University of Cincinnati

Date: 7/9/2015

I, Roseline Jindori Yunusa Vakkai, hereby submit this original work as part of the requirements for the degree of Doctor of Philosophy in Health Education.

It is entitled:
Health Status, Health Care Access, Literacy and Numeracy among Members of Immigrant Communities: The Relationship of Perceptions, Awareness and Concerns Regarding the Health Care Act

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Health Status, Health Care Access, Literacy & Numeracy among Members of Immigrant Communities: The Relationship of Perceptions, Awareness & Concerns Regarding the Health Care Act

A dissertation
Submitted to the Graduate School of the University of Cincinnati In partial fulfillment of the requirements for the degree of Doctor of Philosophy to the Health Promotion and Education Program

By

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M.S. Miami University Oxford Ohio (2012)

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ABSTRACT

AN ABSTRACT OF THE DISSERTATION FOR THE DOCTOR OF PHILOSOPHY DEGREE IN HEALTH PROMOTION AND EDUCATION, PRESENTED ON JULY 9, 2015 AT THE UNIVERSITY OF CINCINNATI, CINCINNATI, OH

TITLE: Health Status, Health Care Access, Literacy & Numeracy among Members of Immigrant Communities: The Relationship of Perceptions, Awareness & Concerns Regarding the Health Care Act

DOCTORAL COMMITTEE MEMBERS: Liliana Rojas-Guyler (chair), Laura Nabors, and Amy Bernard.

For this dissertation two studies were conducted. The first part of the abstract addresses the manuscript from the first study and the second part addresses the second manuscript from the second study. Manuscript one aimed to explore the relationship between demographic variables, literacy, numeracy, general health status, health care access factors and marketplace utilization among citizens and immigrants in the United States. Manuscript two examined and compared the relationships between immigrants’ and citizens’ awareness, perceptions, concerns in relation to the Affordable Health Care Act and Marketplace utilization.

Manuscript One Abstract

Introduction: This study aimed to explore the relationship between demographic variables, literacy, numeracy, general health status, health care access factors and marketplace utilization among citizens and immigrants in the United States. Method: This study was carried
out as a secondary data analysis of an internet based survey of U.S. residents who responded to the 2014 fourth quarter Urban Institute’s Health Reform Monitoring Survey (HRMS). A subsample of immigrants who participated in the HRMS was selected for secondary data analysis (n= 369). Twenty-one outcomes of interest were selected including demographic characteristics, literacy, numeracy, health status, health care access, and Marketplace utilization. Results: Regression analyses indicated that numeracy and age were predictors of general health status among immigrants. Chi square analyses indicated that age is associated with health care access among this sample of immigrants. A minority of immigrants report utilizing the Marketplace to purchase their health insurance coverage. Discussion: Further research is needed to explore these relationships with a more representative sample of immigrants.

Manuscript Two Abstract

Introduction: This study examined and compared the relationships between immigrants’ and citizens’ awareness, perceptions, concerns in relation to the Affordable Health Care Act and Marketplace utilization. Method: A secondary data analysis of participants who self-identified as citizens and non-U.S. citizens was carried out. The entire fourth quarter 2014 survey sample made up of citizens and immigrants was used. Specific questions that were utilized in this study included demographic items such as gender, age, ethnicity/race, employment status, marital status, education, perceptions regarding the Affordable Healthcare Act (ACA), awareness of the Marketplace and concern. Results: Analyses indicated that citizens have less favorable opinions about the ACA than do immigrants. Awareness was higher among immigrants and immigrants were more likely to report having used the marketplace than citizens. Results further indicated that citizens were less likely than immigrants to report knowing someone with concerns that
affect utilization of the Marketplace. Discussion: Findings can be utilized to further research these variables with a more comprehensive survey and more representative sample.
Immigrants, Health Status, Access, and the ACA
ACKNOWLEDGMENTS

This work is dedicated to God, my source of provision and strength, my only companion over the years.

Dr Liliana Rojas-Guyler: You have taught me the delicate balance between graciousness and professionalism. You created a safe space for my thoughts and opinions. You were never too busy to walk me through my thoughts and shape me academically. You were and are by far my biggest support during my study. You have become my family, and I will tell the world about you.

Dr. Laura Nabors: Your motivation, politeness, academic support made you one of my favorite professors. You never made me feel insignificant. I know you will be part of my life and my professional development.

Dr. Amy Bernard: you are not only my committee member, but one professor that had time for me both personally and academically. And I know you will always be a part of my career.

To My program coordinator Dr. Keith King: what counts in life is not the life we have lived, but the difference we have made to the lives that cross our path, that is what will determine the significance of the life we lead. You have made a difference to my life. Thank you for giving me a life-time opportunity.

Dr. Janet Graden: The lady with a “Golden Heart.” Thank you for giving me a chance when it was in your power to do so; I am able to complete my program because you gave me funding.

To my friend and great supporter Pat Borusiewicz, (Mrs B) I will carry you in my heart forever.
To all of my professors, staff and colleagues at the Health Promotion Education Program, thank you for your scholarship, support and for listening and giving me words of encouragement.

To Jill Morris, Patricia and Ron Ellis, Dr. and Dr. Mrs. Ayodele Abatan and their families’ thank you for being my family away from home.

I am also deeply grateful to my family. I say, “God bless and keep you all”. To my Dad, I will always miss you; to my Mum I say, “thank you ma”. A special thank you to my younger sister Grace Magaji Vakkai, your spiritual focus, companionship and holding me accountable has shaped who I am. Comfort Dominic Vakkai your strength in the face of adversity makes me ashamed of my weakness in the face of good times. To Victor Bala Kona, Pastor Tayo Fatinkun, Justice Babatude, and Adeniran Adejimo, thank you for your support. Also a special thank you to Mohammed Diop and his family for their continued support.

To Awal Kelvin and Aisha Valeri Yunusa: You are both my casualty and rocks. My wish for you both is to dream so big that you have to grow into it. My prayer is that you will know love beyond your understanding; and may the smile of God always lighten your paths. And above all, have no regards for the five years of our separation; our stories are truly ours to write, let’s write it with thanks giving to the lord.

Through these individuals and collectives, I gathered the strength I needed to get this program and dissertation done. Na Gode (Thank you All)!
# TABLE OF CONTENTS

ABSTRACT .................................................................................................................................... ii  
ACKNOWLEDGMENTS ............................................................................................................. vi  
LIST OF TABLES .......................................................................................................................... x  
INTRODUCTION ......................................................................................................................... xi  
Manuscript 1: The Relationship between Demographic Variables, Literacy, Numeracy, Health Status, Health Care Access, and ACA Marketplace Utilization among Immigrants in the U.S. ... 1  
Introduction ..................................................................................................................................... 2  
  Purpose of the Study ................................................................................................................ 3  
  Significance of the Study ........................................................................................................ 3  
The Health Status of Immigrants ............................................................................................. 4  
Education, Literacy and Numeracy ......................................................................................... 5  
  Educational Levels and Language Barriers ........................................................................ 5  
  Literacy and Numeracy ....................................................................................................... 6  
Health Care Access .................................................................................................................. 7  
The Affordable Health Care Act and The Marketplace Utilization ........................................ 8  
Research Questions .................................................................................................................. 8  
Method ............................................................................................................................................ 9  
  Instrumentation .................................................................................................................... 9  
  Data Analysis ..................................................................................................................... 10  
Results ........................................................................................................................................... 11  
  Demographic Characteristics of the Sample ..................................................................... 11  
  Literacy and Numeracy .................................................................................................. 13  
  Health and Health Status ............................................................................................... 13  
  Health Care Access ........................................................................................................... 14  
  Inferential Results ............................................................................................................ 15  
Discussion ..................................................................................................................................... 16  
  Recommendations ............................................................................................................ 20  
  Limitations ......................................................................................................................... 21  
Conclusion .................................................................................................................................... 21  
References ..................................................................................................................................... 23
LIST OF TABLES

Table 1 Demographics .................................................................................................................. 12
Table 2 Literacy and Numeracy.................................................................................................... 13
Table 3 Health Status.................................................................................................................... 14
Table 4 Health Care Access, Barriers and Marketplace Utilization ............................................. 15
Table 5 Demographics .................................................................................................................. 41
Table 6 Concern, Awareness and Perceptions related to ACA Marketplace ............................... 43
Table 7 Health Care Access Variables Recoding ......................................................................... 62
INTRODUCTION

Immigration is a phenomenon that has increased considerably across the globe, but more so in the United States (U.S.). According to the U.S. Census Bureau (2011), the influx of immigrants has increased over the past two decades, the number of immigrants grew from 9.6 million in 1970 to 40.4 million in 2011. Immigrants make 13% of the total U.S. population. The country is now more diverse, so it is increasingly important to understand the diversity of cultures, ethnicity, languages and health care practices among the different populations in the country (Davis, Williams, Marin, Parker, and Glass, 2002; U.S. Department of Health and Human Services [UDHHS] 2001).

Although there is a dearth of information about the general health status of most immigrant groups in America, it is well documented that they are generally healthier at arrival, but at increased risk of developing chronic diseases within the first year of arrival (Venters & Gany 2011; Stimpson, Wilson, & Eschbach, 2010). On March 23, 2010 a new health care law was signed in to law, known as the Patient Protection and Affordable Care Act Law (PPACA) or Obama Care. Thus, the decisions about who should belong to the health care community, and who could receive care and who could not were ultimately seen as a public health concern (Galarneau, 2011). It is important to continue the conversation on how lack of health care can greatly impact immigrants’ health and general wellbeing. And to look at the consequences of health policy laws such as the Affordable Care Act (ACA) and the effect of potentially key factors such as health insurance, a major contributor to health care access and health care services among immigrants.

This study carried out a secondary review of the 2014 Health Reform Monitoring Survey (HRMS), a survey quarterly administered by the Urban Institute around the country. The survey
is administered via the internet to determine adults’ perceptions of the Affordable Care Act. Topics covered by the HRMS included self-reported health status, type of and satisfaction with current health insurance coverage, access to and use of health care systems, health care affordability, awareness of key provisions of the ACA, opinions about the ACA, sources of information about the health plans in the ACA health insurance exchanges (healthcare.gov), and the importance of various criteria in choosing health insurance plans along with demographic characteristics, literacy and numeracy (Holahan & Long, 2014). The present study examined the differences between health care use and demographic variables such as age, gender education and occupation. One aim was to compare the demographic variables among the immigrants, especially in determining whether factors such as literacy, numeracy, age or gender were predictors of health status and Marketplace utilization among immigrants. Another aim was to study the immigrants’ perceptions, awareness and concerns regarding the Health Care Act based on self-reported answers to questions on the 2014 Q4 HRMS.

Two separate manuscripts were produced to answer the four research questions. The first manuscript entitled: “The Relationship between Demographic Variables, Literacy, Numeracy, Health Status, Health Care Access and Marketplace Use among Immigrants in the United States” answered the following two questions: 1) Are age, gender, literacy, or numeracy predictors of health status among immigrants? And 2) Are age, gender, literacy, or numeracy associated with health care access factors and Marketplace utilization? The second manuscript entitled: “Awareness, Perceptions, Concerns and Utilization of the Health Care Act among Immigrants in the U.S.” answered the following two questions: 1) Is there a difference in perception of the Affordable Care Act between citizens and immigrants? 2) Is there a difference in awareness of the Affordable Care Act between citizens and immigrants? 3) Does the level of Marketplace
utilization differ between citizens and immigrants? And 4) What relationships exist between Marketplace utilization and concerns related to legal status?
Manuscript 1: The Relationship between Demographic Variables, Literacy, Numeracy, Health Status, Health Care Access, and ACA Marketplace Utilization among Immigrants in the U.S.
Introduction

Socio-demographic variables are important predictors of people’s health, and significantly influence both access to care and utilization of services. An individual's health is not determined only by biology, but also by other factors, among which are: social factors, income, social inclusion/exclusion, level of literacy, employment status, work conditions, and housing. These variables are important and play crucial role in the prevention and treatment of disease and poor health, in the delivery of health services that impact health outcomes, and in the long run health status (Gelberg, Andersen, & Leake, 2000; Office of Behavioral and Social Sciences Research, 2001; Public Health Agency of Canada, 2005). Immigrants’ health has been shown to change within the first year after arrival (Venters & Gany, 2011; Stimpson, Wilson, & Eschbach, 2010). This could be due to several factors such as social exclusion, unequal access to health care, and stress induced by personal experiences of racial bias. Even when they have access to care, immigrants often report more unmet medical needs. They also tend to report experiencing bias and a lack of respect from those working in the healthcare system when seeking health care (Pumariega, Rothe, & Pumariega, 2005). Addressing these contributing factors is important, especially in light of the potential consequences of chronic conditions. For example, it has been reported that chronic diseases such as type II diabetes can lead to pain, functional impairment, social and emotional dysfunction, and premature loss of wage earnings (Chen, Rizzo, & Rodriguez, 2011). Further complicating the issue is the limited English proficiency as well as lower educational achievement and literacy that may be present among immigrants (Ortega, Rodriguez, & Vargas Bustamante, 2015).
Purpose of the Study

This study aimed to explore the relationship between demographic variables, literacy, numeracy, general health status, health care access factors and marketplace utilization among citizens and immigrants in the United States.

Significance of the Study

The health education needs of immigrant communities are diverse and dynamic. Recent immigrants are often unfamiliar with the health care system in their new destinations, but even more so when there are fundamental differences in the language and the culture of the organization. Differences in organizational settings can be barriers, which may cause problems if immigrants do not know how to navigate needed services or seek health-related information. The few options immigrants have in obtaining high-quality and affordable health care have limited their healthcare access and utilization (Stimpson, Wilson, & Eschbach, 2010). Thus, limiting their health care availability is likely to aggravate undiagnosed illnesses among undocumented immigrants. Unless current trends are reversed, these disparities in healthcare access and utilization between documented and undocumented immigrants will grow (Bustamante et al., 2012).

Understanding the relationship between health status, literacy, numeracy, health care access and marketplace utilization among immigrants is essential to the development of appropriate health education programs. As both the country demographic profile and the health care access systems change, health educators find themselves in great need of up-to-date and community-specific information. Although health status and health needs of immigrants are increasingly documented in the professional literature, there is a dearth of information about their
The Health Status of Immigrants

Immigrants of any race/ethnicity in the United States are often healthier than nonimmigrants (Grant, Stinson, Hasin, Dawson, Chou, & Anderson, 2004). Foreign-born Americans are said to have generally lower rates of mental disorders than those born in the United States, and increasing time in the United States is associated with increasing rates of mental health problems among immigrants (Alegria, Canino, Ríos, Vera, Calderón, Rusch, & Ortega, 2014; Williams & Collins, 2001). Dey & Lucas (2006) reported that white immigrant adults were healthier than their U.S.-born counterparts since immigrants have fewer bed days, are less likely to be obese or a current smoker, and had fewer health risk factors and chronic diseases than their U.S.-born counterparts. In terms of diseases, U.S.-born adults were almost 50% more likely to be obese than their immigrant counterparts (23% compared with 16%). The prevalence of smoking, hypertension, and cardiovascular diseases was also higher among U.S.-born adults than their immigrant counterparts (Dey & Lucas, 2006). The claim of better health among immigrants could be true of the hypothesis that migration is selective of the strong and persons (Koya, & Egede, 2007). However, an understanding of immigrant’s health status will require an understanding of factors that influence their health and health care seeking behavior. One such factor is their level of education, which include their ability to read and use numbers.
Education, Literacy and Numeracy

Considering the overall educational level, literacy and numeracy, the presence of language barriers and their impact on health care access among immigrants is of high importance to those planning health programs for immigrant communities.

Educational Levels and Language Barriers.

Education is shown to be a powerful determinant of health (Cutler, Lleras-Muney, & Vogl, 2008). This is because education shapes behaviors, the ability to process new information, and preparedness to understand and use new technologies. According to the U.S. Department of Health and Human Services (2001), individuals with limited English proficiency (LEP) may be limited in health literacy, and lack skills needed to obtain, process, and understand basic health information and services needed to make appropriate health decisions as well as navigate the healthcare system (2001). This notion has been supported by other research findings. For instance, Dallo and Wilson (2009) found that foreign-born persons, as a group, have lower educational levels, making reading and understanding of health materials a challenge. Also, linguistic barriers are responsible for communication problems between health care providers and immigrants, which can lead to misinterpretation of information. Language and educational barriers among immigrants was seen by Zanchetta et al., (2006) as the major factor impacting immigrants’ experience with the health care system, and could be a barrier to adapting to a new health culture. Eliminating these barriers has become very necessary in light of the fact that preventative health education is seen as the key to improving the health literacy. Besides, having knowledge about a disease will not only prevent it, but can increase the quality of lives, and decrease the psychological and financial stress of managing a life time chronic disease (Kapsalis, 2000; McGarry 2002; Schuller et al., 2004). Low levels of education and language barriers can
be major reasons why immigrants may be reluctant to patronize the health care system. It is also seen as impacting their experience with the health care system, and could be a barrier to adapting to a “new” health culture (Zanchetta et al., 2006). Creating more educational opportunities for immigrants may be a good place to start, because studies have shown that people with more formal education learn and know more about health issues than people with less formal education (Hyman & Sheatsley, 1947). Education is also closely linked to one’s level of literacy and numeracy.

**Literacy and Numeracy.**

Literacy is defined as one’s ability to read and understand what is read (Baker, Parker, Williams, Clark, & Nurss, 1997). Numeracy is one’s ability to effectively understand and utilize numbers and numerical information (Peters, Hibbard, Slovic, & Dieckmann, 2007). Parker et al. (1999) defined it as a constellation of skills, which includes one’s ability to perform basic reading and numerical tasks required to function in the health care environment; they added that people with adequate health literacy can read, understand, and act on health information. Higher literacy, according to Schuller, Hammond, Preston, Brassett-Grundy, and Bynner (2004), can lead to better health outcomes for individuals and reduced costs for the health care system.

Research has suggested that health literacy influences people’s lifestyles and health seeking behavior. The same suggestion was echoed by Bourne, Morris, Charles, Eldemire-Shearer, Kerr-Campbell, and Crawford, (2010) and Levin-Zamir, & Peterburg, (2001). A person’s level of education is a critical factor that helps to determine the approaches to take in obtaining health information. Also, people who cannot read or understand the words used to describe health problems, medications and directions for care may experience confusion in negotiating the health care system, and a person’s level of education, race and available resources are said to be crucial
factors that help to determine the approaches to take in obtaining health information. The problem of low literacy and low health literacy lies at the intersection of many of socioeconomic conditions, from gaps in education to the complexity of the health care system, and to individual cultural influences.

**Health Care Access**

Like newcomers in other parts of the world, immigrants in the U.S. can have problems with adapting to the new health culture, partly due to both a lack of information about the new health care availability (Zanchetta, & Poureslami, 2006). Other factors that are seen as affecting immigrants’ or increasing their challenges with health care in the U.S. range from social, cultural, religious, linguistic, geographic, as well as economic variables (Horne, Graupner, Frost, Weinman, Wright, & Hankins, 2004; Tugwell & Kristjansson, 2004). Also the structure of the U.S. health care system, as well as the social, political, and physical environment can have important implications for immigrants’ health. Furthermore, the overall health picture of most immigrants in the U.S. reflects important health disparities that exist among poor and more vulnerable populations (Shi, 2001) making the low income of immigrants also a barrier and increase their risks for experiencing “poor physical, psychological, and social health problems (Aday, 2001, p.1). Observation by Hyman (2009) indicated that immigrant patients do not have equal access to health care and even when they do, they do not feel as if they get the best medical attention from health professionals partly because of communication problems. This may explain why immigrants have a ‘negative orientation’ toward western medicine, and as such do not always participate in health screenings (2009).
The Affordable Health Care Act and The Marketplace Utilization

The Affordable Care Act (ACA) was designed to offer health care coverage for services to approximately 30 million uninsured people. It included expansions in Medicaid, maintained Medicare for seniors (about 50 million), and aimed to improve quality of care and lower costs by holding organizations accountable (Act, A. C. HHPR, 2005). The reasons and impetus for the ACA included regulating reform and creating a free market system for health care in the country. The free Marketplace was made available via an Internet portal called ‘The Health Insurance Marketplace’ where eligible buyers could compare and purchase health care coverage. The Marketplace is available as a choice in addition to the existing health insurance plans already available. There are several Marketplaces which include a combination of federal and state government-regulated and standardized health care plans (Act, A. C. HHPR, 2005). Although the goal of the online website is to ensure free, convenience and easily accessible health care services to all Americans, the online nature of the services has created problems for many people. This system can be especially burdensome for people who have lower education (literacy and numeracy), language barriers or those who lack internet access. Hence, the website use requirement can be complicated for immigrants whose level of literacy is too low to understand how to navigate the website.

Research Questions

1) Are age, gender, literacy, or numeracy level predictors of health status among immigrants?

2) Are age, gender, literacy, or numeracy level associated with health care access factors and Marketplace utilization?
Immigrants, Health Status, Access, and the ACA

Method

This study was carried out as a secondary data analysis of an internet based survey of U.S. residents who responded to the 2014 fourth quarter Urban Institute’s Health Reform Monitoring Survey (HRMS). Data used included self-reported health status, current health care coverage, type of and satisfaction with current health insurance coverage, access to and use of health care, affordability and awareness of key provisions, opinions about the ACA, selected sources of information about the ACA marketplace, and the importance of various criteria in choosing health insurance plans (Holahan & Long, 2014). A total of 7,701 U.S. residents responded to the 2014 fourth quarter Urban Institute’s Health Reform Monitoring Survey (HRMS). A subsample of immigrants who participated in the HRMS was selected for secondary data analysis (n= 369).

Instrumentation

Of the 56 questions on the original questionnaire, 21 outcomes of interest were selected. Items that measured Demographics included: 1) gender (1=male, 2=female), 2) age in years, 3) income (household income), 4) employment status (full time, part time, or not working), 5) marital status (married, widowed, divorced, separated, never married, living together), and 6) citizenship status (U.S. Citizen Yes/No). Items that measured Health and Health Status included: 7) self-reported general health status rating (1=excellent, 5=poor), 8) days of physical illness & 9) days of mental illness in the prior 30 days, 10) cigarette smoking habits (1=every day, 3=never), and 11) BMI value. Two items measured Numeracy and Literacy. One asked for 12) a self-rating of one’s ability to read (1=excellent, 5 = poor) and 13) ability to work with numbers (1=excellent, 5 = poor).
Items that measured *Health Care Access* included: 14) having a usual place for medical care (1=1 place, 2=more than 1 place, 3=no), 15) the length of time since last visited a doctor or other health care provider (1=Within the past year, 2=One or more years ago, 3=Never), 16) having health insurance or a health coverage plan (Yes/No). Items that measured *Barriers to Health Care* included 17) having trouble finding a doctor who would see them (Yes/No), 18) doctor not accepting new patients (Yes/No), 19) doctor did not accept their insurance (Yes/No), 20) trouble with timing of appointment (Yes/No), and 21) Not being able to find an appointment (Yes/No). A complete list of items and answer choices can be found in Appendix A.

**Data Analysis**

Using The Statistical Package for Social Sciences (SPSS) version 22 a series of analyses were conducted. First we checked for missing data and to measure the presence of outliers and skewness. Missing data was minimal and excluded in data analyses as either system missing or ‘missing’ (coded as values 88, 99). Skewness and Kurtosis statistics were run and evaluated. All values were between -2 and 2 and thus the sample was considered to be normally distributed (George & Mallery, 2003). Descriptive statistics were used to evaluate frequency, percent and central tendency of the data variables.

The *General Health Rating* variable was recoded into high and low ratings, values 1, 2 and 3 (Excellent, Very Good & Good) were recoded as 1, and ratings 4 and 5 (Fair & Poor) as 0. The *Literacy* and *Numeracy* variables were similarly dichotomized by recoding each variable into high and low levels. For each, ratings between 1 and 3 (Excellent, Very Good & Good) were recoded as 1, and ratings 4 and 5 (Fair & Poor) as 0. The *Barriers to Health Care* items were recoded into a single variable. The *Health Care Access* items were also recoded and combined into the *Health Care Access Summary Variable* prior to inferential analysis. Specific details and
values are found in Appendix B. Lastly, Linear Regression was utilized to answer the first research question regarding demographical predictors of health status. Chi square analysis was utilized to address the second research question regarding the association of demographics, Marketplace utilization and health care access factors.

Results

Demographic Characteristics of the Sample

The sample was mostly female with 55% (n = 203) of respondents being women, and (n = 166) 45% were male. However, it was a younger sample with the largest age bracket being 30-44 year olds (54.2%, n = 200). The mean age was 40.41 (SD = 10.073). More than half of the participants reported being married (60.7%, n = 224). A majority of the sample (66.4%, n = 245) indicated they were Hispanic. Self-reported demographic information of immigrants showed that, when it comes to education, 23.8% (n = 88) of immigrants had a Bachelor’s degree. Less than half of the immigrants participants reported they were paid workers 47.4% (n = 194). See Table 1 for full details on demographic variables.
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</tr>
<tr>
<td>2+ Races, Non-Hispanic</td>
<td></td>
<td></td>
<td>5</td>
<td>1.4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>369</td>
<td>100.0</td>
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</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Married</td>
<td></td>
<td></td>
<td>224</td>
<td>60.7</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Widowed</td>
<td></td>
<td></td>
<td>4</td>
<td>1.1</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Divorced</td>
<td></td>
<td></td>
<td>12</td>
<td>3.3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Separated</td>
<td></td>
<td></td>
<td>13</td>
<td>3.5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Never married</td>
<td></td>
<td></td>
<td>61</td>
<td>16.5</td>
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<tr>
<td>Living with partner</td>
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<td>55</td>
<td>14.9</td>
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<td>-</td>
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<tr>
<td>Total</td>
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<tr>
<td>Education</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Less than high school</td>
<td></td>
<td></td>
<td>129</td>
<td>35.0</td>
<td>-</td>
<td>-</td>
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<tr>
<td>High school</td>
<td></td>
<td></td>
<td>82</td>
<td>22.2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Some college</td>
<td></td>
<td></td>
<td>70</td>
<td>19.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bachelor’s</td>
<td></td>
<td></td>
<td>88</td>
<td>23.8</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
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<td></td>
<td>369</td>
<td>100.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Employment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid and self-employment</td>
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<td></td>
<td>208</td>
<td>56.3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Looking for work</td>
<td></td>
<td></td>
<td>54</td>
<td>14.6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Not in work force (retired, disabled, other)</td>
<td></td>
<td></td>
<td>107</td>
<td>29</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>369</td>
<td>100.0</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: missing data excluded
Immigrants, Health Status, Access, and the ACA

**Literacy and Numeracy**

The average self-reported level of literacy was 1.89 (SD = 1.024) indicating literacy between ‘Excellent’ and ‘Very Good’ (n = 268). Numeracy had an average score of 2.55 (SD = 1.228). Twenty-six percent of immigrants rated their numeracy skills as ‘good’ (n = 97) and 25% as ‘fair’ or ‘poor’. As seen in table 2, fewer participants rated their literacy as ‘Poor’ (1.4%, n = 4) when compared to numeracy (5.7%, n = 21).

<table>
<thead>
<tr>
<th>Immigrants</th>
<th>n</th>
<th>%</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Literacy</strong></td>
<td>1.89</td>
<td>1.024</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excellent</td>
<td>174</td>
<td>47.2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Very Good</td>
<td>94</td>
<td>25.5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Good</td>
<td>70</td>
<td>19.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Fair</td>
<td>25</td>
<td>6.8</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Poor</td>
<td>5</td>
<td>1.4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>369</td>
<td>100.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Numeracy</strong></td>
<td>2.55</td>
<td>1.228</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excellent</td>
<td>97</td>
<td>26.3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Very good</td>
<td>81</td>
<td>22.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Good</td>
<td>97</td>
<td>26.3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Fair</td>
<td>70</td>
<td>19.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Poor</td>
<td>21</td>
<td>5.7</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>369</td>
<td>100.0</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note: missing data excluded*

**Health and Health Status**

Approximately 12% (n = 44) of participants reported having a physical or behavioral health condition (See table 3). The average number of days of physical illness in the prior month was 4.33 (SD = 8.493) and 3.38 (SD = 7.605) for Mental Health ill days. The average General Health Status rating reported was in the ‘good’ range (Mean = 2.55, SD = 1.011). The largest reporting proportion was in the ‘very good’ range (38.0%, n = 140). However, 18% (n = 66) of immigrants
rated their health as ‘fair’ or ‘poor’. The Body Mass Index (BMI) based on self-reported weight results indicated that 36% (n = 133) had a BMI between 18.5-24.9, which based on the estimated prevalence of BMI categories using the World Health Organization standards is seen as ‘healthy’ (World Health Organization, 2000).

Table 3 Health Status

<table>
<thead>
<tr>
<th></th>
<th>Not Citizens</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
</tr>
<tr>
<td><strong>Mental or Behavioral health condition</strong></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>325</td>
</tr>
<tr>
<td>Yes</td>
<td>44</td>
</tr>
<tr>
<td>Total</td>
<td>369</td>
</tr>
<tr>
<td><strong>Smoking</strong></td>
<td></td>
</tr>
<tr>
<td>Every day</td>
<td>21</td>
</tr>
<tr>
<td>Some days</td>
<td>20</td>
</tr>
<tr>
<td>Not at all</td>
<td>58</td>
</tr>
<tr>
<td>Total</td>
<td>99</td>
</tr>
<tr>
<td><strong>Body Mass Index</strong></td>
<td></td>
</tr>
<tr>
<td>&lt;18.5</td>
<td>3</td>
</tr>
<tr>
<td>18.5-24.9</td>
<td>133</td>
</tr>
<tr>
<td>25-29.9</td>
<td>100</td>
</tr>
<tr>
<td>30 above</td>
<td>83</td>
</tr>
<tr>
<td>Total</td>
<td>369</td>
</tr>
<tr>
<td><strong>General Health Status</strong></td>
<td></td>
</tr>
<tr>
<td>Excellent</td>
<td>52</td>
</tr>
<tr>
<td>Very good</td>
<td>140</td>
</tr>
<tr>
<td>Good</td>
<td>110</td>
</tr>
<tr>
<td>Fair</td>
<td>54</td>
</tr>
<tr>
<td>Poor</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>368</td>
</tr>
</tbody>
</table>

Note: Missing data excluded

**Health Care Access**

Regarding insurance and the Marketplace, 6 out of 10 immigrants (61%, n = 225) reported having insurance as of the time of this study, and nearly one out of 10 (9.5%, n = 35) of
immigrants purchased their health insurance plan through The Marketplace (See Table 4). With regards to access and barriers, nearly 50% (49.3%, n = 182) had not been to the doctor or other health care provider for a routine checkup in more than a year and 37.1% (n = 135) did not have a place that they usually go to when they are sick or need advice about their health.

Table 4 Health Care Access, Barriers and Marketplace Utilization

<table>
<thead>
<tr>
<th>Health Care Access</th>
<th>Immigrants</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Insurance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>225</td>
<td>61.0</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>144</td>
<td>39.0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>369</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Medical Home</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>229</td>
<td>62.9</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>135</td>
<td>37.1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>364</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Length since last doctor visit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within last year</td>
<td>182</td>
<td>50.0</td>
<td></td>
</tr>
<tr>
<td>Longer than 12 months</td>
<td>182</td>
<td>50.0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>364</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Barriers to Health Care</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 Barriers</td>
<td>57</td>
<td>22.6</td>
<td></td>
</tr>
<tr>
<td>1 &gt; Barriers</td>
<td>195</td>
<td>77.4</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>252</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Used the ACA Marketplace to purchase current insurance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>45</td>
<td>19.2</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>189</td>
<td>80.8</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>234</td>
<td>100.0</td>
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</tr>
</tbody>
</table>

Note: Missing data excluded

Inferential Results

To answer the first question on this manuscript, *Are age, gender, literacy, or numeracy level predictors of health status among immigrants?* a Linear Regression analysis was used. Results indicated that the model was significant, $F(5, 369) = 8.807 \ p \leq .001$. This model predicted 10.9% of the variance in General Health Status. A follow up Stepwise Regression was conducted...
to explore the relationship between age, gender, literacy, numeracy and their interactions. This model showed significance as well \( (F (2,364) = 22.11, p \leq .001) \) with Numeracy predicting 9.3% of the variance \( (\text{Beta} = .293, \ SE = .044, \ t = 5.88, \ p \leq .001) \) and Age predicting an additional 1.6% of the variance \( (\text{Beta} = -.126, \ SE = .027, \ t = -2.529, \ p = .012) \). Literacy, gender or the interaction of Literacy and Numeracy were not predictors of variance in General Health Status.

The second research question—Are age, gender, literacy, or numeracy level associated with health care access factors and Marketplace utilization? was answered using Chi Square testing. Most immigrants (77.39%, \( n = 195 \)) reported lower health care access levels. Results of the chi-square analysis, \( \chi^2 (3, 252) = 8.006, \ p < .05 \), indicated that relatively more immigrants in the 30-44 age group (45.24%, \( n = 114 \)) were likely to have lower health care access levels compared to 18-29 year olds (8.3%, \( n = 21 \)), 45-59 year olds (21.43%, \( n = 54 \)), or 60+ year olds (2.40%, \( n = 6 \)). Gender, Numeracy and Literacy were not found to have statistically significant associations with Health Care Access. A minority of immigrants utilized the Marketplace as a source to purchase insurance (19.23%, \( n = 45 \)). Results of chi square analysis, \( \chi^2 (3, 234) = 8.232, \ p < .05 \), indicated that relatively less immigrants in the 18-29 age group (4.30%, \( n = 10 \)) utilized the Marketplace compared to older immigrants. Gender, Numeracy and Literacy were not found to have statistically significant associations with Marketplace utilization either.

**Discussion**

Participants in this study were mostly Hispanic, married, and employed. However, their educational attainment appears lower than that expected for their age group among the general U.S. population. Only 2 out of 10 achieved high school completion as compared to 3 out of 10 in the U.S. (Census, 2011). This lower level of educational attainment among immigrants is similar
to that found by others (Census, 2011; Dey & Lucas, 2006; Hall, Singer, De Jong, & Graefe, 2011).

Participants perceived themselves as healthy, as seen in their general health status self-ratings. The average BMI value fell in the unhealthy range. Researchers have found that immigrants are often healthier than U.S.-born counterparts and that, except for recent immigrants; they are often more likely to be overweight (Singh, Siahpush, Hiatt, & Timsina, 2011). Additionally, the reported number physically and mentally ill days was lower than the national average of six days per month (CDC, 2011), a finding similar to that of other researchers (Dey, & Lucas, 2006; Frisbie, Cho, & Hummer, 2001; Singh, & Miller, 2004; Stephen, Foote, Hendershot, & Schoenberg, 1994; Thamer, Richard, Casebeer, & Ray, 1997).

Numeracy and Literacy have been reported to be associated with immigrants’ health status. For example, Doak, Doak, and Root, (1996) supported this claim in their study, people with poor health literacy levels are said to have difficulties that range from reading labels on a pill bottle, interpreting dosing, schedules to comprehending appointment slips, educational brochures, as well as to reading informed consent documents. Such people not only have limitations in reading, but may also have difficulties processing oral communication and conceptualizing risk (Mayeaux, Murphy, Arnold, Davis, Jackson, & Sentell, 1996).

Age, although in a smaller scale, was also associated with health status. Demographic characteristics are said to be associated with both healthier and less healthy behavioral characteristics among immigrants. For example, Mirza, Kim, Stoffel, Carroll, and Magaña (2015) found out that age was a significant factor to immigrants’ health, being older (over 25) was associated with increased BMI.
Results reported by Tienda and Mitchell (2006) supported the finding in our study regarding lack of insurance and access to health care. Participants in this study reported lower rates of insurance, lack of a regular source of medical care, and waiting longer than 12 months to see a health care provider. The topmost barriers to accessing health care services were lack of health insurance and lack of a medical home or usual source of health care. Good access to health care is often gauged by factors such as having insurance, having a regular doctor (medical home) and length since last health care visit. Lewin-Epstein (1991) explained that having a usual source of care acts as an entry way into what is often a complex system of health care delivery. Having a medical home shows that immigrants have access to a medical facility, be it a hospital, a doctor’s office or a primary health care center, but having more than one place to go when they are sick indicates lack of stability and proper health care access. Health care access and utilization is closely tied to immigrants’ general health status. When compared to immigrants in general in the U.S., participants in the present study had low healthcare access and utilization (Bustamante et al., 2012; Derose, Escarce, & Lurie, 2007; Hyman, 2009).

Results assessing whether age, gender, literacy, or numeracy level were predictors of health status among immigrants in this study indicated relationships between numeracy, age and health status. Other demographic variables, such as gender, had no significant relationship with immigrants’ health. Numeracy was a positive predictor of health status among immigrants. Current health care policy and practices, in an effort to tap the potential power of informed consumers to improve health outcomes, ask people to assume responsibilities for their health care choices (Iglehart, 2002); but not everybody has the skills to make informed health choices due to either their level of literacy or numeracy. Studies have found, for example, that health literacy and numeracy do independently influence the knowledge and use of information about
hospital choices (Peters, Hibbard, Slovic, & Dieckmann, 2007). Numeracy skills are also needed to calculate nutrition labels, calibrate temperature, and compare benefit packages, and for determining the proper dosage and timing of medicines. Numeracy skills are essential components of health literacy. More findings have suggested that limited numeracy skills reduce access to health information and preventive services, and also, are an important barrier to patients’ understanding of their health situations and to their obtaining high-quality care (Hibbard, Peters, Dixon, & Tusler, 2007; Kindig, Panzer, & Nielsen-Bohlman, 2004; Peters, Hibbard, Slovic, & Dieckmann, 2007). In order for immigrants to be competent health care consumers in their current environment, they must understand health care information and use it in making choices. And since the immigrant population faces a variety of limitations to accessing health care (Edward, 2014), researchers, program planners and health care professionals need to direct efforts towards helping less numerate (poor literacy for numbers) immigrants to effectively take charge of their health. This will require getting immigrant communities involved with designing literacy improvement programs that will be culturally sensitive, and target less numerate immigrants to pay careful attention to information on how to use important numbers in their health decisions. Designing programs that address literacy could first help people to live more satisfactorily using health information to improve their understanding about their bodies and social behaviors. Secondly, it will assist health educators to recognize their own limitations and challenges in offering simple, effective solutions to the complexity of educating people about health, wellbeing, and quality of life (Zanchetta et al., 2006). The problem of immigrants’ lack of access will be lessened if services provided by the health care system become more accessible and staff more linguistically and culturally sensitive (Deri, 2004; Oza-Frank, Stephenson, & Narayan, 2011; Whitley, Kirmayer, & Groleau, 2006). An important contribution
of these results is to our understanding of how demographic variables can influence immigrants’ access to health care, as well as their general health status. This can be achieved by enhancing the capacity of health care professionals and organizations to adapt or implement health literacy practices into their care giving culture through effective strategies and health educational training.

**Recommendations**

The findings from this study lend support to an increasing importance for health educators to make more efforts to reach immigrant communities, to improve access to adult classes and thus improve English skills, overall literacy, and numeracy skills. It is important to design culturally sensitive community classes for immigrants. Learning opportunities may arise in the form of community based literacy/numeracy interventions, since strong social ties and cultural traditions could provide a reservoir of lay knowledge and form basses of a community driven learning program that can be used, instead of using professional services (Montalto & Spiegler, 2000; Von Wagner, Steptoe, Wolf, & Wardle, 2009). This is important because numeracy, in the context of health care, appears to play a role in health care access and utilization.

Health Educators should serve as resource persons in the communities they serve as part of their effort to communicate and provide information to immigrants about health care systems and access options. It is important that immigrants consistently access health care as their presence in the U.S associates their health status to that of the country as a whole. It is also the responsibility of health educators to advocate for immigrants’ rights to utilization of sufficient health care services and the availability of sufficient health information. Overall, health educators would serve their communities well with continued efforts to meet the diverse needs of
their clients, including programs specifically designed to reach immigrants. Such programs will educate and provide resources on health care systems, establish a medical home, identify health issues and educate immigrants about wellness strategies, and encourage access to overall literacy and numeracy skill-building within the context of the U.S. systems.

**Limitations**

The findings from this study should be viewed in light of some limitations. It would be important to look at the relationship between numeracy and immigrant health with data that would have better representation of the different groups of immigrants in America; the present data has more Hispanics, and is not a good representation of all immigrants’ groups. Data used in this study also lack detailed information about survey participants’ occupation, country of origin and length of residence in the USA. This information may have provided a better context for investigating the statistical relationships between variables. This study was a secondary data analysis and thus the instrument and content was predetermined. Self-report data has inherent limitations such as recall bias and its reliance on the honesty of participants.

**Conclusion**

Findings from this study have important implications for health educators. As both country demographic profiles and health care access systems change, health educators find themselves in critical need of up-to-date and community-specific information. Such information is essential for the development of appropriate health education programs for immigrants in the country. Consideration of the overall educational level, literacy and numeracy, age, the presence of language and other barriers, and their impact on health care access among immigrants is of high importance to those planning health programs for immigrant communities. It is important to
Immigrants, Health Status, Access, and the ACA

state that for health educators to competently design programs or deliver resources to immigrants, they must understand immigrants’ situation such as their perspective and barriers, fears or concerns related to immigration status, lack of sufficient resources to buy health insurance, and how all these may have affect their health and further expose them to poor health.
References


Manuscript 2: Awareness, Perceptions, Concerns and Utilization of the Health Care Act
Among Immigrants in the U.S.
Introduction

Discussion about immigrants and insurance eligibility is a controversial and ongoing public policy debate in the United States. With the increase of immigrants in the U.S., it has become vital to converse and recognize how policy can influence the immigrants’ level of vulnerability while seeking health care. According to Derose, Escarce, and Lurie (2007), the immigrant provisions of the 1996 welfare reform act, known as the “Personal Responsibility and Work Opportunity Reconciliation Act” (PRWORA), ban both undocumented and even most legal immigrants, for benefiting from publicly funded services such as Medicaid for the first five years of residence” p. 1259. The Patient Protection and Affordable Care Act (ACA), signed into law by President Obama in 2010 compounded the problems of immigrants by further making undocumented and even most legal immigrants ineligible to purchase ACA health insurance. This law brought to the forefront once again the issue of legal status among immigrants in America. The ACA law has increased concerns about legal status among immigrants, and has heightened concern and preoccupation with fear of disclosure and deportation among immigrants (Cavazos-Rehg, Zayas, & Spitznagel, 2007; Derose, Escarce, & Lurie, 2007).

There is limited literature about the level of literacy among immigrants in the U.S. and government health policy changes over the years have both increased our knowledge gap and created challenges to the health status of immigrants. Understanding their health care needs has become extremely important due to their growing numbers and contributions to the health of the nation (Derose, Escarce, & Lurie, 2007; Kandula, Kersey, & Lurie, 2004; Rumbaut, Escarce, & Morales, 2006; Venters & Gany, 2011).
It is very important to understand the association between perception and awareness of the ACA among citizens and immigrants. It is also important to understand how these factors might affect the immigrants’ awareness and understanding of the Health Care Act and health care utilization (Bustamante et al., 2012). Especially in light of how recent policy changes have restricted immigrants’ access to insurance and to health care (Ku & Matani, 2001). According to Zuckerman, Waidmann, and Lawton (2011), undocumented immigrants who want to use their own resources to purchase coverage for themselves and their families from the exchanges are barred from doing so by the law. There is a long existing legislation passed that requires physicians report undocumented immigrants to immigration authority (Asch, Leake, & Gelberg, 1994). Blocking immigrants’ access to much needed health care through health laws that restrict insurance coverage, given their few options to obtain high-quality and affordable health care, can have negative consequences. Such laws are seen as very detrimental and could be exposing citizens and resulting in disease transmission (Asch, Leake, & Gelberg, 1994; Stimpson, Wilson, & Eschbach, 2010). In addition, limited healthcare access and lower utilization are likely to aggravate undiagnosed illnesses among undocumented immigrants. It is expected that if present trends continue, healthcare access and utilization disparities will be further widened between citizens and undocumented immigrants (Bustamante et al., 2012).

There is documented public health concern that lack of health insurance and restricted access to care may be negatively affecting immigrants. Further, individuals who lack health insurance coverage may not receive medical care in a timely manner, receive worse care for minor conditions, and have a higher mortality rate. Elimination of health disparities is one of the two major public health goals for the current decade (Regency Bluecross Blueshield, 2005; U.S. Department of Health and Human Services, 2000).
Immigrants in the U.S. fall in to different categories depending on individual situations at each point and time. The term ‘immigrants’ refers to refugees or asylum seekers, nonimmigrants, or unauthorized foreigners (U.S. D.H.H.S., 2001). Immigrants can be categorized in to three groups. The first includes those immigrants who have obtained all the necessary documentation and become permanent residents in the U.S. The second includes immigrants who are in the United States with a visa that allows them a legal stay but with limitations. The third group includes immigrants who might have come in to the country without a visa, or had visa at the point or entry but have over stayed and their visa is expired, and they are now living illegally in the country, so this group is often referred to as ‘illegal’ or ‘undocumented immigrants’.

**Purpose of the Study**

This study examined and compared the relationships between immigrants’ and citizens’ awareness, perceptions, concerns in relation to the Affordable Health Care Act and Marketplace utilization.

**Significance of the Study**

Addressing perceptions and awareness related to the ACA is important in preparation of health promotion programs for immigrants. For health educators to competently design programs or deliver resources to immigrants, it is highly important for them to understand immigrant’s fears or concerns related to their immigration status, and how that may specifically prevent them from accessing service.

The implementation of the Patient Protection and Affordable Care Act (ACA) gave millions of uninsured Americans who were previously uninsured access to healthcare coverage, and in the same manner it denied millions of immigrants and legal residents, of less than five
years, access to insurance by making them ineligible to purchase insurance through the newly available market exchange (Agabin, & Coffin, 2014). The law contains provisions for expanding Medicare, Medicaid, and setting up state-run insurance exchanges that help the public purchase private insurance and provide cost assistance as needed. Anyone who resides in the U.S. legally is eligible for these plans, except for immigrants. It is estimated that there are approximately 11 million undocumented immigrants in America, of this number, 59% are without health insurance, a figure 4 times that of legal residents (Melton, 2015). This study will give an understanding of the relationships among perceptions, awareness, concern and Marketplace utilization between citizens and immigrants.

**Perceptions and Awareness of the ACA**

Perceptions about the ACA vary across the board even among citizens. According to Brady and Kessler (2010) and Gelman, Lee, and Ghitza (2010) wealthier and older citizens tended to report less favorable opinions, which was attributed to the fact that most already have access to health insurance, and may have assumed that they would be responsible for the bulk of the tax dollars needed to support the program. Bishop (2009) and Brady and Kessler (2010) suggested that because the elderly individuals already have access to social programs such as Medicare, they likely worry the ACA may interfere with their Medicare program. The younger and poorer people, who often lack access to health insurance, tended to have more favorable opinions about the ACA legislation, which according to Knoll and Shewmaker (2015), was because they obviously stood to benefit from the law. However, since the ACA-imposed more barriers to coverage for undocumented and new immigrants, when compared to citizens, immigrants may now have less favorable opinions or expectations of the health care system (Pandey, Cantor, & Lloyd, 2014).
Awareness of the ACA needs to be considered as well. A study conducted by Sommers, Maylone, Nguyen, Blendon, and Epstein (2015) found that awareness of the ACA expansions remained low even at the end of 2014. Only a few people in the study indicated that they had read or heard some about the new ACA coverage options. This confirmed reports by Epstein, Sommers, Kuznetsov, and Blendon (2014) that information gaps about the law remained a major challenge, particularly among people with low-income who likely had the most to gain from the coverage expansions. According to reports from the Henry J. Kaiser Family Foundation (2015), awareness about the ACA has been characterized as very low among citizens and perceptions about the cost of coverage have been identified as a barrier to the ACA.

The Legal Status and Fear among immigrants

While the citizens have nothing to worry about, the ‘legal’ status of immigrants plays a role in their time of residence, and is an important determinant of health service utilization in the U.S. The immigrants’ legal status is said to shape who they are, how they relate to others, and their participation in local communities (Menjívar, 2006). Undocumented status can affect anything from their health risks to their health-seeking behaviors (Menjívar, 2002). Indeed, legal status plays an important role among immigrants, because apart from determining eligibility to insurance, it is the immigrant’s legal or documented status that determines access to social services, jobs with benefits, etc. (Derose et al., 2007). According to Freeman (2004), “the legal status of immigrants creates a class of residents with rights and privileges distinct from those holding temporary work visas; it is well observed that documented and undocumented immigrants have such different experiences that they can be regarded as two different social classes” (p. 1). For those immigrants who are not here legally, the fear of law enforcement can be a major barrier to using and accessing health care services. Legal status has entrenched fear
among immigrants. Due to the complex eligibility requirements to use the ACA Marketplace, coupled with immigration legal status related concerns, immigrants have fear about what might happen when personal information is given out (Cristancho, Garces, Peters, & Mueller, 2008). Hence, immigrants worry that such information could be used against them and fear that they may be deported; such fears are said to lead to risks of emotional distress and impair immigrant’s quality of life. Fear about disclosing legal status and concern about its consequence is a barrier to health care utilization even among immigrants whose status allows them to purchase health insurance (Cavazos-Rehg, et al 2007).

Concern and fear about authorities, such as law enforcement, among immigrants who are living in the country undocumented intensified after the passage of the Illegal Immigration Reform and Immigrant Responsibility Act (IRRIRA) of 1996, when detention of illegal immigrants increased, and immigrants experienced heightened fear of profiling and deportation. At several points in history, there have been individual states in the United States that have passed immigration laws that makes the lack of proper documents to live in the country legally a crime, and allow police officers to detain such people. Therefore, the documented and undocumented immigrants discussed fears about giving out personal information to acquire health insurance or health care because such information could be reported to the Immigration and Customs Enforcement (Hacker, Chu, Leung, Marra, Pirie, Brahimi, ... & Marlin, 2011; Hardy, Getrich, Quezada, Guay, Michalowski, & Henley, 2012).
Immigrants, Health Status, Access, and the ACA

Research Questions

1. Is there a difference in perception of the Affordable care act ACA between citizens and immigrants?
2. Is there a difference in awareness of the Affordable care act ACA between citizens and immigrants?
3. Does the level of Marketplace utilization differ between citizens and immigrants?
4. What relationships exist between Marketplace utilization and concerns related to legal status?
   4.1. Who is more likely to report knowing someone with concerns affecting their Marketplace utilization?
   4.2. Is knowing someone with concerns correlated with one’s utilization of the Marketplace?

Method

The Urban Institute’s Health Reform Monitoring Survey (HRMS), a survey conducted quarterly since 2013 was utilized for this study. A secondary data analysis of participants who self-identified as citizens and non-U.S. citizens was carried out. The entire fourth quarter 2014 survey sample of over 7,700 participants made up of (n = 7,294) citizens, and (n = 369) immigrants was used.

Permissions for conducting this study were granted in several ways. Dr. Guyler, the dissertation chair, registered as a researcher with the Inter-university Consortium for Political and Social Research (ICPSR) and requested permission to access the database files. Upon
dissertation proposal approval by the committee and after obtaining the IRB Non-Human Subject determination (approved as non-Human Subject research by the UC IRB on May 1st 2015).

Recruitment

Sample Frame. Holahan and Long (2014) explain that the HRMS was launched by the Urban institute in 2013 to explore “the value of cutting-edge, Internet-based survey methods to monitor the ACA” (p.1). Based on “an address-based sampling frame” representative of most U.S. residential addresses participants are recruited into the KnowledgePanel®. Telephone-based random-digit dialing sampling was used with about 55,000 U.S. households that were members of the panel, including those with Internet access and those without. For households without Internet access, a laptop computer and Internet access was provided to panel members allowing them to participate in the online survey (Holahan & Long, 2014, p.1-2).

Procedures

Following phone notification and recruitment, participants received a survey link via email. Surveys were available in English or Spanish and took approximately 10 minutes to complete (Holahan & Long, 2014, p.1-2).

Instrumentation

The HRMS consisted of a total of 56 questions, from which 9 are utilized for data analyses. The 56 questions originally used on the survey included measures of whether the respondent enrolled in health insurance through healthcare.gov, and a measure of ease/difficulty in using healthcare.gov. Information was obtained on demographics such as income, employment status, age, education, race, gender, housing type, marital status, sexual orientation, home ownership and internet access. Additionally, items measured self-reported ability to read
and work with numbers. Health information included the presence of a mental or behavioral health condition and health care access (Holahan & Long, 2014).

Specific questions that were utilized in this analysis included demographic items such as 1) gender (1=male, 2=female), 2) age (number of years), 3) Ethnicity/Race (1=White, Non-Hispanic, 2=Black, Non-Hispanic, 3=other, Non-Hispanic, 4=Hispanic, 5=2+ Races, Non-Hispanic), 4) employment status (1=Employed-& self-employed, 2=looking for work or 3)=not working/other), 5) marital status (Married, Widowed, Divorced, Separated, Never Married, Living together), 6) Education (1= Less than high school; 2=high school, 3=some college, 4= Bachelor’s), 7) perceptions regarding the ACA (Opinion is... 1= Very Favorable- 5=Very Unfavorable), 8) awareness of the Marketplace (Have heard…1=A lot- 5=Nothing at all), and 9) concern- whether they personally know someone who--due to immigration related fear-- avoided seeking ACA benefits (Yes/No). A complete list of items and answer choices can be found on Appendix A.

Data Analysis

The data set was downloaded into SPSS v.22. All missing values were coded as missing data and excluded from analysis. Skewness and Kurtosis statistics were run for demographic characteristics. None had values outside the range of -2 & +2, which is considered to be an acceptable measure of distribution normality (George & Mallery, 2003). Following that check, series of descriptive analyses including frequency and distribution were conducted. And data from the descriptive statistics was used to make comparisons between U.S. born citizens and immigrants. Also based on normalcy of the data set and homogeneity of variance, parametric or non-parametric statistical tests were chosen. A series of statistical tests including T-tests and Chi square tests were run to answer the research questions.
Results and Discussion

Demographics

Descriptive analysis showed that a total of 7,701 participants completed and submitted their survey. The vast majority (94.7%, n = 7,294) of them were citizens of the United States; only 4.8% (n = 369) of them reported being immigrants. Results from the descriptive and frequency analyses indicated that there were age differences in regards to age categories between citizens and immigrants. Immigrants had a younger average of 40.41 (SD = 10.073) in comparison to citizens (M = 45.78, SD = 13.180). The largest age bracket for immigrants was 30-44 years of age, 54.2% (n = 200) and for citizens it was 45-59 year, 40.5% (n = 2,955).

There were more female respondents in both groups, with 51.6% (n = 3,767) of citizens and 55% (n = 203) of immigrants being female. There were more white, non-Hispanics in the citizen sample, 74.7% (n = 5452) out of the total (n = 7,294), while of the immigrant participants 66.4% (n = 245) were Hispanics. Most participants reported they were married, 55.2% (n = 4,023) of citizens and 60.7% (n = 224) of immigrants. There were more participants with Bachelor’s degree or higher among citizens, 40.5% (n = 2951), while only 23.8% (n = 88) among immigrants had bachelor’s degree or higher. While only 5.6% (n = 408) of citizens had not completed high school, 35 % (n = 129) of immigrants had less than high school. In relation to employment, 67.7 % (n = 4,937) of citizens have paid jobs while 56.3 % (n = 208) of immigrants were also either working in a paid job or working for themselves. More immigrants reported looking for work 14.6 % (n = 54) than citizens 8.6 % (n = 623), as can be seen in Table 5 below.
### Table 5 Demographics

<table>
<thead>
<tr>
<th>Age Categories</th>
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<th></th>
<th></th>
<th>Not Citizens</th>
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<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>Mean</td>
<td>SD</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>18-29</td>
<td>1,203</td>
<td>16.5</td>
<td>-</td>
<td>-</td>
<td>48</td>
<td>13.0</td>
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<tr>
<td>30-44</td>
<td>1,905</td>
<td>26.1</td>
<td>-</td>
<td>-</td>
<td>200</td>
<td>54.2</td>
</tr>
<tr>
<td>45-59</td>
<td>2,955</td>
<td>40.5</td>
<td>-</td>
<td>-</td>
<td>111</td>
<td>30.1</td>
</tr>
<tr>
<td>60+</td>
<td>1,231</td>
<td>16.9</td>
<td>-</td>
<td>-</td>
<td>10</td>
<td>2.7</td>
</tr>
<tr>
<td>Total</td>
<td>7,294</td>
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<th>Ethnicity Race</th>
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<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>Mean</td>
<td>SD</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>White, Non-Hispanic</td>
<td>5,452</td>
<td>74.7</td>
<td>-</td>
<td>-</td>
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<td>Black, Non-Hispanic</td>
<td>726</td>
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<td>-</td>
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<tr>
<td>Other, Non-Hispanic</td>
<td>236</td>
<td>3.2</td>
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<td>-</td>
<td>42</td>
<td>11.4</td>
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<tr>
<td>Hispanic</td>
<td>660</td>
<td>9.0</td>
<td>-</td>
<td>-</td>
<td>245</td>
<td>66.4</td>
</tr>
<tr>
<td>2+ Races, Non-Hispanic</td>
<td>220</td>
<td>3.0</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>1.4</td>
</tr>
<tr>
<td>Total</td>
<td>7,294</td>
<td>100.0</td>
<td>-</td>
<td>-</td>
<td>369</td>
<td>100.0</td>
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<table>
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<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>Mean</td>
<td>SD</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Married</td>
<td>4,023</td>
<td>55.2</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Widowed</td>
<td>157</td>
<td>2.2</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>1.1</td>
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<tr>
<td>Divorced</td>
<td>777</td>
<td>10.7</td>
<td>-</td>
<td>-</td>
<td>12</td>
<td>3.3</td>
</tr>
<tr>
<td>Separated</td>
<td>111</td>
<td>1.5</td>
<td>-</td>
<td>-</td>
<td>13</td>
<td>3.5</td>
</tr>
<tr>
<td>Never married</td>
<td>1,686</td>
<td>23.1</td>
<td>-</td>
<td>-</td>
<td>61</td>
<td>16.5</td>
</tr>
<tr>
<td>Living with partner</td>
<td>540</td>
<td>7.4</td>
<td>-</td>
<td>-</td>
<td>55</td>
<td>14.9</td>
</tr>
<tr>
<td>Total</td>
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<td>100.0</td>
<td>-</td>
<td>-</td>
<td>369</td>
<td>100.0</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Gender</th>
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<th>Not Citizens</th>
<th></th>
<th></th>
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<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>Mean</td>
<td>SD</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Male</td>
<td>3,527</td>
<td>48.4</td>
<td>-</td>
<td>-</td>
<td>166</td>
<td>45.0</td>
</tr>
<tr>
<td>Female</td>
<td>3,767</td>
<td>51.6</td>
<td>-</td>
<td>-</td>
<td>203</td>
<td>55.0</td>
</tr>
<tr>
<td>Total</td>
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<td>-</td>
<td>-</td>
<td>369</td>
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<table>
<thead>
<tr>
<th>Education</th>
<th>Citizens</th>
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<th></th>
<th>Not Citizens</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>Mean</td>
<td>SD</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Less than high school</td>
<td>408</td>
<td>5.6</td>
<td>-</td>
<td>-</td>
<td>129</td>
<td>35.0</td>
</tr>
<tr>
<td>High school</td>
<td>1,620</td>
<td>22.2</td>
<td>-</td>
<td>-</td>
<td>82</td>
<td>22.2</td>
</tr>
<tr>
<td>Some college</td>
<td>2,315</td>
<td>31.7</td>
<td>-</td>
<td>-</td>
<td>70</td>
<td>19.0</td>
</tr>
<tr>
<td>Bachelor’s</td>
<td>2,951</td>
<td>40.5</td>
<td>-</td>
<td>-</td>
<td>88</td>
<td>23.8</td>
</tr>
<tr>
<td>Total</td>
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<td>100.0</td>
<td>-</td>
<td>-</td>
<td>369</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Employment</th>
<th>Citizens</th>
<th></th>
<th></th>
<th>Not Citizens</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>Mean</td>
<td>SD</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Paid and self-employment</td>
<td>4,937</td>
<td>67.7</td>
<td>-</td>
<td>-</td>
<td>208</td>
<td>56.3</td>
</tr>
<tr>
<td>Looking for work</td>
<td>623</td>
<td>8.6</td>
<td>-</td>
<td>-</td>
<td>54</td>
<td>14.6</td>
</tr>
<tr>
<td>Not in work force(retired, disabled, other)</td>
<td>1,734</td>
<td>23.8</td>
<td>-</td>
<td>-</td>
<td>107</td>
<td>29.0</td>
</tr>
<tr>
<td>Total</td>
<td>7,294</td>
<td>100.0</td>
<td>-</td>
<td>-</td>
<td>369</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: missing data excluded
The Affordable Health Care Act & the Marketplace

When asked their opinion about the health care law, known as the Affordable Care Act, 47.5% (n = 3,465) of citizens and 23.0% (n = 89) of immigrants indicated that their opinion was somewhat unfavorable or very unfavorable. Immigrants were twice as likely as citizens to be neutral (45.5% n = 168). In regards to awareness, a majority of immigrants (57.2%, n = 211) and citizens 72.2% (n = 4,268) reported having at least some information about the ACA Marketplace in their states. When asked if participants personally knew someone who avoided the ACA Marketplace due to concern that using it would affect their immigration status, less than 5% of citizens reported knowing someone (4.8%, n = 353). As expected immigrants had a higher percentage of participants reporting knowing someone with concern about how use of the marketplace would affect their immigration status (22.2%, n = 82).
Table 6 Concern, Awareness and Perceptions related to ACA Marketplace

<table>
<thead>
<tr>
<th></th>
<th>Citizens</th>
<th>Not-Citizens</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Perceptions</strong>: your opinion of the health care law</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Very favorable</td>
<td>913</td>
<td>12.5</td>
</tr>
<tr>
<td>Somewhat favorable</td>
<td>1,345</td>
<td>18.4</td>
</tr>
<tr>
<td>Neither favorable or unfavorable</td>
<td>1,536</td>
<td>21.1</td>
</tr>
<tr>
<td>Somewhat unfavorable</td>
<td>1,156</td>
<td>15.8</td>
</tr>
<tr>
<td>Very unfavorable</td>
<td>2,309</td>
<td>31.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>7,294</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Awareness</strong>: How much have you heard about this health insurance marketplace</th>
<th>n</th>
<th>%</th>
<th>M</th>
<th>SD</th>
<th>n</th>
<th>%</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>A lot</td>
<td>2,399</td>
<td>32.9</td>
<td>-</td>
<td>-</td>
<td>69</td>
<td>18.7</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Some</td>
<td>2,869</td>
<td>39.3</td>
<td>-</td>
<td>-</td>
<td>142</td>
<td>38.5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Only a little</td>
<td>4,268</td>
<td>72.2</td>
<td>-</td>
<td>-</td>
<td>211</td>
<td>57.2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Nothing at all</td>
<td>59</td>
<td>16.0</td>
<td>-</td>
<td>-</td>
<td>59</td>
<td>16.0</td>
<td>-</td>
<td>-</td>
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<tr>
<td><strong>Total</strong></td>
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<td>-</td>
<td>369</td>
<td>100.0</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Concern</strong>: Do you personally know someone who did not look for health insurance... because of concerns about it affecting immigration status</th>
<th>n</th>
<th>%</th>
<th>M</th>
<th>SD</th>
<th>n</th>
<th>%</th>
<th>M</th>
<th>SD</th>
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</thead>
<tbody>
<tr>
<td>Yes</td>
<td>353</td>
<td>4.8</td>
<td>-</td>
<td>-</td>
<td>82</td>
<td>22.2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>No</td>
<td>6,881</td>
<td>94.3</td>
<td>-</td>
<td>-</td>
<td>282</td>
<td>76.4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>7,257</td>
<td>100.0</td>
<td>-</td>
<td>-</td>
<td>369</td>
<td>100.0</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: Missing data excluded.

**Research Question Testing**

Based on literature reviewed in this study, four research questions were addressed. The first research question of the study asked if there is a difference in perception of the Affordable care act ACA between citizens and immigrants. Results showed a significant difference in how participants in the two groups rated their perceptions about the ACA ($t = 5.356$, $df = 7,620$, $p \leq .001$). The average perception score for citizens was statistically higher ($M=3.36$, $SD = 1.411$)
than for immigrants (M = 2.96, SD = 1.092). Showing that citizens have less favorable opinions about the ACA than do immigrants.

To answer the second question: Is there a difference in awareness of the Affordable care act between citizens and immigrants? a t-test was utilized. The mean awareness level about the ACA among citizens (M = 2.02, SD = 0.909) was statistically lower than the average among immigrants (M = 2.39, SD = 0.971) with $t = 7.715$ ($df = 7,620, p \leq 0.01$).

A third research question was tested to find out if there is a difference in reported Marketplace utilization between citizens and immigrants. Results of a chi square test show that immigrants were statistically more likely to report having used the marketplace than citizens ($X^2 = 16.980, df = 1, \leq .001$).

A broad fourth research question inquiring: What relationships exist between Marketplace utilization and concerns related to legal status? was posited. To answer this question, two tests were run. One to identify who was more likely to report knowing someone with concerns affecting their Marketplace utilization citizens or immigrants. And one test to identify if knowing someone with concerns correlated with one’s utilization of the Marketplace.

Results of chi square showed that Citizens were less likely than immigrants to report knowing someone with concerns that affect utilization of the Marketplace ($X^2 = 199.974, df = 1, p \leq .001$). Further, among citizens only, those who reported knowing someone with concern were also more likely to report utilizing the Marketplace ($X^2 = 77.990, df = 1, p \leq 0.001$) and among immigrants, there was no significant association between those who reported knowing someone with concern and their reported Marketplace utilization.
Four research questions were answered in this paper. Overall, results showed that immigrants had more favorable perceptions about the ACA, had lower awareness about the ACA, were more likely to know someone with concerns about how using the ACA would affect their immigration status, and were also more likely to have utilized the ACA Marketplace themselves. Lower awareness among immigrants may be an indication that information gaps about the ACA law remain a major challenge (Epstein, Sommers, Kuznetsov, & Blendon, 2014). Also, review of the literature showed that understanding of the Affordable Care Act is far from being perfect even among Americans (Gross, Stark, Krosnick, Pasek, Sood, Tompson, ... & Junius, 2012) and this could be responsible for the small number of people in the sample who enrolled and got their insurance through the government free on line Marketplace. Concerns appear to be related to utilization and perceptions of immigrants about the ACA. This finding is in line with study by Menjivar, (2006) who observed that apart from shaping who they are, immigrant’s legal status plays a huge role in their stay, and is an important determinant of health care utilization among them. Also study by Durden & Hummer, (2006) indicated that immigration status have a significant impact on access to health care and utilization of services.

Since citizens were less likely to know someone who avoided using the Marketplace due to concerns of how their immigration status would be affected. While citizens may not have fear or concern about their legal status at any point and time when dealing with issues of health care, the case is the direct opposite for immigrants who are concerned about their legal status, and may view buying insurance from the Marketplace as a likely avenue of exposing themselves to the law and law enforcements officers.
Recommendations

As public health professionals, it is very important to keep in mind how changes in national immigration policy can affect public health programs. There are recent incidents where diseases said to have already been eradicated have resurfaced in greater magnitude, some even resulting in mortality amongst the society (Maurice, & Davey, 2009). Outbreaks of such diseases frustrate the efforts put in to health programs. Carrasquillo, Carrasquillo, & Shea (2000) argue that it is ethical and moral to provide health insurance for immigrants, because the long-term health care costs to the society outweigh the short-term savings.

Limitations

The findings from this study should be viewed in light of some limitations. Data obtained did not specify the legal status of the immigrants that took part in the survey. There was no question about the length of immigrants’ stay in the United States or how that might have influenced immigrants having or not have insurance. Thus, we speculate that even though the sampling was carried out based on “an address-based sampling frame” representative of most U.S. residential addresses, it may be biased toward one status or the other. Another limitation is that larger proportion of respondents identified themselves as Hispanic. It is important to consider, however, that according to the U.S census, Hispanics are the largest group of immigrants in the United States (Lopez, Gonzalez-Barrera, & Cuddington, 2013). Another limitation is that our analysis uses self-reported outcomes, subject to bias depending on respondents’ perspectives.
Conclusions

As health educators, the health and wellbeing of the general population, especially a group as vulnerable as the immigrant group, is of importance. Findings from this current study show that there is need for health educators to network with immigrant communities, with the sole aim of communicating health and health education needs and concerns, as well as for the purpose of pointing them to resources. This will ensure that immigrants get access to needed health care. Also, findings from this study relate to important issues regarding both immigration reform and health care reform in America. It is important to note that the health status and health behaviors of immigrants living in the U.S. will play a central role in shaping the long-term health and health care needs, not only of those immigrants, but of all Americans.
REFERENCES


Appendix A- Institutional Review Board Letter

Institutional Review Board - Federalwide Assurance #00003152
University of Cincinnati

Date: 5/1/2015
From: UC IRB
To: Principal Investigator: Liliana Rojas Guyler
     CECH Human Services
     Study ID: 2015-2814
Re: Study Title: Immigrant Health and Health Care Access: ACA Awareness, Perceptions & Concerns

The Institutional Review Board (IRB) acknowledges receipt of the above referenced proposal. It was determined that this proposal does not meet the regulatory criteria for research involving human subjects (see below). No human subjects – analysis of a publicly available, de-identified dataset from the Inter-university Consortium for Political and Social Research (ICPSR) website. Ongoing IRB oversight is not required.

Please note the following requirements:

Statement regarding International conference on Harmonization and Good clinical Practices. The Institutional Review Board is duly constituted (fulfilling FDA requirements for diversity), has written procedures for initial and continuing review of clinical trials; prepares written minutes of convened meetings and retains records pertaining to the review and approval process; all in compliance with requirements defined in 21 CFR Parts 50, 56 and 312 Code of Federal Regulations. This institution is in compliance with the ICH GCP as adopted by FDA/DHHS.

Thank you for your cooperation during the review process.

45 CFR § 46.102(d): Research means a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge.

45 CFR § 46.102(f): Human subject means a living individual about whom an investigator (whether professional or student) conducting research obtains:

1. data through intervention or interaction with the individual, or
2. identifiable private information.

Intervention includes both physical procedures by which data are gathered (for example, venipuncture) and manipulations of the subject or the subject's environment that are performed for research purposes.
Interaction includes communication or interpersonal contact between investigator and subject.

Private information includes information about behavior that occurs in a context in which an individual can reasonably expect that no observation or recording is taking place, and information which has been provided for specific purposes by an individual and which the individual can reasonably expect will not be made public (for example, a medical record). Private information must be individually identifiable (i.e., the identity of the subject is or may readily be ascertained by the investigator or associated with the information) in order for obtaining the information to constitute research involving human subjects.

FDA regulations apply whenever an individual is or becomes a participant in research, either as a recipient of a FDA-regulated product or as a control, and as directed by a research protocol and not by medical practice. FDA-regulated activities involve individuals, specimens, or data, as patients or healthy controls, in any of the following:

a. any use of a drug or biologic, other than the use of an approved drug or biologic in the course of medical practice
b. any use of a device (medical or other devices, approved or investigational) to test the safety or effectiveness of the device
c. any use of dietary supplements to cure, treat, or prevent a disease or bear a nutrient content claim or other health claim
d. the collection of data or other results from individuals that will be submitted to, or held for inspection by, the FDA as part of an application for a research or marketing permit (including foods, infant formulas, food and color additives, drugs for human use, medical devices for human use, biological products for human use, and electronic products.)
e. activities where specimens (of any type) from individuals, regardless of whether specimens are identifiable, are used to test the safety or effectiveness of any device (medical or other devices, approved or investigational) and the information is being submitted to, or held for inspection by, the FDA.
Appendix B- Health Reform Monitoring Survey Items

Questionnaire Text for Selected Questions


This survey focuses on your health and health care experiences. Your participation in the survey is important to help us understand how well the U.S. health care system is working.

### Health Status

Q1. In general, would you say your health is?
   - Excellent 1
   - Very good 2
   - Good 3
   - Fair 4
   - Poor 5

Q2. Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?
   - _____ Number of days

Q3. Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?
   - _____ Number of days

Q37: Do you NOW smoke cigarettes every day, some days, or not at all?
   - 1 Every day
   - 2 Some days
   - 3 Not at all

### Literacy

Q19. How would you rate your ability to read?
   - 1 Excellent
   - 2 Very good
   - 3 Good
   - 4 Fair
   - 5 Poor
**Numeracy**

Q20. How would you rate your ability to work with numbers, such as working with fractions or percentages?

1. Excellent
2. Very good
3. Good
4. Fair
5. Poor

**Health Care Access**

Q4. Is there a place that you usually go to when you are sick or need advice about your health?

1. I have one place I usually go
2. I have more than one place I usually go
3. I do NOT have a place I usually go

Q5. About how long has it been since you last visited a doctor or other health care provider for a routine checkup? A routine checkup is a general physical exam, not an exam for a specific injury, illness, or condition.

1. Within the past year
2. One or more years ago
3. Never

Q7. The next question asks about your health insurance or health coverage plans. In answering this question, please exclude plans that pay for only one type of service (such as nursing home care, accidents, family planning, or dental care) and plans that only provide extra cash when hospitalized. Are you currently covered by any of the following types of health insurance or health coverage plans?

1. Yes
2. No

**Barriers to Health Care**

Q6. In answering the following questions, please think about your experiences obtaining health care in the past 12 months, that is, since June 2013:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Did not need care</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Did you have trouble finding a doctor or other health care provider who would see you?</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>b. Were you told by a doctor’s office or clinic that they would not accept you as a new patient?</td>
<td></td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>
c. Were you told by a doctor’s office or clinic that they do not accept your health care coverage?

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did not need care</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

d. Did you have trouble getting an appointment at a doctor’s office or clinic as soon as you thought you needed one?

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did not need care</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

e. Were you able to find a doctor’s office or clinic that would see you?

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did not need care</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The ACA & Marketplace

Q13. We would like to ask about your opinion of the health care law, known as the Affordable Care Act or “Obamacare”. In general, is your opinion of the health care law?

1. Very favorable
2. Somewhat favorable
3. Neither favorable or unfavorable
4. Somewhat unfavorable
5. Very unfavorable

Q14. A. The health care law created health insurance exchanges or marketplaces where people can shop for insurance and compare prices and benefits. How much, if anything, have you heard about this health insurance marketplace, also known as Healthcare.gov {or state program} in your state?

1. A lot
2. Some
3. Only a little
4. Nothing at all

Q39. C. Do you personally know someone who did not look for health insurance through Medicaid {or state program} or Healthcare.gov {or state program} because of concerns about negatively affecting the immigration status...?

1. Yes
2. No

Q8c. As you may know, there are new health insurance exchanges or marketplaces where people can shop for insurance and compare prices and benefits. For your current coverage, did you enroll in a health insurance plan through the marketplace, also known as Healthcare.gov, in your state?

1. Yes, I enrolled in a health insurance plan through the marketplace
2. I am in the process of enrolling in a health insurance plan in the marketplace
3. No, I did not enroll through the marketplace
# Demographics

**Gender**

1. Male
2. Female

**Age**

1. 18-24
2. 25-34
3. 35-44
4. 45-54
5. 55-64

**BMI**

-- derived variable

**Marital Status**

1. Married
2. Widowed
3. Divorced
4. Separated
5. Never married
6. Living with partner

**Race/Ethnicity**

1. White, Non-Hispanic
2. Black, Non-Hispanic
3. Other, Non-Hispanic
4. Hispanic
5. 2+ Races, Non-Hispanic

**Education**

1. Less than high school
2. High school
3. Some college
4. Bachelor's degree or higher

**Q17. Are you currently working for pay or self-employed?**

1. Yes, working for pay
2. Yes, self-employed
3. No, not working

**Are you a citizen of the United States?**

1. Yes
2. No
### Appendix C- Health Care Access Variables Recoding

Table 7  Health Care Access Variables Recoding

<table>
<thead>
<tr>
<th>Variables recoded</th>
<th>Original Value range</th>
<th>Recoded Values</th>
<th>Categorical Values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Access</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Barrier</td>
</tr>
<tr>
<td>Insurance Status*</td>
<td>1= Yes</td>
<td>0</td>
<td>0= Yes</td>
</tr>
<tr>
<td></td>
<td>0= No</td>
<td>1</td>
<td>1= No</td>
</tr>
<tr>
<td>Medical Home*</td>
<td>1=Yes</td>
<td>0</td>
<td>0= Yes</td>
</tr>
<tr>
<td></td>
<td>2= &gt;1 place</td>
<td>0</td>
<td>1= No</td>
</tr>
<tr>
<td></td>
<td>3= No</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Barriers to Health Care*</td>
<td>0-5</td>
<td>-</td>
<td>0= No barriers</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1= One or more</td>
</tr>
<tr>
<td>Length since last Dr. visit*</td>
<td>1= within 1 yr.</td>
<td>0</td>
<td>0=Within 1 yr.</td>
</tr>
<tr>
<td></td>
<td>2= 1 or &gt; yrs.</td>
<td>1</td>
<td>1= &gt; than 1 yr.</td>
</tr>
<tr>
<td></td>
<td>3= Never</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Health Care Access Summary Variable</td>
<td>0</td>
<td>0</td>
<td>0= high access</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1</td>
<td>1= low access</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Used the Marketplace</td>
<td>1= Yes</td>
<td>0</td>
<td>0= Yes</td>
</tr>
<tr>
<td></td>
<td>2= No</td>
<td>1</td>
<td>1= No</td>
</tr>
</tbody>
</table>

Note: Variables marked * are summed to compute the Health Care Access.
Appendix D- Definition of Terms

**Immigrants**: The term migrant populations refer to people who have migrated from one place to another, people who move from their native country to another foreign country (Davies, Basten, & Frattini, 2009).

**Literacy**: This is defined as one’s ability to read and understand what is read (Baker, Parker, Williams, Clark, & Nurss, 1997).

**Numeracy**: The term refers to one’s ability to effectively understand and utilize numbers and numerical information (Peters, Hibbard, Slovic, & Dieckmann, 2007).

**Health Literacy**: It has entails individual’s capacity to obtain, process and understand basic written or oral health information and services needed to make appropriate health decisions and navigate the health care system (Parker, 2000; Pleasant and Kuruvilla, 2008).

**Health**: Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (World Health Organization, 1948).

**Health care system**: Health care system comprising all the organized institution and resources that are devoted to producing health action (Richardson, McKenna, Bristow, Maisch, Mautner, O'connell, ... & Nordet 1996).

**Health Care Access**: Access to health services means the timely use of personal health services to achieve the best health outcomes (Health people 2020).

**Health Education**: Health education is directed towards improving health literacy (Nutbeam, 2000).
**Affordable Health Care Act**: Health insurance market reform with no exclusions, no exceptions, and a community rating (Huntington, Covington, Center, Covington, & Manchikanti, 2011).

**Perception**: is man's primary form of cognitive contact with the world around him (Efron, 1969).

**Awareness**: Having knowledge or discernment of something (The Free Dictionary).

**Concern**: A matter that engages a person's attention, interest, or care, or that affects a person's welfare or happiness (Dictionary.com).

**Barriers**: A circumstance or obstacle that keeps people or things apart or prevents movement, access or progress (Dictionary.com).