthcare provider in the last six months, when compared to documented Hispanic immigrants.

## **METHODS**

### **Data Source**

A secondary analysis of data from the 2007 Hispanic Healthcare Survey was conducted using a cross-sectional study design. The 2007 Hispanic Healthcare Survey was a public opinion survey conducted by the Pew Hispanic Center and the Robert Wood Johnson Foundation.<sup>16</sup> The survey was designed to provide up-to-date, accurate information on Hispanics and health care in the US. Specifically, it explores how the diverse characteristics of the Hispanic population

influence their health information needs, their help-seeking behaviors, their access to health services, their perceptions of the quality of health care, and their level of understanding of chronic disease.<sup>3</sup>

All interviews were conducted using trained interviewers on the Computer Assisted Telephone Interviewing (CATI) system. Sampling weights were applied to yield a statistically representative sample of Latinos within the contiguous US. This survey was administered to both males and females of Hispanic origin or descent from July 16, 2007 to September 23, 2007. The population surveyed included Hispanic immigrants aged 18 to 97. A total of 4,013 respondents were randomly selected from stratified listings of telephone area codes and surveyed for the 2007 Hispanic Healthcare Survey.<sup>17</sup> Overall, this study had a response rate of 46.3%.<sup>3</sup>

For this secondary analysis, subjects were included if they were Hispanic immigrants who were born in Mexico, the Caribbean, Central America, or South America and were diagnosed with diabetes by a physician or healthcare provider. Only 527 individuals met these eligibility criteria and were included in analyses.

### **Characteristics of Interest**

A variety of variables were hypothesized to affect the relationship between the outcome of interest (health care utilization, as measured by “time since last healthcare visit”) and the risk factor of interest (“documentation status”). The following variables were included in the secondary analysis, as potential confounders: gender, place of origin, perceived health status, having a usual source of healthcare, place of usual care, quality of healthcare received, age, marital status and education status. All variables were categorical, except for age which was a continuous variable.

### **Data Management and Coding**

The outcome variable was determined by the following question, “About how long has it been since you last saw a doctor or another health care provider about your health? Has it been...?” The answers in the original dataset included: “6 months or less”, “more than 6 months, but more than 1 year ago”, “more than 1 year ago, but not more than 3 years ago, more than 3 years”, “never”, “don’t know” and “refused”. These answer choices were re-coded into a dichotomous variable; the two categories were relabeled “six months ago or less” or “more than six months ago, including never”.

The risk factor was documentation status and was coded as either “documented immigrant” or “undocumented immigrant”. For the purposes of this study, an undocumented immigrant was defined as an individual who was neither a citizen nor legal permanent resident of the US. This was determined through a few different questions. Firstly, it was determined if the respondent was born outside of the United States, then it was determined whether the respondent was a naturalized citizen or legal resident. If a respondent responded that he/she was foreign born, but neither a (naturalized) citizen nor legal resident then he/she was categorized as an “undocumented immigrant.” If the respondent replied that he/she was born outside of the United States and either a (naturalized) citizen or a legal resident, then he/she was categorized as a “documented immigrant”.

Potential confounders were also categorized. Gender was categorized into “male” or “female.” Place of origin was coded as “Mexico” or “other country of origin”, due to sample size needed for analysis. Perceived health status was coded as “excellent, very good or good” versus “fair or poor”. Having a usual place of healthcare was coded as “having at least one place of usual care” or “no usual place of care”. Place of usual care was coded as “community clinic or health center”, “doctor’s office”, “hospital” or “other place”. Age was treated as a continuous

variable, ranging from 18 to 97. Marital status was divided into the categories “married or have a partner” or “widowed, divorced, separated or never been married“. Education status was coded as “less than high school education”, “high school diploma or GED”, “some college, including technical/vocational training”, and “college graduate and higher”.

### **Statistical Analysis**

Data analyses were conducted using SAS/STAT ® software (version 9.2, SAS Institute Inc, Cary, NC). Simple descriptive characteristics were calculated. A chi square test was used to determine where differences between documented and undocumented Hispanic immigrants existed. To estimate the association between documentation status and healthcare utilization, logistic regression methods were employed using SAS/STAT procedure SURVEYLOGISTIC. Potential confounders, first identified in the literature and then confirmed in bivariate analyses, were included in the final model. All analyses were performed using weights to allow for generalizability to the greater US population. These weights were already included in the dataset obtained from the Hispanic Healthcare Survey.

## **RESULTS**

### **Descriptive Statistics of the Sample Population**

Five hundred and twenty seven Hispanic immigrants from Mexico, the Caribbean, Central America, or South America reported having been diagnosed with diabetes. Approximately half were male and half were female. The mean age of the respondents was 51.7 years (SE = 16.7). The sample consisted of 75.6% individuals of Mexican origin and 24.4% of another country of origin. Of these respondents, 80.1% were documented Hispanic immigrants and 19.9% were undocumented Hispanic immigrants. In terms of education, 51.7% had less than

a high school education, 26.1% had a high school diploma or GED, 16.0% had some college education, and 6.2% had a college degree or higher.

(Insert Table 1. Demographic Characteristics.)

### **Differences between Documented and Undocumented Hispanic Immigrants with Diabetes**

A chi-square test was performed to determine if documented and undocumented Hispanic immigrants with diabetes were distributed differently across the variables of interest. As Table 2 shows, this test indicated that significant differences in the distribution of documented and undocumented Hispanic immigrants with diabetes existed for the following variables of interest: time since last healthcare visit, country of origin, education status, usual source of healthcare, place of usual care, quality of healthcare received, health insurance status, and marital status. A t-test was performed to see if differences existed between documented and undocumented immigrants in relation to age. However, no statistically significant difference was found between the mean age of documented and undocumented Hispanic immigrants with diabetes.

(Insert Table 2. Differences between Documented and Undocumented Diabetic Hispanic Immigrants.)

### **Weighted Multivariate Analyses**

The results of the weighted multivariate analyses controlling for potential confounders are shown in Table 3, using documented Hispanic immigrants with diabetes as the reference group. Even after taking confounding factors into account, undocumented Hispanic immigrants with diabetes faced higher odds of having seen a healthcare provider more than six months ago, or never, when compared to documented Hispanic immigrants with diabetes (adjusted OR = 1.79; 95% CI = 1.01, 3.18). Undocumented immigrants were also more likely to have no usual place of care (adjusted OR = 5.49; 95% CI = 1.57, 19.16) and lack health insurance (adjusted OR

= 3.05; 95% CI = 1.81, 5.17), when compared to documented immigrants. They were however, less likely to consider their health to be “excellent, very good, or good” (adjusted OR = 0.38; 95% CI = 0.18, 0.80) and less likely to be female (adjusted OR = 0.48; 95% CI = 0.27, 0.84), when compared to documented immigrants. The main determinants of healthcare utilization among Hispanic immigrants with diabetes are gender, current health status, usual source of care, and health insurance.

(Insert Table 3. Weighted Multivariate Analyses)

## **DISCUSSION**

The findings of this study agree with that found in the current literature investigating healthcare utilization within Hispanic immigrants, but also adds to it by examining the effect of documentation status. This study has demonstrated that documentation status, gender, having a usual place of care, and having health insurance have an effect on a Hispanic immigrant with diabetes’ choice to see a healthcare provider more than six months ago.

To make sense of the role that documentation status plays on healthcare utilization by Hispanic immigrants with diabetes, we have to acknowledge the differences between these two groups. Although a majority of both documented and undocumented Hispanic immigrants with diabetes in this study indicated their health to be “fair or poor,” documented Hispanic immigrants with diabetes were more likely to have seen a healthcare provider in the last six months, when compared to undocumented Hispanic immigrants with diabetes. Reasons for this appear to be related to healthcare access. As hypothesized, undocumented Hispanic immigrants with diabetes lacking a usual place of care and/or health insurance were less likely to have seen a healthcare provider in the last six months.



Regarding gender, females were more likely to have seen a healthcare provider in the last six months, when compared to males. This is true of diabetes, but also true of women in general, according to current literature. Owens (2008) found that women tend to use significantly more services and spend more health care dollars than men. The greatest cost disparity in healthcare service and expenditures between men and women exists in the population aged 45 to 64 years.<sup>18</sup> Given the risk of diabetes generally increases with age, and that the mean age of Hispanic immigrants with diabetes in this study was 51.7 years, this age group may be a good one to observe in future studies.

All of these findings have public health practice implications tied to economic costs. Previous studies have demonstrated that health care costs can escalate due to a lack of proper management of chronic medical conditions, such as diabetes. Complications with diabetes require greater medical attention, at a greater cost. One study examining glycemic control across different races/ethnicities indicated that when compared to non-Hispanic whites, Hispanics are more likely to be pharmacologically treated and have higher rates of diabetes complications such as end-stage renal disease, retinopathy, blindness, and neuropathy.<sup>19</sup> Many of the diabetes complications were attributed to problems with glycemic control, which was associated with many of the same characteristics examined in this study: namely, a lack of usual care among the Hispanic population with diabetes, a lack of health insurance, and perceived healthcare status.

Since undocumented Hispanic immigrants with diabetes are unlikely to have seen their healthcare provider in the last six months, due to a lack of health care and/or a usual place of care, we can assume that at least some members of this population might not be able to manage their diabetes properly. These individuals are at risk of developing diabetes-related

complications, which translates to higher healthcare costs. Often, when the cost becomes too high, the burden is placed onto publicly funded health services.<sup>20</sup>

Although we are uncertain exactly what percentage of the nation's spending on direct medical costs can be attributed to this problem, we do know that the Centers for Disease Control and Prevention has previously reported that the treatment of chronic conditions costs \$1.5 trillion a year, or 75% of the nation's spending on direct medical costs.<sup>21</sup>

## **LIMITATIONS**

Like many other studies, this study has its limitations. First, since this study uses cross-sectional data to conduct a secondary analysis, conclusions cannot be reached regarding causation. Similarly, the directionality of the association between the variables cannot be determined. Despite this particular limitation, this study does investigate associations that have not been considered in previously published literature and its ideas can be expanded on in future research.

Secondly, since health care utilization was measured using a single item from the Pew Hispanic Center's questionnaire, it cannot reflect other dimensions of health care utilization, such as the type of healthcare visit and/or the reason for the healthcare visit. Knowing this information would be useful in future analysis, particularly if researchers are interested in looking at associations between documentation status and healthcare utilization of Hispanic immigrants with diabetes more closely. Furthermore, it is possible that other variables not examined may have additional explanatory value beyond those included in this particular study. Nonetheless, the use of this single item still provided us with important information regarding the relationship between documentation status and healthcare utilization. Examining healthcare

utilization from the scope of documentation status is novel, so the amount of information that can be obtained from current survey instruments is limited to what is available.

A third limitation relates to the response rate of the study. Given that the response rate was 46.3%, it is possible that prevalence estimates may be subject to sampling bias. One source of potential bias could be in the selection of participants. Specifically, self-selection bias may have occurred during data collection, whereby “documented” Hispanic immigrants were more inclined to participate in the study and answer survey questions than “undocumented” Hispanic immigrants – possibly due to fears of legal authorities. To illustrate this point: 80% of respondents within this study were “documented” Hispanic immigrants with diabetes and 20% were “undocumented” Hispanic immigrants with diabetes. The reason why this is an important limitation is that it has the potential to affect the accuracy and/or reliability of the responses received. To mitigate this, inclusion and exclusion criteria were applied and respondents were allocated to each group accordingly. However, it is possible that some of the respondents chose to answer differently than is true (i.e. replied that they were citizens when they actually were not), which might have resulted in an undercount of “undocumented” Hispanic immigrants with diabetes. Thus, our findings might underestimate the associations found for “undocumented” Hispanic immigrants with diabetes.

## **CONCLUSION**

Unique opportunities in addressing healthcare disparities can be found in focusing on the Hispanic immigrant population living with diabetes. If we want to search for strategies to reduce health care expenditures, more attention should be focused on addressing healthcare disparities. As stated earlier, documentation status, gender, having a usual place of care, and having health insurance have an effect the decision to see a healthcare provider by Hispanic immigrants with

diabetes. Although we know from this study that healthcare utilization is not the same across documentation status, we are unable to identify causal pathways for this phenomenon due to the use of cross-sectional data. Thus, to further understand what other factors may be influencing the decision to see a healthcare provider, studies that involve primary data collection and qualitative research methods should be conducted.

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