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I, Denise H. Britigan, hereby submit this original work as part of the requirements for the degree of:

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It is entitled:

Health Information Sources and Health Literacy Levels of Latinos in a Midwestern Tri-State Area

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HEALTH INFORMATION SOURCES AND HEALTH LITERACY LEVELS OF LATINOS IN A MIDWESTERN TRI-STATE AREA

A dissertation submitted to the Division of Graduate Studies and Research of the University of Cincinnati
In partial fulfillment of the requirements for the degree of DOCTOR OF HEALTH EDUCATION in the School of Human Services of the College of Education, Criminal Justice & Human Services

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ABSTRACT

AN ABSTRACT OF THE DISSERTATION FOR THE DEGREE OF DOCTOR OF HEALTH EDUCATION, PRESENTED ON NOVEMBER 12, 2009, AT THE UNIVERSITY OF CINCINNATI, OH.

TITLE: Health Information Sources and Health Literacy Levels of Latinos in a Midwestern Tri-State Area

DISSERTATION COMMITTEE MEMBERS: Dr. Liliana Rojas-Guyler (Chair), Dr. Keith A. King, Dr. Judy Murnan and Dr. Lisa Vaughn

The purpose of this research study was to determine the sources of health information and the health literacy levels of Latinos in the tri-state area and to determine possible relationships with acculturation levels, country of familial origin, or other demographical characteristics. Variables were observed through focus groups and person-to-person orally-administered surveys with adult participants from the local Latino community. The results of this study may facilitate the ability of health educators and other health professionals to understand preferences and abilities of the Latino community and contribute to their ability to deliver culturally competent communication and health education messages.
The population studied was a convenience sample of Latino adults ($N = 214$) living in a large, metropolitan area (“tri-state area”) in the Midwest region of the United States.

The 14 hypotheses that the researcher investigated were to see if the sample population’s sources of health information varied with their respective health literacy levels (in English and/or Spanish), acculturation, and/or other demographic variables such as country/region of familial origin, length of residence in the U.S., education level, age, or gender. Because the variables mentioned above did not meet the assumption of normality distribution, non-parametric statistical analyses were performed to determine if any statistically significant relationships existed. The results of the analyses showed statistical significance for all of the relationships studied, such that all of the 14 null hypotheses were rejected.

Regarding the main source of health information for all of the surveyed participants, almost half chose a medical source as their main source for health information. Two-thirds of the participants that took the S-TOFHLA in Spanish had adequate functional health literacy in Spanish, almost a quarter had low functional health literacy in Spanish, and that the remaining few had marginal functional health literacy in Spanish. A little more than three quarters of the participants read at or below the 7th - 8th grade level in English as measured by REALM-SF, and less than a quarter at the >=9th grade level in English. For those participants that took the S-TOFHLA in English, the majority had adequate
functional health literacy in English and the remaining two participants each had marginal or low level functional health literacy respectively. Almost all of the participants had high adherence to the Hispanic domain, slightly more than half had low adherence to the Non-Hispanic domain, and that almost half of the research study participants were bicultural (As measured by the Bi-Dimensional Acculturation Scale).

A person’s health literacy in English (i.e., their ability to read medical terms in English) varied with their health literacy in Spanish, their acculturation to the U.S. cultural domain, their acculturation to the Hispanic domain, their country / region of origin, their length of residence in the U.S., their age, or their gender. In addition, the local adult members of the Latino community researched in this study that had inadequate FHL levels in Spanish had lived in the U.S. a shorter length of time than those with adequate FHL levels in Spanish. Spanish was the preferred language for health information by almost all of the participants in the focus groups and the survey participants. Although three-quarters of the participants have looked for health information due to an illness in the past, the respondents were split approximately in half regarding preventive health information seeking behavior versus those that preferred to look for information only when ill.

Health literacy is a multifaceted issue that requires a multi-sectorial approach for our society. It is the researcher’s opinion that there is room for improvement in the ways in which health education and health promotion programs connect with racial/ethnic minority populations. Three general
approaches are recommended. First, evaluation and assessment of literacy, reading grade level and numeracy skills (for example, using numeracy props techniques) of the target audience for health education programs in the Latino community must be conducted. Second, the selection of the tools to measure these abilities must be practical and reliable to support their use in the field. And third, we must meet health education program participants at the appropriate language and reading level needs of the individuals.
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CHAPTER ONE

The Problem

A major role of health promotion and education specialists is the improvement of health, health care quality, and quality of life of individuals and society by addressing health disparities. The Healthy People 2010 initiative, a set of health promotion and disease prevention objectives for the nation, aims to eliminate health disparities by the year 2010. This includes a health communication focus area with a goal to use communication to strategically improve health (U.S. Department of Health and Human Services (USDHHS), 2000a).

Health education programs are based on theories which require sustained adoption of new attitudes, skills, and behaviors by the community or targeted subgroup for the purpose of improving health and the quality of life. Needs assessments establish a foundation of knowledge for the health educator about a community or subgroup in order for interventions and/or activities to be designed to influence behavior change. In an over-simplification, health educators are trained to Assess—Plan—Implement—Evaluate health promotion and education programs.

Communication with its four components (sender, receiver, channel, and message) binds those processes together. In the context of health education and promotion, knowing whether or not the message reached the intended receiver and whether or not the message was understood and/or used by the
receiver, thereby completing the communication loop, is an area that needs more research (du Pre, 2005; Finnegan & Viswanath, 2002).

In order to capture the benefits from a completed communication loop, health educators must have a baseline understanding of their community’s health behaviors and their communication channels by identifying their sources of health information and by measuring their community’s functional health literacy levels. Once a working knowledge of the sources of health information resources and the functional health literacy levels of the target subgroup members were known, health educators could develop health promotion programs which are successful in changing health behaviors, particularly for the racial / ethnic minority and underserved communities that experienced higher rates of health disparities (Institute of Medicine, 2004; Luquis & Pérez, 2008). Equipped with this knowledge, as part of the assessment process of a subgroup to which programs were directed, health educators would then better channel health promotion resources for successful outreach. Without an understanding of those fundamental concepts, the health education and promotion program would lack a firm foundation and might not meet the needs of the target group with sufficient cultural competence. The group would not benefit from the program to its fullest, and the problem of health disparity would continue (Andreasen, 2006; Cheong, 2007; Glanz, Rimer, & Lewis, 2002; Hudson & Watts, 1996; Williams & Parker, 1995).

This study was based on a prior pilot study (2006-07) which investigated three areas fundamental to successful health promotion and education
programs for Latino residents in two southwest counties of Ohio (Britigan, Murnan, & Rojas-Guyler, 2009). The three areas were: identification of the sources of health information for a subgroup of the population, measurement of an individual’s functional health literacy (FHL) level, and identification of the perceived barriers to accessing sources of health information. In that study, and in this one, the term Latinos was used to refer to persons of Latin American or Spanish origins. The pilot study involved a survey in which 54 Latino adults answered demographic questions, a bi-dimensional acculturation subscale for linguistic proficiency, the short version of the Test of Functional Health Literacy in Adults (S-TOFHLA), and open-ended questions about their sources for health information. Results showed that almost two-thirds of the participants had low acculturation levels to US culture. Overall, the major source of health information was a medical setting, followed by media technology (which included the Internet). However, when it came to being ill, the primary source became a media choice, then medical. The barriers to accessing health information included language and lack of confidence/knowledge. Participants reported moderate satisfaction with the sources of health information available, and had an ‘adequate’ health literacy level in Spanish. In that pilot study, a need was identified to further investigate sources of health information, literacy levels with health information, and language preference with a larger sample.

A recent study which gathered socio-demographic data from 535 Latino adults in the Midwestern tri-state area determined that almost 79% of Latinos in the area were not acculturated to the predominant U.S. culture of the region
(Riffe, Turner, & Rojas-Guyler, 2008). That study noted the need to acquaint Hispanic/Latino newcomers with all aspects of the U.S. health care system and community services and “to identify and enhance services appropriate to their native cultures” (p.108). Specifically, the need existed for knowledge of local community health literacy levels due to the dearth of information.

This study utilized two standardized quantitative measures of health literacy instead of only one as used in the 2006-07 study and asked additional questions by using observational quantitative methodology (focus groups) with a convenience sample and expanded on the content, type and number of orally-administered survey questions (Bogden & Biklen, 2006; Cottrell & McKenzie, 2005; Patton, 2002; Robson, 1993). The use of two health literacy tests determined the health literacy levels in Spanish and in English. Since the pilot study offered the participants a choice of language for the health literacy test, the majority (almost 85%) chose Spanish. That data determined the health literacy level for those respondents in Spanish, but it did not determine how they did with recognition of medical terms in English.

As the local Latino community continues to grow at a rapid pace, health educators and other health professionals find themselves without sufficient information to serve the community. Currently, the literature on health information sources and health literacy levels for Latinos in the Midwest is sparse. Studies conducted on the east or west coasts and the southern border states of the United States are more plentiful. As Gibbs and Lurie (2006) acknowledge in their book, *Health Seeking Behavior in Ethnic Populations*, that…
the ethnic diversity of U.S. society, the need to extend comprehensive managed care to diverse social and ethnic groups, and recognition of the importance of culturally sensitive or “competent” health care for prevention, treatment compliance, and efficacy all have practical implications for applied research on health-seeking behavior (Gibbs & Lurie, 2007, p.9).

Culturally competent and appropriate health education and health services should include community specificity. Data from more established and larger Latino communities in other parts of the country do not reflect the heterogeneity of the local Latino community’s current and local health needs. Lack of this type of information hinders professional practice. The AHRQ Evidence Report (2004) by the Agency for Healthcare Research and Quality (AHRQ) (Agency for Healthcare Research and Quality (AHRQ), 2004) reported that low literacy has been linked to: poorer health, less use of preventive care, poorer control of chronic disease, lower quality care, medical errors, poor outcomes, and disparities (Agency for Healthcare Research and Quality (AHRQ), 2004).

According to the National Assessment of Adult Health Literacy (Kutner, Greenberg, Jin, & Paulsen, 2006) of US households and inmates (n = 19,000), the average health literacy score was the lowest for the Hispanic population (n~3,000). The NAAL was the first national assessment of English literacy which included items designed to measure health literacy directly through tasks completed by adults rather than relying on self reports and other subjective evaluations.
Latinos are the largest minority group in the U.S. and the fastest growing minority population in the state of Ohio and in the Midwestern tri-state area (Office of Minority Health, DHHS, last modified 10/28/2008; U.S. Bureau of the Census, 2000b). According to a report from the Commission on Hispanic/Latino Affairs of Ohio, Global-ready Ohio for the Twenty-first Century (GROh-21), the number of Latinos in Hamilton County alone had increased by 83% from 1990 to 2000 (Global-ready Ohio for the twenty-first century (GROh~21, 2007). The research literature documented that racial/ethnic disparities in health exist and members of minority groups suffer disproportionately from chronic illnesses and experience higher rates of morbidity and mortality. Differences in healthcare access continue to play a role in health disparities. Improvement of health status by addressing health disparities is a major role of health promotion and education professionals. Knowing where people turn for health information (sources) and their ability to understand and apply it (health literacy) was instrumental to developing successful health education/promotion programs.

Populations that would most benefit from improved access to and use of health information resources are those who experience a disproportionate lack of access to health services or those at risk of health disparities (Burroughs, 2000). By understanding that health education empowered an individual when used in the context of the individual’s knowledge, health beliefs, perceived social norms, and environmental influences on lifestyle choices, researchers have found that health educators could tailor health promotion activities to the individual’s functional health literacy level, which can result in improved health.
outcomes (Kickbusch, 2001; Nutbeam, 2000). Studies showed that patients’
diagnosis, treatment, and quality of care all varied according to insurance
coverage and type, provider cultural competency, patient-provider
communications, provider bias, provider discrimination, differential treatment
based on population group, patient preferences, adherence to treatment plans,
language barriers, diversity of the healthcare workforce, appropriateness of
care, and effectiveness of care (Health Policy Institute of Ohio, 2004; Institute
of Medicine, 2002; Kreuter & McClure, 2004).

According to a report from the Ohio Department of Health, the health of
minorities in Ohio is worse than that of Whites for many conditions and important
health indicators. Access to care, including health care insurance and
communication with health care professionals, was crucial to quality health
outcomes. It is critical that health care professionals, researchers and policy
makers identify and transform the delivery of health care in a manner that
reduced and eliminated health care disparities in Ohio and the United States
(Ohio Department of Health, 2005).

According to the Health Policy Institute of Ohio, Whites represent about
85% of the population in Ohio and minorities represent about 15%. The Hispanic
population in Ohio grew 36% between 1990 and 2000, and accounted for 2.3%
of the state’s total population (Health Policy Institute of Ohio, 2004; U.S. Bureau
of the Census, 2000a). The percent of persons of Hispanic or Latino origin in the
year 2000 for Cincinnati was listed by the U.S. Census Bureau as 1.3% of an
estimated population of 332,252 (2006 data). The percent of persons of Hispanic
or Latino origin in the year 2008 for the counties included in this research study are displayed in Table 1.1 for four counties in Ohio (Hamilton, Butler, Clermont, and Warren), three counties in Kentucky (Boone, Campbell and Kenton), and two counties in Indiana (Dearborn and Ohio) (U.S. Bureau of the Census, 2009).
Table 1.1

Census data for the research study population area, 2008

<table>
<thead>
<tr>
<th>State</th>
<th>County</th>
<th>Population</th>
<th>Percent Hispanic/Latino population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ohio</td>
<td>Hamilton</td>
<td>851,494</td>
<td>1.90</td>
</tr>
<tr>
<td></td>
<td>Butler</td>
<td>360,765</td>
<td>2.70</td>
</tr>
<tr>
<td></td>
<td>Clermont</td>
<td>195,385</td>
<td>1.30</td>
</tr>
<tr>
<td></td>
<td>Warren</td>
<td>207,353</td>
<td>1.90</td>
</tr>
<tr>
<td>Kentucky</td>
<td>Boone</td>
<td>115,231</td>
<td>3.20</td>
</tr>
<tr>
<td></td>
<td>Campbell</td>
<td>87,038</td>
<td>1.40</td>
</tr>
<tr>
<td></td>
<td>Kenton</td>
<td>157,629</td>
<td>2.00</td>
</tr>
<tr>
<td>Indiana</td>
<td>Dearborn</td>
<td>49,985</td>
<td>0.70</td>
</tr>
<tr>
<td></td>
<td>Ohio</td>
<td>5,773</td>
<td>0.60</td>
</tr>
</tbody>
</table>
However, oral conversations with social service providers and researchers in this geographical region revealed that the size of the population was underestimated by the census numbers. They suspected that the population in this tri-state area was closer to 30,000 Hispanics. This discrepancy in the population counts was most likely due to the undocumented nature of some community members and fear related to giving government officials personal information (Rojas-Guyler, 2006).

According to the Greater Cincinnati Community Health Status Survey (GCCHSS), adults in the Greater Cincinnati area had comparable perceived health status and physical health status as the general U.S. population and appeared to have better mental health status than the general U.S. population (Health Foundation of Greater Cincinnati, 2006). According to the 2005 Greater Cincinnati Hispanic/Latino Health Survey, Hispanic/Latino respondents perceived themselves to be in good health, with 96.1% of the respondents reporting that their health was good, very good, or excellent. Hispanic/Latino respondents reported lower or similar rates of chronic physical illnesses compared to the Greater Cincinnati region. The only exception was chronic digestive disease, which was slightly higher (7.1% for respondents vs. 5.7% for the regional rate). Hispanics/Latinos had about the same percentage of overweight respondents as did the Greater Cincinnati regional population, but far fewer Hispanics/Latinos were obese compared to the region (Health Foundation of Greater Cincinnati, 2006).
Statement of the Problem

A comprehensive review of the literature failed to identify any published study which had been conducted in the Midwest to determine the sources of health information for Latino adults, nor their health literacy levels in English and Spanish. The purpose of this research study was to determine the sources of health information and the health literacy levels of Latinos in the Midwestern tri-state area and to determine possible relationships with acculturation levels, country/region of familial origin, or other demographic characteristics. For the purposes of this research study, the tri-state area was defined as four counties in southeast Ohio, three counties in Kentucky, and two in Indiana (see Operational Definitions for specific counties). Variables will be observed through focus groups and person-to-person orally-administered surveys with adult participants from the local Latino community. This study utilized two standardized quantitative measures of health literacy instead of only one (2006-07 pilot study) and asked additional questions by using observational quantitative methodology (focus groups) and expanding on the content, type and number of orally-administered survey questions.

More specifically, the following research questions were examined:

1) What are the sources of health information for Latino adults in the Midwestern tri-state area?

2) What is the level of health literacy for Latino adults in the Midwestern tri-state area for Spanish language health information?
3) What is the level of health literacy for Latino adults in the Midwestern tri-state area for English language health information?

4) Is there a relationship between health literacy levels and acculturation or other demographic variables such as country/region of familial origin, length of residence in the U.S., education level, age, or gender?

5) What are the preferences of Latino adults in the Midwestern tri-state area regarding health information sources?

The results of this study may be used to facilitate the ability of health educators and other health professionals to understand health information preferences and abilities of the Latino community and contributed to the ability of the professional to develop and deliver culturally competent communication and health education messages.

Delimitations

The delimitations of this project were:

1) The population sample was delimited to adult participants (aged 18 or older).

2) Latino residents living in the Midwestern tri-state area during the summer of 2009.

3) Duration of the study: summer of 2009.

4) Lack of randomization of participants.
5) A primary limitation of the REALM, and REALM-SF, is that it does not discriminate above a ninth grade reading level, and only assigns grade-range estimates (Schwartzberg, VanGeest, & Wang, 2005).

Limitations

This study was limited by the following:

1) The ability of the interpreter to accurately capture the answers given by the participants.

2) The accuracy of translation of items into Spanish.

3) The reliability and validity of the Short Test of the Functional Health Literacy of Adults (S-TOFHLA), the Rapid Estimate of Adult Literacy in Medicine –Short Form (REALM-SF), and the Bi-dimensional Acculturation Scale (BAS).

4) It is the nature of convenience sampling that it was not possible to reach all Latinos.

5) The reading ability of the participants and, due to literacy issues, adaptations in methods for participation.

6) Focus group open-ended questions were written to determine and guide the creation of objective items for the survey instrument.

7) Word of mouth or having heard of the survey prior to participating could affect the participants' behavior as described in the Hawthorne effect.
8) Social desirability effect of the respondents may have taken place, especially those who requested/chose that the instrument be read to them or attempted the survey in a particular language, with an under or over estimation of their abilities.

9) The honesty of the participants was assumed for the self-reported responses.

10) The memory recall of the participants was assumed for the self-reported responses.

11) Participants were recruited into the convenience sample.

12) The limited sample size used for this study would preclude any generalizations to the greater Hispanic/Latino population.

13) Information quality and depth are limited to the questions developed to measure sources of information, barriers to health information access, preferences for information dissemination and demographical characteristics.

14) Information quality and depth of health literacy and acculturation are limited to that measured by the BAS, S-TOFHLA-S, and REALM-SF and the extent to which their previously established reliability and validity hold true to this sample.

**Assumptions**

The following assumptions were made in this research study:
1) It was assumed that participants in this study were able to read and understand all items on the survey and respond in an open and honest manner.

2) Locations selected were a good way to reasonably reach a representative sample of Latinos.

3) Instruments and administration were appropriate to culture, language, and readability levels.

4) Findings accurately represented the relationship between variables measured for this sample.

Hypotheses

This study had 14 investigative hypotheses. These hypotheses were:

H₁ The sources of health information for Latino adults in the Midwestern tri-state area vary by country/region of familial origin.

H₀₁ The sources of health information for Latino adults in the Midwestern tri-state area do not vary by country/region of familial origin.

H₂ The sources of health information for Latino adults in the Midwestern tri-state area vary by length of residence in the U.S.

H₀₂ The sources of health information for Latino adults in the Midwestern tri-state area do not vary by length of residence in the U.S.

H₃ The sources of health information for Latino adults in the Midwestern tri-state area vary by education level.
H_{a3} The sources of health information for Latino adults in the Midwestern tri-state area do not vary by education level.

H_4 The sources of health information for Latino adults in the Midwestern tri-state area vary by age.

H_{a4} The sources of health information for Latino adults in the Midwestern tri-state area do not vary by age.

H_5 The sources of health information for Latino adults in the Midwestern tri-state area vary by gender.

H_{a5} The sources of health information for Latino adults in the Midwestern tri-state area do not vary by gender.

H_6 There exists a relationship with the level of health literacy in English and the level of health literacy in Spanish.

H_{a6} There exists no relationship with the level of health literacy in English and the level of health literacy in Spanish.

H_7 There exists a relationship between health literacy levels in English and acculturation to U.S. culture.

H_{a7} There exists no relationship between health literacy levels in English and acculturation to U.S. culture.

H_8 There exists a relationship between health literacy levels in English and acculturation to Spanish culture.

H_{a8} There exists no relationship between health literacy levels in English and acculturation to Spanish culture.
H9  There exists a relationship between health literacy levels in English and country/region of familial origin.

H09 There exists no relationship between health literacy levels in English and country/region of familial origin.

H10 There exists a relationship between health literacy levels in Spanish and country/region of familial origin.

H010 There exists no relationship between health literacy levels in Spanish and country/region of familial origin.

H11 There exists a relationship between health literacy levels in English and length of residence in the US.

H011 There exists no relationship between health literacy levels in English and length of residence in the US.

H12 There exists a relationship between health literacy levels in Spanish and length of residence in the US.

H012 There is no relationship between health literacy levels in Spanish and length of residence in the US.

H13 There exists a relationship between health literacy levels in English and age.

H013 There exists no relationship between health literacy levels in English and age.

H14 There exists a relationship between health literacy levels in English and gender.
There is no relationship between health literacy levels in English and gender.

**Operational Definitions**

1. Health literacy, as defined by Ratzen & Parker (2000), and accepted by the Institute of Medicine and *Healthy People 2010*, a set of national disease prevention and health promotion objectives led by the U.S. Department of Health and Human Services, is:

   “The degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.” (Institute of Medicine, 2004, p. 4; U. S. Department of Health and Human Services (USDHHS), 2000a).

2. Hispanics or Latinos, as defined by the U.S. Bureau of the Census, are those people who classified themselves in one of the specific Spanish, Hispanic, or Latino categories listed on the Census 2000 questionnaire - "Mexican, Mexican Am., Chicano," "Puerto Rican," or "Cuban"-as well as those who indicate that they are "other Spanish/Hispanic/Latino." (U.S. Bureau of the Census, 2006). In this study/manuscript, the term Latino was used instead of Hispanic except for quotations.

3. Midwestern tri-state area: For the purposes of this study, the Tri-State area included Hamilton, Butler, Clermont, and Warren counties in Ohio;
Boone, Campbell and Kenton counties in Kentucky; and Dearborn and Ohio counties in Indiana.

4. Cultural competence: According to the definition by Luquis & Pérez (2008), cultural competence is

…the capacity of an individual and organization to understand, behave, and respect the values, attitudes, and beliefs of different cultural groups, and to incorporate these differences in the development and implementation and evaluation of policies and health education and promotion programs (Luquis & Pérez, 2008, p. 236).
The purpose of this research study was to determine the sources of health information and the health literacy levels of Latinos in the tri-state area and to determine possible relationships with acculturation levels, country of familial origin, or other demographical characteristics. Variables were observed through focus groups and person-to-person orally-administered surveys with adult participants from the local Latino community. The results of this study may facilitate the ability of health educators and other health professionals to understand preferences and abilities of the Latino community and contribute to their ability to deliver culturally competent communication and health education messages.

Theories in health education and health communication that explain what motivates or influences changes in behaviors include Social Learning Theory, Health Belief Model, Extended Parallel Process Model, Stages of Change Model, Diffusion of Innovations Theory, and Community Organization (Finnegan & Viswanath, 2002; Glanz et al., 2002). Behavior change theories explain the factors that shape behavioral action (Burroughs, 2000; Lewis, 1994). Social capital, as noted by Dr. Roberto Treviño (2005), is communication exchanges that occur between two entities aimed at influencing behavior. Communications are bi-directional, have a positive or negative influence and exist at the individual and group level. Social capital can be sent from and received by an individual.
and/or an organization (Treviño, 2005). Finnegan and Viswanath define Information flow as the “degree of information availability on an issue in a social system such as a community organization” and an application would be “increasing opportunities (through multiple channels) to encounter health information” (Finnegan & Viswanath, 2002, p.370). In addition, Erwin and colleagues used the PEN-3 Model to analyze their findings in a study, “Incorporating Cultural Constructs and Demographic Diversity in the Research and Development of a Latina Breast and Cervical Cancer Education Program”. The results demonstrated,

…a mechanism for creating a culturally competent program, Esperanza y Vida, through progressively analyzing the findings to define the key perceptions, enablers, and nurturers, then applying this information to construct program components to address appropriate health behavior and cultural components that address the specific needs of a diverse Latino population (Erwin, Johnson, Feliciano-Libid, Zamora, & Jandorf, 2005, p.39).

According to a presentation made by nationally known health literacy expert, Terry C. Davis, PhD, Dr. Richard Carmona, a former U.S. Surgeon General, has mentioned health literacy in 200 of his last 260 speeches. He had said,

“Public health emphasis is on getting information ‘out’ to people not whether it has been understood and used”… “Health care professionals do not recognize
that patients do not understand the health information we are trying to communicate" (Davis, November 10-12, 2008).

In a qualitative pilot study, Britigan and colleagues (2009) determined health literacy levels to fill an existing information gap for the Midwest Latino community through orally-administered surveys with 52 Latino participants (Britigan et al., 2009). The pilot study determined the health information-seeking behavior of a cross-sectional sample of Latino adults in two counties in southwest Ohio. The study showed that almost two-thirds of the Latino residents studied had low acculturation levels to U.S. culture. Overall, the major source of health information was a medical setting, followed by media technology (which included the Internet). However, when it came to being ill, the primary source became a media choice, then medical. The barriers to accessing health information included language and lack of confidence/knowledge. Participants reported moderate satisfaction with the sources of health information available, and had an ‘adequate’ health literacy level in Spanish.

Other studies with this population subgroup have been conducted such as the 2005 Greater Cincinnati Hispanic/Latino Health Survey (GCHLHS) (n = 533), which measured a) demographics, b) acculturation, c) health status, d) health insurance coverage, e) access to healthcare, f) prenatal care and birth outcomes, g) mental health, and h) cigarette and alcohol use. Other local studies in the area, have measured a) sexuality topics discussed by parents, sources of sexuality education, sexual risk behaviors, and attitudes about who should educate children about sexuality; b) coping mechanisms for understanding and
remembering what the doctor said; and c) Health-seeking behaviors among Latinas: practices and reported difficulties in obtaining health services (Rojas-Guyler, King, & Montieth, 2008), and found that language was the number one barrier to health care access identified by Latino respondents (Britigan et al., 2009; Health Foundation of Greater Cincinnati, 2006; Health Foundation of Greater Cincinnati, 2006; Rojas-Guyler et al., 2008; Rojas-Guyler & King, 2007; Wells, Chenier, Ludke, Downing, & Shaw, 2001). However, the sources of health information were not determined and the functional health literacy levels among the Latino community also were not documented in a representative number.

Research conducted by the Institute of Medicine (IOM) (Institute of Medicine, 2002) showed that language barriers can cause poor, abbreviated, or erroneous communication, poor decision making on the part of both providers and patients, or ethical compromises. The implementation of appropriate Language Access Services (LAS) in healthcare settings can serve to:

- Increase access to care
- Improve quality of care, health outcomes, and health status
- Increase patient satisfaction and
- Enhance or ensure appropriate resource utilization.

The topic of language was further explored throughout the remainder of this chapter.

Specifically, this chapter presented a summary of relevant literature on: a) Ohio demographics, b) health disparities in ethnic minority populations, c) health status for Latinos, d) Latino health beliefs and acculturation, e) cultural
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competence in healthcare, f) health communication (which included current discussion on the shift of the burden from the health information seeking behavior of community members to the providers’ and health systems’ health literacy skills, too, which made the focus on an effective interaction), g) barriers to health communication, h) literacy, i) health literacy, and j) sources of health information (formats, readability levels, etc.). Each topic explored in this chapter was interrelated to the other and to the Latino population in the context of health promotion and education.

Demographics

Language-minority subpopulations, as described in the literature, contain a disproportionately high number of vulnerable members, including adults and children living in or near poverty, the less educated, and the elderly. Studies have demonstrated that individuals with low levels of English proficiency or who were linguistically isolated often had greater difficulties gaining access to medical care and other social services than did English speakers. The U.S. Census Bureau defined a linguistically isolated household as one in which no person over the age of 14 speaks only English or speaks the language “very well” (National Institute of Child Health and Human Development, NIH, DHHS, 2001). A lack of proficiency in English contributed to the disparities in health outcomes among some minority groups. According to the 2000 Census, minorities represented approximately 25 percent of the nation’s population. Hispanics (Note: word used in Census), the nation’s largest minority group, represent 12.6 percent of the
population with 11 percent of the United States population citing Spanish as their primary language. Hispanics and Asians accounted for more than 50 percent of the nation’s population growth; between 2000 and 2050, the Hispanic and Asian populations will more than triple, with Hispanics representing nearly a quarter of the total population and Asians representing 8 percent (U.S. Bureau of the Census, 2000b).

According to the Health Policy Institute of Ohio, Whites (Note: the words White and Hispanic were used in the report) represented about 85 percent of the population in Ohio and minorities represented about 15%. The Hispanic population in Ohio grew 36% between 1990 and 2000, and accounted for 2.3% of the state’s total population (Health Policy Institute of Ohio, 2004; U.S. Bureau of the Census, 2006). The percent of persons of Hispanic or Latino origin in the year 2000, listed by the U.S. Census Bureau, for the nine counties in the tri-state area is as follows: Ohio (total population: 11,485,910) Butler 2.7%, Clermont 1.3%, Hamilton 1.9%, and Warren 1.9%; Kentucky (total population: 4,269,245) Boone 3.2%, Campbell 1.4%, and Kenton 2.0%; and Indiana (total population: 6,376,792) Dearborn 0.7%, and Ohio county 0.6% (U.S. Census Bureau, 200).

The data analysis of the pilot study by Britigan and colleagues (n = 52) showed the mean age of the respondents to be 34 years of age and he/she has lived an average 10 years in the USA. Almost half had an education level of 12th grade or lower. The group was predominantly female (60%), living together or married (68%) and had a mean annual household income of nearly $28,000. Several countries were represented in the 52 participants of the study with 36%
being from Mexico, 17% from Guatemala and the remainder from 11 other countries (Britigan et al., 2009).

*Health Disparities among Ethnic Minority Populations*

Research on racial/ethnic disparities in health confirms that members of minority groups suffer disproportionately from chronic illnesses such as cardiovascular disease, diabetes, asthma, cancer, and other morbid conditions. In many cases, the racial and ethnic minority and underserved communities experience higher rates of morbidity and mortality. Differences in healthcare access also play a role in health disparities (Collins, 1995; Williams et al., 1995). Health communication levels and functional health literacy levels were found to be marginal or low for minority and ethnic communities. Baker and colleagues (1997) found that patients with inadequate functional health literacy were more likely to report poor health status than those with adequate reading skills (Baker, Parker, Williams, Clark, & Nurss, 1997).

*Latino Health Disparities*

Discussion of health disparities in minority populations is important to frame the overarching problem that racial and ethnic minorities tended to receive a lower quality of care than non-minorities. This occurs even when access-related factors were controlled (e.g. health insurance status, income, etc.). Racial and ethnic disparities in healthcare are consistent across a range of illnesses and services. Because much of American social and economic life was ordered by
race and ethnicity, and minorities remained disadvantaged relative to whites, the minorities’ paradigm also affected their perceptions and responses in care settings, too. Poorly managed chronic conditions or missed diagnoses often lead to a lack of trust in health professions by Hispanic/Latino individuals and may affect their willingness to seek care and adhere to treatment regimens (Institute of Medicine, 2002).

*Latino Health Status in the United States*

The U.S. Department of Health and Human Services (DHHS) has posted a *Hispanic/Latino Profile* under the auspices of the Office of Minority Health. In the profile, which included demographic information across the United States, a series of quick facts & summaries are posted for a variety of health topics as well as links to census data. Some of these facts are presented here:

Health- Hispanic health is often shaped by factors such as language/cultural barriers, lack of access to preventive care, and the lack of health insurance. The Centers for Disease Control and Prevention has cited some of the leading causes of illness and death among Hispanics, which include heart disease, cancer, unintentional injuries (accidents), stroke, and diabetes. Some other health conditions and risk factors that significantly affect Hispanics are: asthma, chronic obstructive pulmonary disease, HIV/AIDS, obesity, suicide, and liver disease (Office of Minority Health, DHHS, last modified 10/28/2008).
In 2005, the rate of adult immunizations for influenza and pneumonia for adult Hispanics was lower than for adult non-Hispanic Caucasians, and Hispanic children were slightly less likely to be fully immunized, when compared to non-Hispanic white children.

On a positive note, in 2004, Hispanics were less likely to have the following health concerns compared to non-Hispanic Caucasians: prostate cancer, breast cancer, and heart disease. In addition, the rate of low birth weight infants was lower for the total Hispanic population in comparison to non-Hispanic Caucasians. In 2005, Hispanic men were 15% less likely to die from a stroke than non-Hispanic white men, and Hispanic women were 25% less likely to die from a stroke than non-Hispanic white women. It is also important to note that there existed disparities among Hispanic subgroups for health concerns as well.

Nationally, the Health Policy Institute of Ohio report, *Understanding Health Disparities* (2004), summarized the health status of Hispanics with the following list: 1) Hispanics are 1.9 times more likely than whites to have diabetes; 2) the death rate is 40 percent higher for Hispanics with diabetes than for whites; 3) Hispanics have higher rates of cervical, gallbladder, and stomach cancer than whites; 4) Hispanic participation in cancer treatment trials in the United States declined from 3.7 to 3 percent; 5) women of racial and ethnic minorities were less likely to have mammograms and Pap tests than white women; 6) when hospitalized with acute myocardial infarction, Hispanics are less likely to receive aspirin and beta-blockers than whites; 7) Hispanics and African Americans
account for over 50 percent of the newly reported AIDS cases in the United States (Health Policy Institute of Ohio, 2004).

**Ohio Latino health status.** According to the Ohio Department of Health report, *Ohio Minority Health Profile*, the health of minorities in Ohio was worse than that of whites for many conditions and important health indicators. Access to care, including health care insurance and communication with health care professionals, is crucial to quality health outcomes. It is critical that health care professionals, researchers and policy makers identify and transform the delivery of health care in a manner that reduced and eliminated health care disparities in Ohio and the United States (Ohio Department of Health, 2005).

In Ohio, according to the Ohio Hospital Association newsletter, *Healthbeat* (November, 2003), the Commonwealth Fund found Spanish-speaking Hispanics had poorer health status, were less likely to have a regular doctor and often do not have insurance, relying instead on public or community health care. The newsletter, as well as Betancourt et al (2003), stated that the lack of insurance coverage, combined with cultural norms that may not encourage seeking care outside of the family, and contribute to the high volume of the Hispanic population not visiting a health care provider (Betancourt, Green, Carrillo, & Ananeh-Firempong, 2003; Ohio Hospital Association, November 2003). In Ohio, African Americans and Hispanics account for just under 50% of newly reported AIDS cases (Health Policy Institute of Ohio, 2004).

According to the Greater Cincinnati Community Health Status Survey (GCCHSS), adults in the Greater Cincinnati area had comparable perceived
health status and physical health status as the general U.S. population and appear to have had better mental health status than the general U.S. population (Health Foundation of Greater Cincinnati, 2006). The following key findings resulted from the 2005 GCHLHS: 1) Hispanic/Latino respondents perceived themselves to be in good health and 96.1% of the respondents reported that their health was good, very good, or excellent; 2) Respondents reported lower or similar rates of chronic physical illnesses compared to the Greater Cincinnati region. The only exception was chronic digestive disease, which was slightly higher (7.1% for respondents vs. 5.7% for the regional rate)3) The majority of female Hispanic/Latinos who had ever been pregnant reported receiving prenatal care; 4) One in ten female respondents reported that their last child born had a low or very low birth weight; 5) Respondents had a slightly higher rate of experiencing psychological distress but a lower rate of depression than the region; 6) Fewer Hispanics/Latinos reported smoking than the regional rate, but both groups have higher rates than the national rate; 7) More Hispanics/Latinos reported binge drinking (consuming 5 or more drinks on one occasion) than the regional rate (Health Foundation of Greater Cincinnati, 2006).

*Latino Health Beliefs and Acculturation*

Research shows that factors contributing to racial/ethnic health disparities included variations in health beliefs, values, preferences and behaviors among others. Skelly and colleagues (2002) stressed the importance of developing methods to assess how people in a community learn about disease, particularly
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those of different cultures and ethnicities (Skelly et al., 2002). These researchers used the knowledge of learning from leaders in the community (e.g. ministers), from community workers (e.g. bartenders, barbers & beauticians), and specific community resources (e.g. health care centers) through geographical analysis. Medical geographers use special analysis and mapped out “health knowledge nodes” (HKNN), which were places where health knowledge was transferred, so that healthcare providers could understand which people used which nodes to influence their healthcare practices (Skelly et al., 2002). Since individuals rely on multiple sources of health information sources including relatives and friends, churches, work, home, recreation sites, it is important to recognize the context in which knowledge and beliefs were communicated.

According to Mezzich and colleagues (2000), the Latino cultural profile, with variations across many demographic lines, tends to include group orientation, eagerness for interpersonal harmony, closeness in interpersonal space, family loyalty and attachments, high deference to authority figures, focus on the present and elasticity in time orientation, and markedly defined gender roles. Interest in the concept of quality of life, along with those of social functioning and social supports, is growing within a broad concern for positive aspects of health for both clinical care and epidemiological purposes (Mezzich et al., 2000). It is important to include these aspects of well-adjusted Latinos (Lang et al., 1982) when publishing information because much has been written based on statistics which focus on mortality and morbidity. For example, Lang and colleagues (1982) stated that information about the psychological functioning of
Latinos in the United States has been based on data primarily from situations of dysfunction, crisis and/or psychopathology (Lang, Munoz, Bernal, & Sorensen, 1982). Regarding health beliefs, Latinos, with demographic variations, tend to be family centered and had defined gender roles. In the book, *Cultural Diversity in Health and Illness*, Spector dedicates a chapter to Health and Illness in the Hispanic Populations (2007). The chapter re-capped the diversity of the demographics of Hispanics as a whole. She then discussed Mexicans and their beliefs (the body’s imbalance, dislocation of the parts of the body, magic or supernatural causes outside the body, strong emotional states, and *envidia* or envy), religious rituals (making promises, visiting shrines, offering medals and candles, and offering prayers), *curanderismo* (folk healer), *parteras* (midwives), and emotional illnesses. She did not include *promotores de salud* in the discussion. Next, Spector focused on Puerto Ricans’ common folk diseases and their treatment, and their entry into mainland health systems. She explained that Puerto Ricans seeking health care may go to a physician, a folk practitioner, or both --- and that not all do the same. A progression of seeking care is as follows: the person may seek advice from a female family member because the women are the primary healers and dispersers of medicine on the family level. Next, if advice is not sufficient, the person may seek help from a *senoria* (a woman especially knowledgeable about the causes and treatments of illness). Then, “if the *senoria* is unable to help, the person goes to a more sophisticated folk practitioner (an *espirista* or a *curandera* / or, if the problem is ‘psychiatric’, a *santero* may be consulted.” These were people who obtain their knowledge from
spirits and may use herbs, lotions, creams, and massage. Then, if still not satisfied, a person may go to a physician. Finally, if the results are not satisfactory the person may return to a folk practitioner. Medical (physician) help may be sought sooner or may go back and forth between the two systems. Often a botanica was used for the purchase of herbs, potents, Florida water, ointments, and incense prescribed by spiritualists. The point that Spector made was that the Hispanic health profile was “marked by diversity, and people of the Hispanic community experience perhaps the most varied set of health issues encountered by any of the emerging majority populations” (2007, p. 308).

Popularly known in the Latino community as Promotores de Salud, the Spanish term for a promoter of health, these respected individuals were often considered to be the equivalent of the community health worker in the United States. Medina, Balcazar, Hollen, Nkhoma, and Mas (2007), described it as:

Community Health Worker (CHW) is someone who (a) is a member of the community, (b) spreads new information, (c) attempts to influence healthy behavior, (d) provides education, advice, social support, and aid to his/her community. CHWs also provide community-based services such as assessment of health and risk status, delivery of educational interventions, and tracking and monitoring of fellow community members (Medina, Balcazar, Hollen, Nkhoma, & Mas, 2007, p. 195.).

Hudson and Watts (1996) looked at Hispanic preferences for health care providers and health care information in Lubbock County, Texas. Their review of the literature showed that Hispanic elders shared beliefs such as viewing the
mental and spiritual selves as inseparable; emphasizing strong family ties, family loyalty, and reciprocity; emphasizing personal relationships, politeness, and respect; and the continuing use of folk healers. Their study included only Hispanic residents with telephones. They defined Hispanics as Mexican-Americans, Puerto Ricans, or Cubans. The sample size was 522 Hispanic respondents. The results of their study showed that 64% of the respondents indicated that most of the health care decisions for the family were made by the mother. The majority of the respondents (51%) received most of their information regarding health care services from family and friends. According to Hudson and Watts, college graduates (33%) were more likely than non-college grads to depend on media for information about health care services. Hispanics relied more on self-efficacy and internal communication than media. The researchers found that 58% of the respondents depended on family and friends for information about physicians, 13% relied on media, however 23% of the college graduates used media for seeking information about physicians. Hudson and Watts concluded that to effectively disseminate information regarding health care services and physicians, health care marketers may consider a combination of self-efficacy and media target to the mother (Hudson & Watts, 1996).

Acculturation. Acculturation was described as a group or individual process of adaptation or assimilation by an ethnic or racial group (or individual) to a host culture and could occur in sedentary or migrant individuals, not only voluntarily among immigrants but involuntarily among indigenous peoples and refugees (Berry & Corbridge, 2005; Dana, 1996). Marín and Gamba (1996)
described acculturation as a long-term fluid process in which individuals simultaneously move along at least two cultural continua and whereby individuals learn and/or modify certain aspects of the new culture and of their culture or origin (Marín & Gamba, 1996). As Martinez-Schallmoser and colleagues (2003) reported, acculturation was a complex process. In their study, acculturation was defined as an adjustment process whereby a person acquired or failed to acquire the customs, values, ethnic identity, language, cognitive perceptions, and semantic (cognitive/affective) descriptions of an adopted culture as a result of socio-cultural interactions while retaining or failing to retain the norms of his or her culture (Martinez-Schallmoser, Telleen, & MacMullen, 2003).

Lang, Munoz, Bernal and Sorensen (1982) determined that well-adjusted Latinos had better paying jobs, a better education, more years in the United States, and higher levels of acculturation (Lang et al., 1982). Marín (1993) and Betancourt, Green, Carrillo, and Ananeh-Firempong (2003) noted that recently arrived Hispanics seemed intent on maintaining their language, cultural values, and other group-specific characteristics such that any community interventions would need to be designed to be culturally competent (Betancourt et al., 2003; Marín, 1993).

Acculturation instruments. Dana (1996) reviewed five measures of acculturation, four measures were for Mexican Americans and one was for Cuban Americans. The scales included the Acculturation Rating Scale for Mexican Americans (ARSMA/ARSMA II), Cultural Life Style Inventory (CLSI), Bicultural/Multicultural Experience Inventory (B/MEI), Measure of Acculturation
(MOC), and the Bicultural Involvement Questionnaire (BIQ) (Dana, 1996). Marín and Gamba (1996) published a study concurrently with Dana so was not included in the list reviewed by Dana. The Bi-dimensional Acculturation Scale for Hispanics (BAS) was developed by Marín and Gamba for two major cultural domains (Hispanic and non-Hispanic) by including 12 items (per cultural domain) that measure three language-related areas. According to Marín et al, the scale worked well with Mexican Americans and Central Americans. The scale measured bidirectional changes in behavior in two cultural domains (Hispanic and non-Hispanic) which was an improvement over the previous scales which were unidimensional in nature. This study used the Linguistic Proficiency subscale of the BAS which included three subscales: Language Use subscale, Linguistic Proficiency subscale, and Electronic Media subscale. According to the authors, when needed, the Linguistic Proficiency subscale (BAS/LP) could be used by itself to get a quick but efficient measure of the level of acculturation of the respondents (Marín & Gamba, 1996). The Linguistic Proficiency subscale had a readability level of 4.2 using the Flesch-Kincaid in Microsoft Word.

*Latinos and acculturation in Ohio*. The Hispanic/Latino population sampled in the Greater Cincinnati Hispanic/Latino Health Survey (2005) and the Midwestern population studied by Rojas-Guyler and colleagues showed that almost 80% of the respondents reported a preference for Hispanic/Latino social environments and the Spanish language over English. This indicated a low level of acculturation to the U.S. culture (Health Foundation of Greater Cincinnati, 2006; L. Rojas-Guyler et al., 2008). Similarly, the pilot study found that almost 2/3
of the participants had low acculturation levels to U.S. culture (Britigan et al., 2009).

*Cultural Competence*

As noted in the operational definitions previously, Luquis and Pérez (2008) defined cultural competence as having the capacity to incorporate cultural group differences into the development, implementation, and evaluation of policies and programs. According to Betancourt and colleagues (2004), a culturally competent health promotion program was one which was aware of the integration and interaction of health beliefs and behaviors, disease prevalence and incidence, and treatment outcomes for different populations (Betancourt, Carrillo, Green, & Maina, 2004; Betancourt et al., 2003). Successful health promotion and education programs among minority and underserved communities usually include tailored communications which influenced and changed attitudes, skills, and behaviors based on participant demographics. These were tailored communications based on social-psychological as well as communication and persuasion theories and models (Campbell & Quintiliani, 2006). Health promoters and health service agencies needed to consider the target population’s needs during the early planning and design process for their promotional items. Areas such as plain language, reading level, bilingual text and inclusive photographs of the target population should be considered when planning promotional materials.

*Cultural competence in Ohio.* Rojas-Guyler and colleagues studied Latino cultural competence among Health Educators and found it lacking. The results of
their study indicate that Health Educators with graduate degrees scored higher on the knowledge component, while nearly 70% of all respondents acknowledged feeling comfortable in their interactions with Latinos. However, lack of bi-lingual staff and culturally specific knowledge were reported as primary barriers (Rojas-Guyler, Wagner, & Chockalingam, 2006).

*Health Communication*

*Healthy People 2010* is a comprehensive set of disease prevention and health promotion objectives for the Nation to achieve over the first decade of the 21st century (U. S. Department of Health and Human Services (USDHHS), 2000a). The effort had two overarching goals: to increase the quality and years of healthy life and to eliminate health disparities. *Healthy People 2010* featured 28 focus areas, 467 science-based objectives, and 10 Leading Health Indicators. It identified a wide range of public health priorities and specific, measurable objectives. The document clearly stated the importance of health communication. It was focus area #11 of the 28 focus areas. The goal of the focus on health communication is to use communication strategically to improve health. The developmental objective (#11-2) within that one is to improve the health literacy of persons with inadequate or marginal literacy skills.

Health communication contributes to all aspects of disease prevention and health promotion and was relevant in a number of contexts, including (1) health professional-patient relations, (2) individuals’ exposure to, search for, and use of health information, (3) individuals’ adherence to clinical recommendations and
regimens, (4) the construction of public health messages and campaigns, (5) the dissemination of individual and population health risk information, that is, risk communication, (6) images of health in the mass media and the culture at large, (7) the education of consumers about how to gain access to the public health and health care systems, and (8) the development of telehealth applications (U. S. Department of Health and Human Services (USDHHS), 2000a), p. 11-3). In addition, the set of 10 Leading Health Indicators, which focused on key health improvement activities and were described in Healthy People 2010: Understanding and Improving Health, all depended to some extent on effective health communication (U. S. Department of Health and Human Services (USDHHS), 2000b).

Current discussion on a health literacy listserv, moderated by the National Institute for Literacy, has centered on the possible shift in the definition of health literacy. Questions that are being asked include: “Do I work in a health literate organization?”, “Is my community health literate?”, “Is my community health literate?” The widely accepted definition, as stated earlier, “The degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions” (Institute of Medicine, 2002) would become “…capacity of individuals, organizations and communities to obtain, process, understand and share basic health information and services needed to make appropriate health decisions.” The word services places emphasis not on what we say, but on what we do to help people make appropriate health decisions (Smith, W., December 2008).
The newer focus was one in which health providers would have some responsibility in the health literacy burden. For example, rather than refer to skills that patients have or don’t have (“obtain, process, understand…”), providers may soon be part of a new definition that includes the providers’ and systems’ skills to “share” and “communicate” in ways that allow patients to do their part more effectively (McKinney, J., Health Literacy List Moderator, December 2008).

Barriers to health communication. Another aspect of the role of health promotion and education programs in eliminating health disparities for racial/ethnic minority populations was the language barrier. The literature well documented that language was a barrier to effective health communication and led to patient dissatisfaction, noncompliance, and fewer physician visits (du Pre, 2005; Flores, Castro, & Fernandez-Esquer, 1995; Morales, Cunningham, Brown, Liu, & Hays, 1999; Rojas-Guyler et al., 2008; Sarver & Baker, 2000; Sleath, Rubin, Campbell, Gwyther, & Clark, 2001). The data from the 2000 U.S. Census revealed that more than 46 million people in the United States did not speak English as their primary language, and more than 21 million people spoke English less than “very well”. This number was higher than in the 1990 U.S. Census (U.S. Bureau of the Census, 2000b). In addition, health communication is one of the objectives for improving health listed in Healthy People 2010 (U. S. Department of Health and Human Services (U. S. Department of Health and Human Services (USDHHS), 2000a). Health information for health promotion and education programs needed to be accessible, written at appropriate health
literacy levels, and tailored to the target population in order to eliminate health disparities among this racial/ethnic minority.

Everyday interactions with family and with others in the community usually depended on the ability to communicate with language. However, in a setting where the native language was not the predominant language spoken, sometimes the services of an interpreter was needed. In a crisis situation when health care was needed immediately, and communication was of utmost importance, it could mean the difference between life and death (Flores, 2006). A lack of proficiency in English was thought to contribute to disparities in health outcomes among some minority groups. On August 6, 2001 the Census Bureau released new 2000 Supplemental Survey Tables with updated estimates showing that Spanish speakers accounted for 60% of the 45 million individuals who reported speaking a language other than English at home. Among the elderly aged 65 and over who did not speak English well or at all in 2000, about 50% spoke Spanish (National Institute of Child Health and Human Development, NIH, DHHS, 2001).

The literature on health communication in the area of language barriers in health care had increased. Spector stated that,

... in spite of the fact that Spanish-speaking people constitute one of the largest minority groups in this country, very few health care deliverers speak Spanish. This is especially true in communities in which the number of Spanish-speaking people is relatively small. Hispanics who live in these areas experience tremendous frustration because of the
language barrier. Even in large cities, there are far too many occasions when a sick person has to rely on a young child to act not only as a translator but also as an interpreter (Spector, 2007, p. 309).

The use of professional interpreter services was one intervention to reduce language barriers, another was language training of health care providers, and another was the use of ad hoc interpreters. Ad hoc interpreters included patients' family members or friends and non-professional hospital personnel for translation (Jacobs, Chen, Karliner, Agger-Gupta, & Mutha, 2006). However, interpreter interventions told only part of the story regarding the affect that language barriers had on health care. Language barriers affected adherence to recommended treatment, patient comprehension of the health care encounters, and patient satisfaction. Despite federal and state laws and regulations, linguistic access to health services was an ongoing problem in the United States. Title VI of the Civil Rights Act of 1964 required all entities receiving federal funds to ensure that persons with Limited English proficiency (LEP) had meaningful linguistic access to the health services that they provide (du Pre, 2005). The literature well documented that language could be a barrier to effective health communication and lead to patient dissatisfaction, noncompliance, and fewer physician visits (Flores, 2006; Morales et al., 1999; Rojas-Guyler et al., 2008; Sarver & Baker, 2000).

The Office of Minority Health was established in 1986 by the U.S. Department of Health and Human Services. In the year 2000, in support of the Title VI Civil Rights Act, the OMH created 14 standards were designed for
culturally and linguistically appropriate services (CLAS). As the website explains, the 14 standards are organized by themes: Culturally Competent Care (Standards 1-3), Language Access Services (Standards 4-7), and Organizational Supports for Cultural Competence (Standards 8-14). Within this framework, there are three types of standards of varying stringency: mandates, guidelines, and recommendations. (Office of Minority Health, DHHS, 2005)

*Health communication and Ohio Latinos.* The Ohio Society of Public Health Educators (OSOPHE) conducted a Health Disparities Project, funded by the W.K. Kellogg Foundation under the auspices of the national Society of Public Health Educators (SOPHE), in the Columbus area (Central Ohio) in the Fall of 2007. The project involved a partnership approach with the Latino Empowerment Outreach Network (L.E.O.N.) and the OhioHealth Research Institute. The project included a number of Town Hall meetings of community members conducted by a Latina facilitator. Discussion questions were based on six topic areas: Race & Class (7 questions); Economy (4); Access to Programs and Services (6); Policy and Legislation (10); Research and Science (4); and Academic Preparedness (4). Sixty attendees (48 community members and 12 researcher/practitioners) participated in six separate meetings over a two week period. Questions also included demographic information (11) on gender, age, zip code, marital status, education level, employment status, medical insurance, children, and language (Thomas, Hiermer, Wright, & Ferguson, 2007).

There also exist some health communication projects that are funded through Pfizer’s Clear Health Communication Initiative with the Center for Health
Care Strategies, Inc. that do include Ohio institutions. For example, both The Ohio State University and the Northeastern Ohio Universities Colleges of Medicine (NEOU COM) have been awarded grants from Pfizer and have hosted Visiting Professorships in Health Literacy. In addition, the Mid-Ohio Regional Planning Commission (MORPC) lists four organizations on their website (www.morpc.org) that are Hispanic and Latino-focused. Their missions range from collaborating as a coalition (creating a network to empower the Latino community in Central Ohio to build an enriched community in the areas of health, education, advocacy and communication) to assisting the Latino community with access to services in the area.

*Patient-provider relationship.* The literature indicated that provider-patient communication was directly linked to patient satisfaction, adherence, and health outcomes (Betancourt et al., 2004; Morales et al., 1999). This included the medical-legal aspect of health communication pertaining to understanding consent information. Lower literacy often prevented full understanding of consent forms due to the complexity of the document (Sudore et al., 2006).

Since language acted as a personal barrier to effective communication, a memorandum entitled “Title VI of the Civil Rights Act”, from the Office for Civil Rights of the Department of Health and Human Services was issued in 1998 (HHS Office for Civil Rights (OCR), 1998). It stated that the denial of or delay of medical care because of language barriers constituted discrimination and required that recipients of Medicaid or Medicare funds provide adequate language assistance to patients with limited English proficiency. Despite a
presidential executive order issued in 2000, only thirteen states were providing third-party reimbursement for interpreter services (G. Flores, 2006). According to Jacobs and colleagues (2006), the laws mentioned above were not enforced and since all health entities were equally obligated regardless of size or patient mix, the cost and feasibility of adherence prevented some medical groups from fulfilling their obligation. Since few insurers provided reimbursement for these services, many medical groups protested these requirements as an unfunded mandate (Jacobs et al., 2006).

Since the main concern was the quality of care that the patient received, whether in a critical care setting such as an emergency department (ED) or a follow-up clinic setting, it was imperative that the issue of language barriers to health care continued to be researched and effective interventions identified to eliminate the possibility of health disparity due to ineffective health communication. It was only when effective health communication took place that the physician-patient interaction led to shared decision making regarding health care choices (Bylund & Imes, 2005; Lukoschek, Fazzari, & Marantz, 2003). The use of trained interpreters aided in facilitating history taking, reducing unnecessary tests, and assisting with the patient’s understanding of their disease. It was widely accepted that the use of professional interpreters resulted in less obstacles created by the language barrier (du Pre, 2005). Ad hoc interpreters were readily available, but could have interpretation errors such as omissions, additions, substitutions and editing which could negatively affect care
In addition, there was a guide to the National Standards on Culturally and Linguistically Appropriate Services (CLAS) from the Office of Minority Health as stated earlier. It is entitled: “Executive Summary: A Patient-Centered Guide to Implementing LAS in Healthcare Organizations” (Office of Minority Health, DHHS, 2005). The website explained, “This guide is intended to help healthcare organizations implement effective LAS to meet the needs of their limited English proficient (LEP) patients, thereby increasing their access to health care. LAS are especially relevant to racial and ethnic disparities in health care.”

Health information-seeking behavior. The literature indicated that Latinos encountered many barriers that prevented or discouraged them from seeking traditional medical care. These barriers were often language, economic circumstances, and health beliefs based on very different socio-cultural differences, which included the use of home remedies and the family-centered model versus patient autonomy (Betancourt et al., 2004; Betancourt et al., 2003; Blackhall, Murphy, Frank, Michel, & Azen, 1995; Hartel & Mehling, 2002; Marín, 1993).

Regarding health information seeking behavior, the Greater Cincinnati Hispanic/Latino Health Survey (GCHLHS) (2005) stated the following results: 1) The majority of Hispanic/Latino respondents did not have health insurance; 2) Hispanic/Latinos that reported a usual source of care or medical home was 58.6% compared to 79.7% of the region; 3) Hispanic/Latinos reported going to
community health centers or clinics or private doctor’s offices the most when they are ill; 4) the high cost of health care, lack of insurance, and the inability to communicate with a healthcare provider were the most frequently experienced barriers to getting healthcare (Health Foundation of Greater Cincinnati, 2006).

A Latino resident in need of health information would find it necessary to have the skills to seek out the information, to communicate with the health professional in order to have their needs be understood, and in turn have adequate functional health literacy to understand the information retrieved. It was only possible to understand the full impact of this triad by exploring the literature on each of these topics. Although some individuals do not seek out information on their health conditions at all (Ramanadhan & Viswanath, 2006) the National Cancer Institute (1989) saw the importance of effective health communication for individuals in the following ways: it helped raise awareness of health risks and solutions, provided the motivation and skills needed to reduce these risks, helped patients find support from other people in similar situations, and affected or reinforced attitudes towards health behavior. Health communication increased demand for appropriate health services and decreased demand for inappropriate health services. It also made available information to assist in making complex choices, such as selecting health plans, care providers, and treatments (National Cancer Institute (NCI), 1989).
Literacy

According to Safeer and Keenan (2005), most adults in the United States read at an eighth-grade reading level, and 20% of the population read at or below a fifth-grade level. Most health care materials are written at a 10th-grade level. In addition, older adult patients had reading and comprehension abilities affected due to decreased cognition, vision and hearing status (Safeer & Keenan, 2005). An estimated 75% of persons in the United States with chronic physical or mental health problems were in the limited (marginal to inadequate) literacy category (Davis & Wolf, 2004). People with chronic conditions, such as asthma, hypertension, and diabetes, and low reading skills were found to have less knowledge of their conditions than people with higher reading skills (Sarkar, Fisher, & Schillinger, 2006; Williams et al., 1995; Williams, Baker, Parker, & Nurss, 1998). Safeer and Keenan (2005) acknowledged that most physicians make a mistake by asking the highest level of education of their patients since it is often higher than the actual level of literacy. The researchers also stated that patient self-report is not reliable since the majority of patients who have low health literacy say that they read “well” (Safeer & Keenan, 2005). Baker and colleagues (1997) reported that reading level averages four grades below the number of years of schooling (D. W. Baker et al., 1997). Rima E. Rudd, Senior Lecturer on Society, Human Development and Health, Harvard School of Public Health, presented an overview and key highlights of the 2006 Surgeon General's Workshop on Improving Health Literacy, where she was a presenter, to those in attendance of the Town Hall Meeting on Improving Health Literacy,” A Vision for
Health Information Sources

a Health-Literate Missouri”, held on May 16, 2008 in St. Louis, Missouri. She stated that literacy is an issue of social justice and that to improve health literacy; we must look at social inequities.

*Literacy information on Ohio’s population.* In response to a demand for estimates of the percentage of adults with low literacy in individual states and counties, the National Center for Education Statistics (NCES) has produced estimates of the percentage of adults lacking Basic Prose Literacy Skills (BPLS) for all states and counties in the United States in 2003 and 1992. The numbers here are based on the 2003 National Assessment of Adult Literacy (NAAL).

The literacy skill levels that follow have a 67% probability that an individual can perform the task described: Below Basic (Circle date on doctor’s appointment slip); Basic (Give 2 reasons a person with no symptoms should get tested for cancer based on a clearly written pamphlet; Intermediate (Determine what time to take Rx medicine based on label); Proficient (Calculate employee share of health insurance costs using a table). Table 2.1 depicts the indirect estimate of percent of populations lacking Basic prose literacy skills and corresponding credible intervals for counties in the Tri-state area.
Table 2.1
Indirect estimate of percent lacking Basic prose literacy skills and corresponding credible intervals for selected counties in Ohio, Kentucky, and Indiana, 2003

<table>
<thead>
<tr>
<th>Location</th>
<th>FIPS code</th>
<th>Population size</th>
<th>Percent lacking basic prose literacy skills</th>
<th>95% credible interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ohio</td>
<td>39000</td>
<td>8,715,916</td>
<td>9</td>
<td>7.2 12.0</td>
</tr>
<tr>
<td>Butler County</td>
<td>39017</td>
<td>257,913</td>
<td>7</td>
<td>3.2 13.1</td>
</tr>
<tr>
<td>Clermont County</td>
<td>39025</td>
<td>140,693</td>
<td>7</td>
<td>3.1 12.6</td>
</tr>
<tr>
<td>Hamilton County</td>
<td>39061</td>
<td>625,898</td>
<td>7</td>
<td>3.6 13.2</td>
</tr>
<tr>
<td>Warren County</td>
<td>39165</td>
<td>133,757</td>
<td>6</td>
<td>2.6 10.9</td>
</tr>
<tr>
<td>Kentucky</td>
<td>21000</td>
<td>3,202,516</td>
<td>12</td>
<td>10.3 14.3</td>
</tr>
<tr>
<td>Boone County</td>
<td>21015</td>
<td>74,013</td>
<td>9</td>
<td>5.5 14.7</td>
</tr>
<tr>
<td>Campbell County</td>
<td>21037</td>
<td>68,047</td>
<td>9</td>
<td>5.4 15.3</td>
</tr>
<tr>
<td>Kenton County</td>
<td>21117</td>
<td>117,480</td>
<td>10</td>
<td>6.1 15.3</td>
</tr>
<tr>
<td>Indiana</td>
<td>18000</td>
<td>4,633,843</td>
<td>8</td>
<td>6.1 10.3</td>
</tr>
<tr>
<td>Dearborn County</td>
<td>18029</td>
<td>36,548</td>
<td>7</td>
<td>4.2 12.1</td>
</tr>
<tr>
<td>Ohio County</td>
<td>18115</td>
<td>4,540</td>
<td>8</td>
<td>3.6 14.6</td>
</tr>
</tbody>
</table>

* The state and county Federal Information processing Standards (FIPS) codes are standardized unique state and county identifiers. The first two positions identify the state, and the last three positions identify the county. For more information, see [http://www.census.gov/geo/www/fips/fips.html](http://www.census.gov/geo/www/fips/fips.html)

1 Estimated population size of persons 16 years and older in households in 2003.

2 Those lacking Basic prose literacy skills include those who scored Below Basic in prose and those who could not be tested due to language barriers.

3 The estimated percent lacking Basic prose literacy skills has a margin of error as measured by the associated credible interval. There is a 95% chance that the value of the percent lacking Basic prose literacy skills is contained between the lower and upper bound.

**SOURCE:** U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2003 National Assessment of Adult Literacy
Health Literacy

According to Speros (2005), the term ‘health literacy’ was first used in 1974 by the National Library of Medicine for papers calling for minimum health education standards for all grade school levels in the U.S. (Speros, 2005). Since then, there were many definitions and interpretations of health literacy. Williams and colleagues (1995) defined health literacy as the ability to perform health-related tasks requiring reading and computational skills (Williams et al., 1995). According to Kickbusch (2001), the World Health Organization defined it more broadly as: “Health Literacy represents the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand, and use information in ways that promote and maintain good health” (World Health Organization (WHO), 1998). That definition was discussed at a Health Literacy Workshop at the 5th WHO Global Conference on Health Promotion [PAHO/Yale/ Pfizer workshop on Health Literacy, Mexico, June 2000]. The workshop resolved to widen the glossary definition to include the dimensions of community development and health-related skills beyond health promotion, and to understand health literacy not only as a personal characteristic, but also as a key determinant of population health (Kickbusch, 2002; Kickbusch & Payne, 2003; Kickbusch, 2001). The American Medical Association’s Ad Hoc Committee on Health Literacy for the Council on Scientific Affairs stated that, “health literacy is a constellation of skills, including the ability to perform basic reading and
numerical tasks required to function in the health care environment” (American Medical Association Ad Hoc Committee on Health Literacy for the Council on Scientific Affairs, 1999, p.553). The Healthy People 2010 report defined it as “the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions” (U. S. Department of Health and Human Services (USDHHS), 2000a; U. S. Department of Health and Human Services (USDHHS), 2000b), p. 11-20). Speros (2005) put an updated interpretation on it by stating, “health literacy empowers people to act appropriately in new and changing health-related circumstances through the use of advanced cognitive function. The defining attributes of health literacy are reading and numeracy skills, comprehension, the capacity to use information in health care decision-making, and successful functioning as a health-care consumer” (Speros, 2005), p. 633). In an article for Health Promotion International, Christina Zarcadoolas offered a refined definition of Health literacy: “…we define health literacy as the wide range of skills, and competencies that people develop to seek out, comprehend, evaluate and use health information and concepts to make informed choices, reduce health risks and increase quality of life” (Zarcadoolas, Pleasant, & Greer, 2005). The American Association for Health Education (AAHE) adopted a position statement in 2008 which states, “… the American Association for Health Education actively supports the development, implementation, and evaluation of health education and promotion programs wherein health literacy concepts are
incorporated and, thereby enhance decision making for health-related choices.” (AAHE, 2008, p.7)

Even with access to information and services, however, disparities still existed because many people lacked health literacy (Weiss et al., 1994). Sarkar and colleagues (2006) stated that "a growing body of research demonstrated that limited health literacy, a prevalent problem in vulnerable populations, is independently associated with poor self-rated health, higher utilization of services, fewer preventive services, worse glycemic control and more diabetes complications” (Sarkar et al., 2006), p. 823). A study by Shi and Stevens (2005) presented a profile of risk factors for vulnerable populations with unmet health care needs. The study found that lower health literacy, which included where to go to obtain health services when needed, also often contributed to lower reported rates of unmet needs. Overall, the study determined that vulnerability may be operationalized to account for multiple risk factors; that risk factors are interactive; and that strategies to reduce disparities should address co-occurring risks through integrative approaches and greater partnerships between medical and social sectors when designing interventions for vulnerable populations (Shi & Stevens, 2005). Adeyanju (2008) included a section on Health Literacy in the topic area of “Communicating Across Cultures About Health and Disease” in a chapter entitled, “Communication and Cultural Competence”, in the book by Perez & Luquis, Cultural Competence in Health Education and Health Promotion (2008) which states that, “It is crucial to provide educational materials that are targeted toward the appropriate reading and comprehension level for each
cultural group. Also, it is necessary to consider using different communication strategies for different cultures” (Adeyanju, 2008, p.153).

An article entitled, “Don’t overlook patients with low health literacy”, makes reference to a white paper from The Joint Commission, “What Did the Doctor Say? Improving Health Literacy to Protect Patient Safety” about the communication gap between patients and caregivers. The gap involves literacy, language, and culture, and gives 35 recommendations including education and training of leaders and staff on health literacy issues. The paper also recommends use of established patient communication methods such as "teach-back," and assessment of the literacy levels and language needs of the communities served. The article goes on to provide several examples of the use of plain language verbal inquiry (not medical jargon) and the use of pictures with simple narratives to educate patients (2007).

The literature has studies which have found that pictures can improve patients' comprehension especially if low literacy levels are involved. Davis includes seven strategies to improve oral communication in her presentation: 1) Use plain language, 2) Limit information (3-5 key points), 3) Be specific and concrete, not general, 4) Demonstrate, draw pictures, 5) Repeat/Summarize, 6) Teach Back (Confirm Understanding), 7) Be positive, hopeful, empowering (Davis, November 10-12, 2008; Davis, Michielutte, Askov, Williams, & Weiss, 1998). Houts and colleagues include the following practice implications: Educators should: (1) ask "how can I use pictures to support key points?" (2) minimize distracting details in pictures, (3) use simple language in conjunction
with pictures, (4) closely link pictures to text and/or captions, (5) include people from the intended audience in designing pictures, (6) have health professionals plan the pictures, not artists, and (7) evaluate pictures’ effects by comparing response to materials with and without pictures (Davis, November 10-12, 2008; Houts, Doak, Doak, & Loscalzo, 2006; Stableford & Mettger, 2007).

*Functional health literacy.* Baker and colleagues (1997) described functional health literacy as the ability of a patient to read, understand, and act on medical information to improve their health (Baker et al., 1997). As the literature documented, a person’s functional health literacy affected their ability to self-manage their chronic health condition (Baker et al., 2002; Gazmararian, Williams, Peel, & Baker, 2003; Sarkar et al., 2006). As Baker and colleagues (1997) stated, health literacy was increasingly vital to help people navigate a complex health system and better manage their own health. Differences in the ability to read and understand materials related to personal health as well as navigate the health system appeared to contribute to health disparities. People with low health literacy were more likely to report poor health, had an incomplete understanding of their health problems and treatment, and were at greater risk of hospitalization (Baker et al., 1997). In addition, the literature well documented that language could be a barrier to effective health communication and often lead to patient dissatisfaction, noncompliance, and fewer physician visits (Flores, 2006; Morales et al., 1999; Rojas-Guyler et al., 2008; Sarver & Baker, 2000).

The Health Foundation of Greater Cincinnati had a report prepared in 2001 to assess the functional health literacy among patients served in primary
care providers to the poor practice settings (PCPPs) (Wells et al., 2001). The prevalence study was conducted at thirteen primary care providers to the poor settings, within six counties and three states of the twenty-county region served by the Health Foundation of Greater Cincinnati. The report found that of the 746 completed surveys, 16% had deficient functional health literacy using the S-TOFHLA. The results of the study showed 10.6% of the sample had inadequate FHL, 5.0% had marginal FHL, and 84.5% had adequate FHL scores. Of these, only 31 (4%) of the completed surveys were from Hispanics. Hispanics had the lowest mean S-TOFHLA scores. The S-TOFHLA scores for the whole sample in that assessment were higher than those reported from other urban populations. One explanation was that the study took place only in PCPPs. Emergency departments were specifically not included. The study by Wells, et al found that in order to cope with inadequate FHL, patients reported that they: ask a nurse for help, talk to someone else in the clinic, ask the doctor to write down what he or she is saying, bring someone with them to the clinic, and go to a different clinic. Less assertive patients reported prayer and “leaving it to God” as means of dealing with confusing messages from their doctors. Others mentioned “trial and error” and “waiting and seeing” as coping mechanisms. To help patients with inadequate FHL, local healthcare providers in the focus groups reported that they: verbally explain medical processes and procedures, have patients “repeat the information back”, provide on-site translators or use a translation service, draw pictures, and provide audiotapes with instructions for patients to take home.” (Wells et al., 2001)
As reflected in OSOPHE’s white paper, Ohio Latino community members were asked at the following question at a Town Hall meeting: “What is the impact of health literacy on health status?” The responses were that it has a high impact on health status; that it is the way to have more access to health care; some had no answer/opinion on the question; and one participant was recorded as having said, “if we know about it, we can do something about it” (Thomas, Hiermer, Wright, & Ferguson, 2007, p.16).

Health literacy testing instruments

Although there is not one “gold standard” tool to measure health literacy, it is possible to measure literacy using materials with a health-related focus or context. (Davis, 2008). The testing instruments and studies measuring health literacy were well documented (Baker et al., 1997; Baker, Williams, Parker, Gazmararian, & Nurss, 1999; Davis, November 10-12, 2008; Davis et al., 1998; Paasche-Orlow, Parker, Gazmararian, Nielsen-Bohlman, & Rudd, 2005; Parker, Baker, Williams, & Nurss, 1995; Sudore et al., 2006). The Test of Functional Health Literacy in Adults (TOFHLA) was designed to measure patients’ ability to read and understand the things they commonly encountered in the health care setting using actual materials such as pill bottles and appointment slips (Parker et al., 1995). A shorter version of the TOFHLA (S-TOFHLA) was designed in 1999. It decreased the number of numeracy questions from 17 to 4, and decreased the prose questions from 3 to 2. This resulted in a test that could be
delivered in 12 minutes instead of 22 minutes (Baker et al., 1999). Other screening instruments, such as the Rapid Estimate of Adult Literacy in Medicine (REALM) and the short form of the REALM-SF, measured the ability to read and correctly pronounce a list of words and provided an approximate grade level reading ability (Communicating with patients who have limited literacy skills. report of the national work group on literacy and health. 1998; Davis et al., 1998; Arozullah et al., 2007). Other health literacy instruments, along with the TOFHLA and REALM (e.g. WRAT-R3, SORT-R, LAD, MART, PIAT-R, IDL, and TABE) are compared and evaluated in the chapter, “Literacy Testing in Health Care Research” by Davis, Kennen, Gazmararian, and Williams in, Understanding Health Literacy, edited by Schwartzberg, VanGeest, and Wang (Davis, Kennen, Gazmararian, & Williams, 2005). Another health literacy testing tool was developed by Pfizer in 2005. The test is described as being based on a nutrition label from an ice cream container. Patients are given the label and then asked 6 questions about how they would interpret and act on the information contained on the label. The questions are asked orally and the responses recorded by a health care provider on a special score sheet, which contains the correct answers. Based on the number of correct responses, the health care provider can assess the patient's health literacy level. The Newest Vital Sign has been tested with more than 1,000 English and Spanish-speaking adults. The first peer-reviewed clinical study of the NVS, Quick Assessment of Literacy in Primary Care: The Newest Vital Sign, was published in the Annals of Family Medicine (December 2005). In this study, the NVS was validated against the TOHFLA and
was shown to take approximately three minutes or longer to administer. The instrument is available in both English and Spanish languages (Weiss et al., 2005). According to a researcher that has used this instrument, it was often frustrating and “most people stop after the first 4”.

Functional health literacy (FHL) has been studied in the Greater Cincinnati area on a limited scope. More research was needed on the functional health literacy levels for the Latino residents in southwestern Ohio.

Sources of Health Information

Often people with the greatest health burdens had the least access to information, communication technologies, health care, and supporting social services. Even the most carefully designed health communication programs had limited impact if underserved communities lacked access to crucial health professionals, services, and communication channels that were part of a health improvement project (U. S. Department of Health and Human Services (USDHHS), 2000a; U. S. Department of Health and Human Services (USDHHS), 2000b). The literature on health information sources for the Latino population in the Midwest was sparse. Studies conducted on the east coast and west coast or Texas Latino populations are more plentiful. One study that was of national scope was conducted by the National Cancer Institute which tracked changes in the health information environment biennially. A survey was utilized to determine health information sources and the level of trust in those sources. The Health Information National Trends Survey (HINTS) was conducted from October 28,
2002 to April 14, 2003. It was a telephone survey of 6,369 adults. Telephone exchanges with high concentrations of Hispanic and African American residents were oversampled to ensure adequate representation. The survey covered the use of different health information channels such as physician, Internet, television, family or friends, magazines, newspapers, and radio. The results of the study showed that 63.7% of adults looked for some type of health or medical information either for themselves or for someone else through the Internet. When asked about the level of trust on a specific disease, such as cancer, respondents had a high level of trust for information provided by physicians in contrast to the other sources (Hesse et al., 2005).

In regards to health information, the pilot study data from the local area by Britigan et al, 2009, resulted in findings that multiple sources of information were often used. When asked about use in the past, the first source of health information was a medical setting, followed by the media. When it comes to being ill, the primary source became a media choice, then medical, then was followed by family and friends. Of every 10 participants two reported having problems obtaining health information, half of these included language and lack of confidence/knowledge. Overall participants reported moderate satisfaction with the sources of health information available to them. Eight out of ten participants had an ‘adequate’ health literacy level in Spanish (Britigan et al., 2009).

The Ohio Society of Public Health Educators (OSOPHE) study which conducted six Town Hall meetings in Spanish gathered responses from 60 Latinos on the sources of health information. The responses varied from family
and friends, free clinics, health fairs, hospitals, the Hispanic Coalition, churches, community centers, to newspapers and flyers (Thomas, Hiermer, Wright, & Ferguson, 2007).

Summary

A disproportionate number of language-minority population members lived in or near poverty, were less educated, and were elderly. They had greater difficulties gaining access to medical care and that contributed to the health disparities in health outcomes. Minority groups suffer disproportionately from chronic illnesses and experienced higher rates of morbidity and mortality. Minority populations, such as the Latino residents in Ohio, tend to receive a lower quality of care than non-minorities. This could lead to a lack of trust in health professions and might affect their willingness to seek care and adhere to treatment regimens. Overall, Spanish-speaking Latinos have poorer health status.

Regarding health beliefs, Latinos, with demographic variations, tended to be family centered and had defined gender roles. Often the mother of the family made the health care decisions. Based on earlier research, Latino residents in the designated counties of southwest Ohio had a low level of acculturation.

The goal of the Healthy People 2010 health communication objective (#11) was to focus on using communication strategically to improve health, and to improve the health literacy of persons with inadequate or marginal literacy skills (#11-2). Barriers to health communication for ethnic minorities included
language, low health literacy and literacy levels. These barriers also prevented full understanding of consent forms. These barriers to effective health communication impact provider–patient communication and was directly linked to patient satisfaction, adherence, and health outcomes. Barriers such as these prevented shared decision-making regarding health care choices.

This study identified the sources of health information for a sample of Latinos residents. Through this study, health educators and other health professionals may learn the functional health literacy level of a sample of Latinos residents in a Midwestern tri-state area.
CHAPTER THREE

Methodology

The purpose of this research study was to determine the sources of health information and the health literacy levels of Latinos in a Midwestern tri-state area and to determine possible relationships with acculturation levels, country/region of familial origin, or other demographic characteristics. Variables were observed through focus groups and person-to-person orally-administered surveys with adult participants from the local Latino community. The results of this study would facilitate the ability of health educators and other health professionals to understand preferences and abilities of the Latino community and would contribute to the ability of the professional to develop and deliver culturally competent communication and health education programs and messages.

This chapter was organized into the following sections: a) background; b) arrangements for study with focus groups and with surveys; b) participants; c) instrumentation; d) instrument development; e) standardized measures adopted; f) instrument testing, and g) procedures.

Background

In preparation for this study and in order to identify key community leaders in the Latino community, the principal investigator contacted the Hispanic Chamber of Commerce. Contacts were initially made via e-mail exchanges and telephone conversations. Eventually, face-to-face conversations took place and
more contacts were made. Snowball sampling-like techniques to elicit background information were utilized. Each individual would mention another person to meet and that led to meeting another and another and so on. In addition to the conversations over lunch or coffee, the principal investigator began to volunteer with local community centers during health fairs. Soon a perceived need for health literacy related information for the Latino population was supported through these interactions. All of which contributed to the success of participant recruitment for the present study.

Arrangements for Study Focus Groups and Orally-Administered Surveys

Conversations took place with key individuals, community gatekeepers, organization managers, and community leaders to gain permission to collect data with volunteer participants at the varied locations. Based on prior contact with the gatekeepers for a variety of community organizations in the Cincinnati area from the previous pilot study, the researcher obtained letters of permission from relevant locations, e.g. Su Casa Hispanic Center (see Appendix A for a complete list of locations for data collection). The principal investigator recruited respondents using a combination of two techniques. One technique that was used primarily for the structured survey surveys was intercept sampling which was opportunistic and included participants who the researcher could access through direct contact, (also known as “grab sampling” by Cottrell & McKenzie, 2005) or emergent sampling (Patton, 2002). The other technique which was used primarily for the focus groups was snowball sampling technique of
community ties and connections to community resources and locations (Luborsky & Rubinstein, 1995; Neutens & Rubinson, 2002).

Participants for the Focus Groups

The participants in this research study were Latino adults aged 18 years and older residing in a Midwestern tri-state area. This population subgroup consisted of a cross-sectional convenience sample of Latinos. Focus group participants were recruited by varying approaches depending how the researcher gained access to the community members. If entrée was first made available by a known and trusted member of the community, then flyers were provided to the key individual. Flyers contained the pre-approved/pre-set date, time, and location for the scheduled focus group(s). The distribution of the recruitment flyers/announcements took place within the context of an existing meeting, session, or church service (e.g., at the Colony Apartments and Centro de Amistad). In the case that entrée through a trusted community liaison was not an option, then the researcher talked to people in charge of a location (e.g., the library staff) and made contact by posting flyers and/or handing them to individuals at various places (i.e., the casino, school, and stores in Lawrenceburg, Indiana) near the scheduled locations of the focus group (in one case, the public library). In Indiana, the recruitment flyer prompted one prospective participant, who was not known to the researcher, to call to ask questions about the research study. This was reassuring to the researcher that the flyer was accomplishing its intended purpose.
Participants for the orally-administered surveys

Participants were recruited from local venues such as health centers, community festivals, community centers or other recreational facilities, health fairs, churches, and markets (grocery stores). Potential participants were invited to take part in the study while attending these locations for services, entertainment, or other varied activities.

Instrumentation

Focus Group Instrumentation

Focus groups were utilized only during the instrument item development phase. Specifically, in order to inform the development of some survey instrument items, a series of focus groups were implemented to provide a pool of answer choices for questions #12 and #13 of the survey. This subsection presents the open ended questions used in the focus groups, followed by information on each of the developed sections of the instrument.

Focus Group Discussion Questions

Nine questions were asked during the hour-long focus group sessions. The questions were selected based on previous research done in the pilot study (Britigan et al., 2009). In addition to eight questions about health information seeking behavior, the last question referred to a one-page sheet with 28 pictures (photographs or simple, public-domain, clip-art drawings) representing 17 various
formats of communication channels for health information. Following the
discussion, participants were handed a one-page sheet of 12 questions on
demographic characteristics (see Demographics section) and given a gift card in
appreciation for their contribution of time and information to the study.

These questions were:

1. How often do you look for answers to health questions?
2. When you need health information for yourself, where do you look for it?
3. When you need health information for your family, where do you look for it?
4. In what format do you like to find answers to your health questions?
5. Of these sources, which one do you trust the most and why?
6. Of these sources, which one do you trust the least and why?
7. How easy is it to get answers to your health questions?
8. If you need health information again, where would you like it to be so that you can get it?
9. Tell me if these pictures help you or not.

Orally-administered survey Instrumentation

Based on a comprehensive review of the literature, orally-administered
surveys were used to gather the data rather than traditional self-administer
surveys in order to determine functional health literacy levels and to engage
participation by people with low literacy skills. The questions in the instrument were revised from the pilot instrument based on input from focus groups, and
covered the following areas: general demographic questions, the sources of health information used by respondents, the recipients of the information, the barriers (if any) to information sought, the acculturation level of the individual seeking health information, and their health literacy level. Based on an earlier pilot study (Britigan et al., 2009) this study utilized two standardized quantitative measures of health literacy instead of only one as done in the preliminary pilot study. It also asked additional questions by incorporating observational quantitative methodology and by expanding on the content, type and number of orally-administered survey questions. Once the instrument was completed, translation into Spanish and back translation into English were carried out. All materials were then approved by the IRB at University of Cincinnati.

Developed Instrument Questions

The instrument consisted of five sections: 1) demographics; 2) health information topics, sources, and barriers; 3) bi-dimensional acculturation subscale on linguistic proficiency; 4) a word recognition scale in English; 5) a numeracy scale and reading comprehension scale to measure functional health literacy. The novel survey instrument was pilot tested in a prior study, but since additional questions had been added, Latino community members’ feedback was needed to determine relevance, cultural fit, content appropriateness, and face validity of the new items.
Demographics

The 11 questions for the demographic data included both open-ended and checklist questions in the following order: 1) whether they consider him/herself to be Latino (Y/N); 2) gender (Female /Male); 3) age (in years); 4) zip code or neighborhood; 5) marital status (select any of six choices that apply); 6) country of origin for self/mother/father (separate columns) from a checklist of 13 countries and 'other'; 7) length of time living in the United States; 8) education completed (seven choices); 9) number of people living in the household; and, 10) household income (on a bi-weekly or monthly basis, or don’t know total, but I alone make____).

Health Items

Participants were asked one question on their general health status. This particular item asked ‘In general your health is?’ Answer choices for this Likert-type question were as follows: 1) very poor, 2) poor 3) good or 4) very good.

Sources of Health Information

Participants were asked to consider where, or to whom, they would go if they were sick and needed help with their own health or had a health question. They were provided a list of five categories to select the main source of health information that they used the most (Check one): Medical, Media, People, Self-help, Other. Then based on that selection, the next question asked for a more
focused choice within the category: “For this most used source (selected above), check which type you use the most: (check one) as seen in Figure 3.1.
Figure 3.1

Example of the Response Checklist for Subcategory Choices of Health Information Sources

<table>
<thead>
<tr>
<th>Medical</th>
<th>Media</th>
<th>People</th>
<th>Self-help</th>
<th>Other (List)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td>television</td>
<td>community</td>
<td>prayer</td>
<td></td>
</tr>
<tr>
<td>Clinic</td>
<td>radio</td>
<td>centers</td>
<td>teas</td>
<td></td>
</tr>
<tr>
<td>Doctor</td>
<td>Internet</td>
<td>family</td>
<td>natural</td>
<td></td>
</tr>
<tr>
<td>Nurse</td>
<td>magazines</td>
<td>friends</td>
<td>medicine</td>
<td></td>
</tr>
<tr>
<td>Medical pamphlet</td>
<td>books</td>
<td>neighbor</td>
<td>folk healers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>library</td>
<td>Promotores</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e-mail</td>
<td>health</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>educator</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Church</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Three “Complete the following statements” followed which focused on the participants’ perceptions of the source of information in the format of multiple-choice questions,

1) “The source of information I use most is _____ trustworthy.”
   a) very, b) somewhat, c) a little, d) not

2) “When I receive information from this source, it gives me ____ information.”
   a) too much, b) enough, c) too little

3) “When I receive information from that source, the information is usually ____ to understand.”
   a) very difficult, b) difficult, c) easy, d) very easy

Then, a series of open-ended questions asked the participant to recall a recent time that he/she looked for health information (or ‘not applicable’):

a) Was it was due to an illness (Y/N);

b) What information were you looking for? (topic?)

c) If the information was for someone else, who was it for? Participants were asked to specify in which language(s) they preferred the information to be for their use: English, Spanish, or other. The next question asked: If you need health information again, where would you like to find it?

**Barriers**

Based on input from the previous pilot study and the focus groups, a list of seven responses for barriers to health information access was created. One question was asked with a follow-up question for clarification:
Do you have any problems, or does anything get in your way, when trying to
obtain health information? (Y/N)

If you answered yes, then check all that apply: ___Language: verbal or written
information was not in Spanish; ___transportation; ___childcare; ___lack of
insurance; ___fear of legal status; ___cost of healthcare; ___other; or, ___No, I do not
have any barriers.

*Preventive Health Information Sources*

One question was asked with three follow-up questions for clarification
and a “not applicable”: Do you ever look for health information before you are
sick? (Y/N)

If yes, how often? __________; Where do you go for that information? ______
If not, why not? ______; ___Not applicable, I do not seek help with my health.

The survey continued with the three validated scales for acculturation, word
recognition for reading literacy grade level in English, and a numeracy and
reading comprehension test to determine functional health literacy levels in
English or Spanish. The scales are described in the following sections.

*Standardized Measures Adopted*

Currently, three tests are available to screen Spanish-speaking patients
for literacy: the Spanish Test of Functional Health Literacy levels in Adults
(TOFHLA), the Instrument for Diagnosis of Reading (IDR), and the Newest Vital
Signs (NVS). Based on the research literature, and a discussion with a nationally
known literacy expert, Terry C. Davis, the English and Spanish versions of the short version of the TOFHLA were chosen for this research study, along with the REALM-SF to determine English health literacy levels (Davis, November 10-12, 2008 and telephone conversation 8/14/09). The REALM-SF was added to determine the participants’ health literacy grade level in English to correspond with the Short version -TOFHLA in either English or Spanish (Arozullah et al., 2007).

The researcher decided the following scale scheme:

A) The REALM-SF reading grade level in English of sixth grade or less would correspond with the S-TOFHLA’s Inadequate functional health literacy level.

B) The REALM-SF grade level of 7th-8th grade would correspond with the S-TOFHLA’s Marginal functional health literacy level.

C) The REALM-SF grade level of greater or equal to ninth grade would correspond with the S-TOFHLA’s Adequate functional health literacy level.

__Short Test of Functional Health Literacy in Adults (S-TOFHLA)__

Based on a review of the literature, the functional health literacy level of each participant was determined by the use of the Short Test of Functional Health Literacy in Adults (S-TOFHLA) in English or Spanish by Nurss, Parker, Williams, & Baker (1995). The STOFHLA was designed to capture numeracy and reading comprehension skills in the middle to low levels of literacy ability. The test of 36 items uses multiple choice responses. The reading comprehension
portion assessed their understanding of health care texts such as preparation for a diagnostic procedure (i.e., upper GI series) and Medicare Rights & Responsibilities. Readability levels on the Gunning Fog index were grades 4.3 for the numeracy section and 10.4 for the reading comprehension section.

The administration of the reading comprehension test uses a scripted introduction and is followed by the 36 items for the reading comprehension section and four numeracy questions which takes 12 minutes or less to administer. The numeracy section questions were based on laminated visual aids which appear to be a doctor’s appointment slip, blood glucose results, and instructions on a prescription drug label. The four questions are:

1. Have a look at this one…if you take your first tablet at 7:00 AM, when should you take the next one?
2. Here is another direction you might be given…if this were your score, would your blood sugar be normal today?
3. Now take a look at this one… when is your next appointment?
4. Here is another instruction you might be given…if you eat lunch at 12:00 noon, and you want to take this medicine before lunch, what time should you take it?

The short version TOFHLA has been shown to have good internal reliability (Cronbach’s alpha 0.98 for all items combined) and validity compared to the long version of the TOFHLA (0.91) and the REALM (0.80) (Davis et al., 2005; Schwartzberg, VanGeest, & Wang, 2005).
The principal investigator had a license (#037/07) to reproduce the S-TOFHLA and permission from Peppercorn Press, Inc. to use in her research study. This test was given as a part of the survey instrument which was provided in either an English language version or a Spanish language version.

*Rapid Estimate of Adult Literacy in Medicine-Short Form (REALM-SF)*

Following the survey, participants were given the Rapid Estimate of Adult Literacy in Medicine-Short Form (REALM-SF). The test is a health word recognition test (based on the REALM) which is designed to screen for low literacy in health care settings. Participants are asked to read aloud a list of nine English medical terms. They are asked to read aloud as many words as they can, beginning with the first word. If patients are unable to pronounce a word, they may say ‘pass’ and move on to the next word. Dictionary pronunciation is standard. The scoring for the REALM-SF was as follows, based on a count of the number of words pronounced correctly: 0 correct = less than 3rd grade, 1 to 3 correct = 4th-6th grade, 4 to 6 correct = 7th-8th grade, 7 correct = 9th grade or higher.

As summarized in the article by Arozullah et al., (2007):

The REALM-SF included 7 items with stable model coefficients and 1 underlying linear factor. REALM and REALM-SF instrument scores were highly correlated in development ($r = 0.95$, $P < .001$) and validation ($r = 0.94$, $P < 0.001$) samples. There was excellent agreement between
REALM-SF and REALM instrument grade-level assignments (Arozullah et al., 2007) when dichotomized at the 6th grade (development: 97% agreement, $K = 0.88$, $P<0.001$; validation: 88% agreement, $K = 0.75$, $P<0.001$) and 8th grade levels (development: 94% agreement, $K = 0.78$, $P<0.001$; validation: 84% agreement, $K = 0.67$, $P<0.001$). REALM-SF and Wide Range Achievement Test scores were highly correlated ($r = 0.83$, $P<0.001$) in field testing validation.

According to the administration manual for the REALM, the following description was included for dialect, accent, or articulation problems:

> Count a word as correct if the word is pronounced correctly and no additions or deletions have been made to the beginning or ending of the word. For example: A patient who says ‘alcohol’ would not receive credit for the word ‘alcoholism’; ‘eyes’ would not receive credit for the word ‘eye’; ‘nervous’ and ‘nerve’ would not receive credit for ‘nerves’. Words pronounced with a dialect or accent should be counted as correct provided there are no additions or deletions to the word. Particular attention should be paid for patients who use English as a second language. (p. 14)

Regarding patients who speak another language, the manual also states:

> The REALM is a reading-recognition test and is a reliable screening instrument to assess literacy in English. Reading recognition is not useful in assessing literacy in other languages. An attempt to develop a Spanish REALM was unsuccessful. The REALM has not
and cannot be translated into other languages for valid administration. Persons wishing to assess Spanish-speaking patients are referred to the Test of Functional Health Literacy in Adults --- Spanish (TOFHLA-S). (p. 15)

The REALM and REALM-SF cannot be translated into the Spanish language because the letters represent sounds, and thus enables readers to easily sound out words towards recognition (phoneme-grapheme correspondence) which would defeat the test of word recognition.

The REALM (and its short form REALM-SF) is highly correlated with other general reading tests and the TOFHLA. The REALM has high criterion validity, correlating 0.88 with the revised WRAT-R, 0.96 with the SORT-R and 0.97 with the PIAT-R. The correlation with the TOFHLA is 0.84. Most of the discrepancy between the TOFHLA and REALM is explained by variance among subjects scoring in the middle (7th-8th grade) ranges. The REALM also has high test-retest reliability, 0.97 (p<.001) (Schwartzberg et al., 2005, p.165).
Table 3.1

Rapid Estimate of Adult Literacy in Medicine-SF List of words

<table>
<thead>
<tr>
<th>Word</th>
<th>Score</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fat</td>
<td>Not scored</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flu</td>
<td>Not scored</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Behavior</td>
<td>1 □ Correct</td>
<td>2 □ Mispronounced</td>
<td>3 □ Not attempted</td>
<td></td>
</tr>
<tr>
<td>2. Exercise</td>
<td>1 □ Correct</td>
<td>2 □ Mispronounced</td>
<td>3 □ Not attempted</td>
<td></td>
</tr>
<tr>
<td>3. Menopause</td>
<td>1 □ Correct</td>
<td>2 □ Mispronounced</td>
<td>3 □ Not attempted</td>
<td></td>
</tr>
<tr>
<td>4. Rectal</td>
<td>1 □ Correct</td>
<td>2 □ Mispronounced</td>
<td>3 □ Not attempted</td>
<td></td>
</tr>
<tr>
<td>5. Antibiotics</td>
<td>1 □ Correct</td>
<td>2 □ Mispronounced</td>
<td>3 □ Not attempted</td>
<td></td>
</tr>
<tr>
<td>6. Anemia</td>
<td>1 □ Correct</td>
<td>2 □ Mispronounced</td>
<td>3 □ Not attempted</td>
<td></td>
</tr>
<tr>
<td>7. Jaundice</td>
<td>1 □ Correct</td>
<td>2 □ Mispronounced</td>
<td>3 □ Not attempted</td>
<td></td>
</tr>
</tbody>
</table>
Bi-dimensional Acculturation Assessment (BAS)

The acculturation instrument used was the Bi-dimensional Acculturation Scale for Hispanics (BAS) by Marín and Gamba (1996). According to Marín & Gamba, the Linguistic Proficiency subscale of 12 items (6 for each cultural domain) had fairly high internal consistency and high validity coefficients and could be used to obtain a basic measurement of the level of acculturation of the Mexican Americans and/or Central Americans (Marín & Gamba, 1996, p. 309). Self-assessment of acculturation level was measured using a four-point Likert scale for six questions for each cultural domain. The two scores should be used to define the level of acculturation of the respondent. The Linguistic Proficiency subscale total score range is from 1 to 4 for each cultural domain. According to Marín & Gamba, a score of 2.5 can be used as a cutoff score to indicate low or high level of adherence to each cultural domain. Scores above 2.5 in both cultural domains can be interpreted as indication biculturalism on the part of the respondent. The scale is available in the public domain and no permission is required to use it for research or clinical work.
Table 3.2

Bi-dimensional Acculturation Scale (BAS), Marín & Gamba, 1996.

<table>
<thead>
<tr>
<th>Items</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>How well do you speak English?</td>
<td></td>
</tr>
<tr>
<td>How well do you read English?</td>
<td></td>
</tr>
<tr>
<td>How well do you understand television programs in English?</td>
<td></td>
</tr>
<tr>
<td>How well do you understand radio programs in English?</td>
<td></td>
</tr>
<tr>
<td>How well do you write in English?</td>
<td></td>
</tr>
<tr>
<td>How well do you understand music in English?</td>
<td></td>
</tr>
<tr>
<td>How well do you speak Spanish?</td>
<td></td>
</tr>
<tr>
<td>How well do you read Spanish?</td>
<td></td>
</tr>
<tr>
<td>How well do you understand television programs in Spanish?</td>
<td></td>
</tr>
<tr>
<td>How well do you understand radio programs in Spanish?</td>
<td></td>
</tr>
<tr>
<td>How well do you write in Spanish?</td>
<td></td>
</tr>
<tr>
<td>How well do you understand music in Spanish?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Linguistic Proficiency</th>
<th>Very well</th>
<th>Well</th>
<th>Poorly</th>
<th>Very poorly</th>
</tr>
</thead>
<tbody>
<tr>
<td>How well do you speak English?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>How well do you read English?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>How well do you understand television programs in English?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>How well do you understand radio programs in English?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>How well do you write in English?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>How well do you understand music in English?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>How well do you speak Spanish?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>How well do you read Spanish?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>How well do you understand television programs in Spanish?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>How well do you understand radio programs in Spanish?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>How well do you write in Spanish?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>How well do you understand music in Spanish?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
**Instrument Validity and Reliability Testing**

The instrument questions were revised based on findings from the focus groups. Reliability and validity evaluations were performed on the survey instrument. The instrument was reviewed by an experienced bilingual and bicultural health education researcher. The scripted survey questions were distributed to a panel of experts for their input on content, translation to Spanish, and back-translation to English, in order to establish face and content validity. Face validity was determined by community volunteers from Santa Maria. Content validity was determined through subject matter expert panel review (n = 3) consisting of a bicultural member of the Department of Romance Languages at the University of Cincinnati, a bicultural member of the Greater Cincinnati Latino Coalition, and a bicultural community member working at a non-profit organization in the area. Additionally, a convenience sample of Latino community members (n = 16) participated in a test-retest reliability analysis ($r = 0.750$).

**Procedures**

The research proposal was submitted to the University of Cincinnati Institutional Review Board (UC-IRB) for approval following committee approval of the research proposal. All procedures and instruments were reviewed and approved by the Social and Behavioral Sciences Institutional Review Board (UC-IRB-S) prior to commencing the study. The overall study was divided into three phases: 1) Focus groups to inform selected survey instrument item development,
2) Test-retest of the novel survey instrument and 3) the implementation of survey procedures with the total sample of 214 Latino participants.
Figure 3.2 Procedures Model
Preparation & Training

The focus groups and the orally-administered surveys were conducted by the principal investigator, the research mentor and trained project assistants, bilingual in English and Spanish, to act as interpreters and or survey administrators. The literature showed that,

… the use of a third-party interpreter allows the researcher to collect information from non-English speakers, but hinders the development of the administrator-respondent relationship. The presence of third-party interpreters may constrain respondents from responding candidly, especially when sensitive topics are addressed. Third party interpreters may interpose their own judgments and point of view in either framing the question or translating the response (National Institute of Child Health and Human Development, NIH, DHHS, 2001, p. 16).

It is for this reason that project assistants and interpreters received training in research ethics through the Collaborative Institutional Training Initiative (CITI) and in research principles related to reliability, focus group surveying skills, and the significance of following protocol.

Focus Groups

Six focus groups of 8-10 Latino adult community members were planned. The participants, recruited by posted flyers and/or trusted members of their community, were asked to be at a designated location on a specified date and
time to participate in an hour-long focus group. The purpose of the focus groups was to obtain feedback on the instrument questions. Upon completion of the focus groups, respondents were provided a modest amount in the form of a gift card to local grocers to demonstrate gratitude for their participation. In addition to written notations, the sessions were audio-taped. An amended instrument was filed for approval from the IRB to reflect changes or modifications to the instrument that resulted from the focus group data analysis. Once that approval was granted (7/14/09, #09-03-02-05E) researchers moved forward with the study.

Recruitment for the orally-administered surveys

Following an analysis of the power of sample size necessary for adequate sample representation in the area, 214 surveys were conducted. Power analysis was conducted via utilization of an online calculator (Wimmer & Dominick, 2008) and resulted in a suggested sample size of 195 based on a census population of 41,000, with a confidence level of 95%, and a confidence interval = 7.

The participants were recruited using intercept methodology at a variety of venues such as soccer games, festivals, health fairs, schools, or community centers as recommended by community leaders. Participation was voluntary and confidential. Adults who self-identified as Latino/Hispanic were invited to participate. An introduction script was followed in English or Spanish as approved by the IRB. An Information Sheet for Adult Participation was provided to each participant using a pre-approved format by the IRB (see Appendix B for a copy of
the Information Sheet). The Information Sheet was available in both English and Spanish. The researcher explained the study and offered, for participants who so desired, to read to them the Information Sheet. Specifically, the Information Sheet had a Flesch-Kincaid readability grade level of 8.2 as measured by Microsoft Word. It was titled, “Finding and Using Health Information,” and included a description of the following: researcher contact information, introduction, purpose, duration, risks/discomforts, benefits, payment, alternatives, confidentiality, and voluntary participation agreement. Permission to continue was obtained to conduct the voluntary and confidential orally-administered surveys when the participants agreed to the terms described on the information sheet. The Information Sheet was meant to be kept by the participants. Verbal consent was obtained from participants, and due to the possible undocumented nature of the population, each survey was coded to match a tally sheet, thus avoiding personal identifiers. The tally sheet was designed to record the date and location of the data collection, participation counts, administrator information and gift card administration.

**Orally-administered surveys**

The trained bi-lingual survey administrators asked the scripted survey questions of the respondents. The survey took approximately 20-25 minutes of the participants’ time. Self-report questions on demographics, sources of health information, barriers to accessing health information, acculturation, and health literacy were measured. Health Literacy levels were measured using the Short
Test of Functional Health Literacy in Adults (STOFHLA) in English or Spanish, and the Rapid Estimate of Adult Literacy in Medicine-Short Form (REALM-SF) in English (see Appendix C for a copy of the complete survey instrument).

Data Analysis

Observational qualitative data from orally-administered surveys, focus groups, and open ended questions in the survey instrument were transcribed, translated if needed, organized, categorized and analyzed for interpretation of its meaning. A codebook was established to determine recurrent themes from the observational data (Patton, 2002; MacQueen et al., 1999). The resulting observational data from the survey on demographic variables, health information sources, barriers to health information access, acculturation, and health literacy levels were analyzed using both descriptive and inferential statistical analyses using SPSS (v15).

Recoding, filtering, and transformations of variables took place when any grouping of a variable was needed (for example, country of birth became regions). Descriptive statistics (mean, median, mode, skewness, kurtosis, etc) were obtained on the variables and crosstabulation tables were created, if appropriate, for each of the respective variables for the 14 hypotheses. Calculations for the determination of normal distribution were conducted by the researcher using a hand held calculator for the ratio of skewness to its standard error and the ratio of kurtosis to its standard error. The differences in frequencies were determined to be significant or not with either a non-parametric Chi-square
and/or a non-parametric Kruskal-Wallis (chi-square) analysis (accordingly based on the assumption for normal distribution or if lacking normal distribution) for the variables involved in the hypotheses. Table 3.3 displays the specific test utilized for each hypothetical comparison.
Table 3.3
Statistical Analyses for Hypotheses

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Variable 1</th>
<th>Variable 2</th>
<th>Statistical Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sources of health information</td>
<td>Country/Region of Familial origin</td>
<td>Non Parametric Chi-Square</td>
</tr>
<tr>
<td>2</td>
<td>Sources of health information</td>
<td>Length of residence in the U.S.</td>
<td>Kruskal-Wallis Chi Square</td>
</tr>
<tr>
<td>3</td>
<td>Sources of health information</td>
<td>Education level</td>
<td>Kruskal-Wallis Chi Square</td>
</tr>
<tr>
<td>4</td>
<td>Sources of health information</td>
<td>Age</td>
<td>Non Parametric Chi-Square</td>
</tr>
<tr>
<td>5</td>
<td>Sources of health information</td>
<td>Gender</td>
<td>Non Parametric Chi-Square</td>
</tr>
<tr>
<td>6</td>
<td>Health Literacy in English</td>
<td>Health Literacy in Spanish</td>
<td>Non Parametric Chi-Square</td>
</tr>
<tr>
<td>7</td>
<td>Health Literacy in English</td>
<td>Acculturation to US Cultural Domain</td>
<td>Non Parametric Chi-Square</td>
</tr>
<tr>
<td>8</td>
<td>Health Literacy in English</td>
<td>Acculturation to Hispanic Cultural Domain</td>
<td>Non Parametric Chi-Square</td>
</tr>
<tr>
<td>9</td>
<td>Health Literacy in English</td>
<td>Country/Region of Familial origin</td>
<td>Non Parametric Chi-Square</td>
</tr>
<tr>
<td>10</td>
<td>Health Literacy Level in Spanish</td>
<td>Country/Region of Familial origin</td>
<td>Non Parametric Chi-Square</td>
</tr>
<tr>
<td>11</td>
<td>Health Literacy Level in Spanish</td>
<td>Length of residence in the U.S.</td>
<td>Kruskal-Wallis Chi Square</td>
</tr>
<tr>
<td>12</td>
<td>Health Literacy Level in Spanish</td>
<td>Age</td>
<td>Kruskal-Wallis Chi Square</td>
</tr>
<tr>
<td>13</td>
<td>Health Literacy Level in Spanish</td>
<td>Gender</td>
<td>Non Parametric Chi-Square</td>
</tr>
</tbody>
</table>
Summary of the Methodology

This research study involved the determination of the sources of health information, acculturation level, reading grade level in English and a health literacy level in English or Spanish from study participants who were a convenience sample of Latino adults in a metropolitan area in the Midwest region of the United States. The survey instrument was based on one designed by the principal researcher for a prior pilot study and modified with input from focus group data. The research study protocol was approved by the University of Cincinnati Institution Review Board and the amended version of the survey instrument based on focus group input was approved as well. Content validity was determined through subject matter expert panel review \( n = 3 \). Permission and data collection arrangements were made via conversations with key individuals, community gatekeepers, organization managers, and community leaders.

The study included both observational and quantitative research methods such as focus groups (which involved intercept and snowball sampling for recruitment), and a novel orally-administered survey instrument which used a variety of question formats (response checklists, sentence completion, open-ended, and yes/no). In addition, three validated scales were incorporated which included a measurement of acculturation using Likert-style responses, a reading literacy/grade level estimation which involved a read-aloud section for word recognition of nine English medical terms, the use of props and prompts for numeracy skills and two reading passages with modified Cloze statements.
(where every fifth to seventh word is omitted and subjects select the correct word from among a set of four options) for reading comprehension to determine functional health literacy levels. Reliability analysis was performed on the modified instrument using a convenient sample test-retest analysis ($n = 16$).

Administrator training took place with the researcher for the six bilingual key personnel that served as the orally-administered survey team. The orally-administered surveys took place at a variety of local venues such as health centers, community festivals, community centers or other recreational facilities, health fairs, churches, and markets (grocery stores). Participants received a monetary gift card to a local grocery store in appreciation for their participation in the research study. See Table 3.3 for the scheduled data analysis on the variables measured. The differences in frequencies were determined to be significant or not with either a non-parametric Chi-square and/or a non-parametric Kruskal-Wallis (chi-square) analysis (accordingly based on the assumption for normal distribution or if lacking normal distribution) for the variables involved in the hypotheses.
CHAPTER FOUR

Results

The purpose of this research study was to determine the sources of health information and the health literacy levels of Latinos in a Midwestern tri-state area and to determine possible relationships with acculturation levels, country of familial origin, or other demographic characteristics. Variables were observed through focus groups and person-to-person orally-administered surveys with adult participants from the local Latino community. The results of this study will facilitate the ability of health educators and other health professionals to understand preferences and abilities of the Latino community and will contribute to the ability of the professional to develop and deliver culturally competent communication and health education programs and messages.

This chapter was organized into the following sections: 1) Focus groups; 2) Redesign, re-approval, and test-retest of the survey instrument; 3) Survey Administrator Training; 4) Survey data collection; 5) Survey data analysis; 6) Validated Scales Analysis; 7) Hypotheses.

Focus Groups

Focus group recruitment. Following the approval process (February 5-May 12, 2009) of the research study proposal by the Institution Review Board—Social &
Behavioral Sciences at the University of Cincinnati (#09-03-02-05), a total of six focus groups (n = 40) were conducted in May and June 2009: two in Indiana at a public library meeting room, two in Kentucky at a Catholic church, and two in Cincinnati at a community recreation center. The groups met in the early evenings on various days of the week (for example, two Mondays, one Tuesday, one Thursday, and two Fridays). Two of the groups had male participants only, two groups had female participants only, and two were open to any gender, but were not attended. A pre-approved, trained, bi-lingual interpreter and the principal researcher attended each focus group session. The answers for each discussion question were written down on flip chart paper and audio tape recorded. The tapes were transcribed verbatim, and then translated into English. All of the questions were asked at each focus group. The results of the focus group discussions helped to determine the survey questions and answer choices format.

The preparation for each focus group was the same with regards to scheduling and gaining permission to use the site location, scheduling the bi-lingual interpreters to attend, posting flyers to advertise and/or having announcements made prior to the date at the various locations, and bringing in the necessary data collection materials. Each focus group required similar materials for acquiring information: flip chart paper and markers, an audio tape recorder, gift cards to grocery stores for $5.00 each as a thank-you gift for participants, and beverages. For three of the four focus groups that had participants attend, a known, trusted person in the community helped announce
and promote the event. The three focus groups that did not have good attendance had recruitment flyers posted and the principal researcher visited local area schools and business establishments for days in advance to make contact with individuals to attend.

**Focus group demographics.** The demographics of the focus group participants are displayed in Tables 4 A, C. All participants self-reported to be Latino \( n = 39 \). One male participant did not provide demographic information. As noted on the table, total percentages may not equal 100% due to missing responses. Approximately one third (33.3%) of the participants were male, and two thirds (66.7%) were female. The age ranges were grouped as follows: 18-34 years (28%); 35-39 years (31%); and, 40-63 (41%). The range of annual income of the participants’ household was from $5,000 to $72,000. The largest number of participants had an income between $13,000- $25,000. The distribution was as follows: less than $12,000 (18%); $13,000-25,000 (31%); $26,000-$38,000 (15%); $39,000-$72,000 (10%); and, 26% didn’t know their income or had missing data.

The number of members of the household ranged from 1-7 people. The largest number of participants had 4 or 5 members present (56.4%) and the others had one to three members (20.6%), or six or seven members (23.1%) present in the household.

Approximately half (48.8%) of the focus group participants had more than high school level of education. The distribution was as follows: Eighth grade or less (25.6%); ninth-twelfth grade (25.6%); and, more than high school (48.8%).
The marital status of the focus group participants varied and the largest number were married. The distribution was as follows: married (43.6%); single (35.1%); living together, but not married (5.1%); separated, but not divorced (5.1%); widowed (5.1%); and, the least number of participants, 2.6%, was divorced.

The countries of origin for the focus group participants were diverse and included seven countries. The majority of the participants were from Mexico (69%). The second largest number of participants was from Guatemala (18%), and each of the following countries was represented by one participant (3%): Honduras, Ecuador, Peru, Dominican Republic, and the United States. The length of time that participants had lived in the United States ranged from 1 year to 36 years. Approximately half (49%) have lived in the United States for less than ten years; and the rest of the participants were divided between eleven to fifteen years (26%) and sixteen to thirty-six years (23%). The majority of the focus group participants self-reported their health status as “good” (69.2%). Although none reported their health as “very poor”, 15.4% reported their health as “poor”, and 12.8% reported their health status to be “very good”. Tables 4.1-A, 4.1-B, and 4.1-C showed a comparison of the variables for the pilot study, focus groups, and orally-administered surveys.
Table 4.1-A
Comparison of Demographic Characteristics: Survey language, gender, marital status, age, educational level and health status

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pilot Study</th>
<th>Focus Groups</th>
<th>Surveys</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Survey Language</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Spanish</td>
<td>43</td>
<td>85.0</td>
<td>38</td>
</tr>
<tr>
<td>English</td>
<td>8</td>
<td>15.0</td>
<td>1</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>20</td>
<td>38.5</td>
<td>13</td>
</tr>
<tr>
<td>Female</td>
<td>31</td>
<td>59.6</td>
<td>26</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>23</td>
<td>44.2</td>
<td>17</td>
</tr>
<tr>
<td>Single</td>
<td>12</td>
<td>23.1</td>
<td>13</td>
</tr>
<tr>
<td>Living together, not wed</td>
<td>11</td>
<td>21.2</td>
<td>2</td>
</tr>
<tr>
<td>Separated, not divorced</td>
<td>1</td>
<td>1.9</td>
<td>2</td>
</tr>
<tr>
<td>Divorced</td>
<td>2</td>
<td>3.8</td>
<td>1</td>
</tr>
<tr>
<td>Widowed</td>
<td>1</td>
<td>1.9</td>
<td>2</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-20</td>
<td>2</td>
<td>3.9</td>
<td>1</td>
</tr>
<tr>
<td>21-30</td>
<td>21</td>
<td>41.2</td>
<td>6</td>
</tr>
<tr>
<td>31-40</td>
<td>11</td>
<td>21.6</td>
<td>20</td>
</tr>
<tr>
<td>41-50</td>
<td>5</td>
<td>9.8</td>
<td>11</td>
</tr>
<tr>
<td>51-60</td>
<td>5</td>
<td>9.8</td>
<td>0</td>
</tr>
<tr>
<td>61-70</td>
<td>1</td>
<td>2.0</td>
<td>1</td>
</tr>
<tr>
<td>71+</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
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<tr>
<td>Education level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>none or first grade</td>
<td>1</td>
<td>1.9</td>
<td>2</td>
</tr>
<tr>
<td>second or third grade</td>
<td>2</td>
<td>3.8</td>
<td>2</td>
</tr>
<tr>
<td>fourth or fifth grade</td>
<td>3</td>
<td>5.8</td>
<td>2</td>
</tr>
<tr>
<td>sixth, seventh, eighth grade</td>
<td>6</td>
<td>23.1</td>
<td>4</td>
</tr>
<tr>
<td>ninth or tenth grade</td>
<td>7</td>
<td>13.5</td>
<td>3</td>
</tr>
<tr>
<td>eleventh or twelfth grade</td>
<td>6</td>
<td>11.5</td>
<td>7</td>
</tr>
<tr>
<td>more than high school</td>
<td>25</td>
<td>48.1</td>
<td>19</td>
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<tr>
<td>Health Status</td>
<td></td>
<td></td>
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<tr>
<td>Very poor</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>Poor</td>
<td>3</td>
<td>5.8</td>
<td>6</td>
</tr>
<tr>
<td>Good</td>
<td>35</td>
<td>67.3</td>
<td>27</td>
</tr>
<tr>
<td>Very good</td>
<td>10</td>
<td>19.2</td>
<td>5</td>
</tr>
</tbody>
</table>
Table 4.1-B  
Comparison of the Demographic Characteristics: Salary, People in Household, and Zip Codes

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pilot Study</th>
<th></th>
<th>Focus Groups</th>
<th></th>
<th>Surveys</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Annual salary estimate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$ 0—$ 15,999</td>
<td>13</td>
<td>39.4</td>
<td>15</td>
<td>51.7</td>
<td>66</td>
<td>46.5</td>
</tr>
<tr>
<td>$ 16,000--$ 24,999</td>
<td>8</td>
<td>24.2</td>
<td>5</td>
<td>17.2</td>
<td>46</td>
<td>32.4</td>
</tr>
<tr>
<td>$ 25,000 -- $50,999</td>
<td>8</td>
<td>24.2</td>
<td>7</td>
<td>24.1</td>
<td>22</td>
<td>15.5</td>
</tr>
<tr>
<td>$51,000-- $75,999</td>
<td>2</td>
<td>6.1</td>
<td>2</td>
<td>6.8</td>
<td>5</td>
<td>3.5</td>
</tr>
<tr>
<td>&gt;=$ 76,000</td>
<td>2</td>
<td>6.1</td>
<td>0</td>
<td>0.0</td>
<td>3</td>
<td>2.1</td>
</tr>
<tr>
<td>People in Household</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 or fewer</td>
<td>30</td>
<td>60.0</td>
<td>18</td>
<td>46.0</td>
<td>139</td>
<td>70.0</td>
</tr>
<tr>
<td>5 -9</td>
<td>20</td>
<td>40.0</td>
<td>21</td>
<td>54.0</td>
<td>61</td>
<td>30.0</td>
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<tr>
<td>Zip codes</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of different postal zones</td>
<td>22</td>
<td>10</td>
<td></td>
<td></td>
<td>55</td>
<td></td>
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</tbody>
</table>
Table 4.1-C
Comparison of the Demographic Characteristics: Country/region of origin, Length of residence in U.S.

<table>
<thead>
<tr>
<th>Country/Region of Origin</th>
<th>Pilot Study (N = 52)</th>
<th>Focus Groups (N = 39)</th>
<th>Surveys (N = 212)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Mexico</td>
<td>19</td>
<td>37</td>
<td>27</td>
</tr>
<tr>
<td>Central America</td>
<td>19</td>
<td>37</td>
<td>9</td>
</tr>
<tr>
<td>South America</td>
<td>10</td>
<td>20</td>
<td>2</td>
</tr>
<tr>
<td>U.S. &amp; Puerto Rico</td>
<td>3</td>
<td>6</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Country of Origin</th>
<th>Pilot Study (N = 52)</th>
<th>Focus Groups (N = 39)</th>
<th>Surveys (N = 212)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Mexico</td>
<td>19</td>
<td>36.5</td>
<td>27</td>
</tr>
<tr>
<td>Guatemala</td>
<td>9</td>
<td>17.3</td>
<td>7</td>
</tr>
<tr>
<td>Columbia</td>
<td>1</td>
<td>1.9</td>
<td>0</td>
</tr>
<tr>
<td>Puerto Rico</td>
<td>2</td>
<td>3.8</td>
<td>0</td>
</tr>
<tr>
<td>Peru</td>
<td>5</td>
<td>9.6</td>
<td>1</td>
</tr>
<tr>
<td>United States</td>
<td>1</td>
<td>1.9</td>
<td>1</td>
</tr>
<tr>
<td>Panamá</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>Honduras</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
</tr>
<tr>
<td>El Salvador</td>
<td>1</td>
<td>1.9</td>
<td>0</td>
</tr>
<tr>
<td>Venezuela</td>
<td>1</td>
<td>1.9</td>
<td>0</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>3</td>
<td>5.7</td>
<td>0</td>
</tr>
<tr>
<td>Cuba</td>
<td>1</td>
<td>1.9</td>
<td>0</td>
</tr>
<tr>
<td>Chile</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>Spain</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>5</td>
<td>9.6</td>
<td>1</td>
</tr>
<tr>
<td>Ecuador</td>
<td>3</td>
<td>5.7</td>
<td>1</td>
</tr>
<tr>
<td>Martinique</td>
<td>1</td>
<td>1.9</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: 1= Mexico,
2= Central America,
3= South America,
4= United States & Puerto Rico
Focus group questions. The focus groups were asked all nine of the scripted, open ended questions. The responses of the focus group participants were usually verbalized in Spanish, audio-recorded via a tape cassette player or digital recording device, and the bilingual interpreter/trained administrator or researcher would write them down on flip-chart paper simultaneously. These often ended up as lists of responses to the scripted questions with verbal questions interjected by the researcher for clarification as needed. The questions that were asked were:

1. How easy is it to get answers to your health questions? What things get in your way? (Barriers)
2. In what form do you like to find answers to your health questions?
3. When you need health information for your family, where do you look for it?
4. When you need health information for yourself, where do you look for it?
5. In what language do you want health information to be?
6. Which source do you trust the most---and why? Which source do you trust the least---and why?
7. If you need health information again, where would you like it to be so that you can get it?
8. How often do you look for answers to health questions?
9. Tell me what you think about these pictures …(researcher prepared several copies of an original, laminated, one-page sheet of pictograms of
Focus group question results

Question #1. How easy is it to get answers to your health questions? What things get in your way?

The general initial response was positive that there is now much more information and help available in Spanish than in the past. For example, prescription information in Spanish was noted to be especially helpful. Sources listed with Spanish information included the Internet, clinics, nurses, and churches. However, the focus group participants mentioned that still more resources for information were needed. Participants then offered examples of some negative encounters with the hospitals in the area. The examples were shared because the participants perceived discrimination in their interactions with the health care providers. The participants expressed that they believed that the general attitude toward Latinos is a negative one. One participant felt he did not receive enough care following a broken leg; another felt that his pregnant wife was only given a pack of diapers but not attended to. The participants felt that the lack of response from the hospital staff and employers stems from prejudices against Latinos.

With regards to what barriers are perceived to be in the way of getting answers to health questions, several were identified including language (“difficult to find a translator”), having to make appointments “so far in advance”,

communication channels for distribution in the focus groups to prompt discussion).
companies that don’t allow workers time off for injuries or illness, transportation, lack of insurance, confusing medical terminology, childcare for the children, and legal status. The language barrier was mentioned as a concern especially in emergency situations involving ambulances and paramedics. Other barriers included fear, shyness, discrimination, and “people we don’t know end up translating”.

Summary for #1: Focus group participants believed that there was more health information available now than in the past, but that more was needed; that the sources listed with Spanish information included the Internet, clinics, nurses, and churches; that there are many different types of barriers to finding health information including (but not limited to): language (plus confusing medical terminology), scheduling, transportation, employer issues, lack of insurance, lack of childcare, fear of legal status, and discrimination.

**Question #2. In what form do you like to find answers to your health questions?**

The responses were verbal and written forms. The participants expressed that information should be available in Spanish in all forms (but that it isn’t). They felt that information should be practical, current, and brief. It should teach them real-life applications; NOT long, boring books, and articles. A barrier mentioned with this question was once again fear. Fear of potential discrimination and fear of people that don’t want to help or listen to them. Other responses were radio, television, news, flyers/pamphlets/books/magazines, and a health educator/health promoter. When specifically asked about the Internet in one
group of men, only 17% said they would use it and that people who do use it would probably use it at home not in the library or the community center. Also, when specifically asked about the library, no one in a group of men would use it as a source of health information and the men said that women would more likely go to the library or the community center for information.

Summary for #2: Focus group participants reported that they wanted verbal and written forms of health information; that health information should be practical, current, and brief; that popular media sources were used (i.e., radio, television, news, flyers/pamphlets/books/magazines, but not Internet so much) and a health educator, but men felt that women would go to the library or community center not themselves. Fear of potential discrimination was mentioned again.

**Question #3. When you need health information for your family, where do you look for it?** This question invoked lists of a variety of formats and communication channels such as people that have been here in the United States longer and have better English skills, clinics mentioned by name which had interpreters and which did not, some churches and community centers by name, “trusted experienced people” such as nuns and pastors, yellow pages, doctor’s office, telephone information line, friends or call family members, Internet at home, public library (“but, it isn’t in Spanish”), school newsletters and family resource center (resources are offered in Spanish), and pharmacies. In one focus group of men (many were single, without families), all agreed that they would take family
to a doctor and that, as one explained, “anyone else doesn’t have sufficient training to be trusted.” Another participant, a younger man, mentioned drug commercials. One participant mentioned that for less serious conditions such as the flu or a stomachache, he would often use home remedies (such as teas) before going to the doctor.

Summary for #3: Focus group participants believed that people (friends, family, and those they trusted and with better English skills), community centers, churches, schools, doctor, clinics, and pharmacies were sources for family health information. One participant mentioned self-help with teas.

*Question #4. When you need health information for yourself, where do you look for it?* The answer to this question differed with the gender of the groups.

Women answered this question with “sometimes we leave our personal health in the second place”. Another said, “we search a lot for the kids, …we don’t do the same thing for us.” Other women mentioned Planned Parenthood, a specific community’s health center, and girlfriends. The men mentioned places like the doctor’s office and clinics. One man mentioned “machismo” that they don’t go to the doctor because of the hassle or due to ignorance or embarrassment on their part. Other men mentioned that they liked pamphlets, commercials, and advertisements in magazines.

Summary for #4: Focus group participants believed that this did not occur as often for themselves (due to priorities, embarrassment, or lacking
knowledge/skills) as for other family members (for example, children), but when needed that doctors, clinics/health centers, pamphlets, friends, and media (tv and magazines) were their sources of health information.

**Question #5. In what language do you want health information to be?** This question created both unified responses and differing opinions… and sometimes at the same time. Both men and women’s groups said “Español” in unison and then followed up with “our language”. One person said bilingual. Participants offered that medical terms in English are a big problem. Participants shared that medical terminology is too complicated, and that the language used by doctors and on drug packaging is very difficult to understand.

Women especially, specifically said that when it came to explaining to the doctor what their main concern was, they wanted to speak Spanish. One woman expressed, “I feel more comfortable in my own language…I mean, I want to be sure that someone understands my needs.” When the researcher asked about the use of interpreters being available, one focus group of women said it was either not available or that it causes a lot of problems and a lot of time is spent waiting for their interpreter services. Others added responses such as, “many times regardless how good the interpreters are, they don’t interpret correctly. They make wrong interpretations” and “they don’t explain it exactly the way they could understand it,” and,

“I think that those who contract/employ interpreters need to be very careful/cautious because many times what the Americans have told me is
that when they hear a person speaking a little Spanish and a little English they assume they speak both perfectly."

Summary for #5: Focus group participants’ first preference was Spanish language for health information, that using interpreters sometimes causes problems (time, reliability, and accuracy) and that medical terminology in English was confusing. One participant said bilingual information was “fine”.

Question #6. Which source do you trust the most---and why? Which source do you trust the least---and why?

There was some difference of opinions in the responses to this question based on gender. Men tended to trust medical centers and clinics for both written and verbal health information. Although one man did express a lack of complete trust in doctors because they don’t explain test results well enough. They just say, “You’re fine” without explaining what a test means. The men least trusted illegal doctors, also referred to as “illegales,” who are doctors without a US license. These are called ‘medicina pública’ in Mexico, which means people who sell medications on the street. They also mentioned television advertisements (such as weight-loss pills mentioned specifically) since they are just trying to push a product.

The women placed their trust in the family doctor, private doctor, the Emergency Room and God (“God first then the doctor”). The sources of health information that were less trusted were the Internet, radio, television, magazines,
friends, the telephone information line, and the doctor’s office in part due to the
registration people where it is believed long waits and getting skipped over is a
form of discrimination against them.

Summary for #6: Focus group participants believed that God, medical centers,
emergency Rooms, and clinics could be trusted for health information. Doctors
could be trusted for health information, too, but only if they were known to them
(private or family doctor). Less trusted sources were the intake people at clinics
(registration desk people might discriminate), media (television commercials,
Internet, radio, magazines, telephone information line) and friends.

Question #7. If you need health information again, where would you like it to be
so that you can get it?

The men were focused on doctors and clinics, especially to those where
they received good treatment. The men were vocal about wanting clinics where
they feel respected, and could go without fear, worries, or embarrassment. One
male participant mentioned that after a visit to the doctor, if he wants more
information about something, then he can investigate on his own using the
Internet.

The women would prefer that health information be available
“everywhere”! They specifically listed hospitals, health clinics, the grocery store,
the church, the library (“if it had it in Spanish”), schools, the laundry, television,
radio, stores, and newspapers. One female participant also specifically
mentioned the local health department, but that it is not in Spanish there currently.

Summary for #7: The male focus group participants believed that medical sites were good if they felt respected there (i.e., doctors, clinics), and the Internet, too. The female focus group participants were less limited in scope and listed medical sites (i.e., hospitals, clinics, local health departments), people/community sites (i.e., schools, laundry, church, stores), and media (i.e., television, radio, newspapers).

**Question #8. How often do you look for answers to health questions?**

The men responded that Latinos do not go to the doctor unless they are sick, so never. Some men said that it is more of a cost issue than a culture issue. The fear is that if they do go, the doctor may not do anything and they would still be charged so it would not be worth it. The men agreed that women go more often and that if men do go it is because a woman (wife or mother) told him to go. Specific responses from individual men were: every 5 years, 3-6 months, once per year, once per month, frequently and every 6 months.

The women responded with a variety of replies. Some responses included once per year, often (via the Internet), and two said they would if available in Spanish and that they trusted the source. Many agreed that they do go when they are sick. The researcher asked a large group of women to re-group themselves into areas of the room for a visual estimate of often, sometimes and
never. No one went to the ‘never’ area, and the group was split evenly between ‘often’ and ‘sometimes’.

Summary for #8: The male focus group participants believed that, being Latino, the answer was they never look for answers to health questions, or only if they were sick, due to the costs associated (monetary expenses). The female focus group participants were in agreement that they go when they are sick, or often use the Internet. The male focus group participants mentioned a variety of time frames (months and years) and the female focus group participants said once a year and then divided themselves evenly into ‘often’ and ‘sometimes’. The female focus group participants did not say ‘never’.

**Question #9.** “Tell me what you think about these pictures….” (the researcher had prepared several copies of an original, laminated, one-page sheet of pictograms of communication channels labeled in English and Spanish terms for distribution in the focus groups to prompt discussion).

Based on the feedback from the focus groups, one of the words in Spanish for traditional folk healer was changed from traditional/curandero to natural medicine, and ‘doctor de medicina tradicional’. It was explained that the term ‘curandero’ in some countries/cultures was interpreted as ‘witch doctor’ with a possible negative connotation. The focus group feedback also determined that the item directions for the answer selection for marital status needed to be “check all that apply” as opposed to ‘check one’ since multiple answers could apply to one’s civil situation. For example, one woman was divorced and was also
currently ‘living together, but not married’. Another example was a widow that was currently ‘living together, but not married’. In addition, choices within the various main categories of health information sources were determined from the focus group input. The focus groups that were attended did provide a point of saturation for responses to the questions as the information obtained in subsequent focus groups was duplication of the previous ones and of the pilot study surveys.

Summary for #9: Focus group participants agreed that the pictures conveying communication channels for health information were understandable, with one exception regarding a label for traditional folk healer in the Spanish language due to the diversity of Latino cultures and various interpretations.

Redesign, re-approval, and test-retest of the survey instrument

Following the focus groups in June of 2009, the survey instrument that had been used in the 2006-07 pilot study and approved by the University of Cincinnati Institution Review Board needed to be redesigned to incorporate the input and understanding gained from the population, and resubmitted as an amended protocol proposal. After obtaining that approval in July of 2009 (#09-03-02-05E), a test-retest of the survey instrument followed an expert’s review of the changes. The changes were as follows: to list the country of origin as a check list for self, mother, and father; to have the civil status be “check all that apply”; to add the words “total of number of years” under length of time lived in the
United States; to add ‘family living together’ to household and for salary, and to include “I don’t know the total, but, I alone make __biweekly or monthly; to create a checklist of five sources of health information categories as well as sub-categories of four to seven choices using the instruction wording of “use the most” and “check one”; incorporation of multiple choice questions on trustworthiness of the source, amount of information obtained, and ability to comprehend the information obtained; if the information was for someone else, who was it for; the preferred language of the information sought; preferred convenient location of information; a checklist of seven barriers to obtaining health information; how often is preventive information sought and where or if not, why not?(open-ended questions).

A total of 16 Latino community members participated in the test-retest of the survey instrument in various locations throughout Cincinnati. The first contact was made through an electronic mail request to see if any known Latino community members were interested and available to take the survey instrument a week to two weeks apart. The researcher used the approved recruitment letter in the contact. The researcher also recruited community members ‘at large’ during a Hispanic Health Fair at a Hispanic community center. The participants were given their choice of language (English or Spanish) for their survey. Seven participants chose English language surveys and eight participants chose Spanish language surveys. The researcher and the participant agreed on a date, time, and place to collect the completed retest a week to two weeks following the date of the initial test. The sites for retest collection meetings included a Hispanic
community center, two hospitals, and a fax machine at the researcher’s program office. Reminders to the participants were sent out via telephone and/or e-mail when it was time for the retest to take place. The survey data was coded with the same code number, but had A (for the initial test) and B (for the retest) on the pairs of survey instruments. As was stated in the protocol proposal, no names were requested from the participants. The analysis of the test-retests included descriptive frequencies to check for normal distribution) and Pearson correlations. Table 4.2 displays the results of the statistical analyses. Based on the results, no changes were made to the survey instrument other than to bold the instructions of “Check one” for the Sources of Health Information category and subcategories questions so that participants would realize that their selection represents the one that they use most often (as the directions stated).
Table 4.2
Results of the Test-Retest statistical analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
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<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Age</td>
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<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Zip Code</td>
<td>1.000 (** )</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Marital status</td>
<td>1.000 (** )</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Country of birth for self</td>
<td>1.000 (** )</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Country of birth for self</td>
<td>1.000 (** )</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Country of birth for mother</td>
<td>1.000 (** )</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>Country of birth for father</td>
<td>0.792 (** )</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>Time Lived in U.S.</td>
<td>1.000 (** )</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>Education level</td>
<td>0.683 (** )</td>
<td>0.004</td>
<td>16</td>
</tr>
<tr>
<td>People at home</td>
<td>0.959 (** )</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>Salary, biweekly</td>
<td>0.968 (** )</td>
<td>0.16</td>
<td>3</td>
</tr>
<tr>
<td>Salary, monthly</td>
<td>.(a)</td>
<td>.</td>
<td>1</td>
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<tr>
<td>Salary, Don’t know</td>
<td>0.313</td>
<td>0.237</td>
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<tr>
<td>Salary, biweekly, alone</td>
<td>0.988 (*)</td>
<td>0.012</td>
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<tr>
<td>Salary, monthly, alone</td>
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<td>.</td>
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<tr>
<td>Health status</td>
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</tr>
<tr>
<td>Source category</td>
<td>0.511 (*)</td>
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</tr>
<tr>
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<tr>
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<tr>
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<td>Self-help</td>
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<tr>
<td>Other</td>
<td>1.000 (** )</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Level of trust</td>
<td>0.713 (*)</td>
<td>0.002</td>
<td>16</td>
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<tr>
<td>Amount of Information</td>
<td>0.835 (** )</td>
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<td>15</td>
</tr>
<tr>
<td>Comprehension</td>
<td>0.368</td>
<td>0.161</td>
<td>16</td>
</tr>
<tr>
<td>Due to Illness</td>
<td>0.674 (** )</td>
<td>0.004</td>
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</tr>
<tr>
<td>Languages</td>
<td>1.000 (** )</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Barriers</td>
<td>1.000 (** )</td>
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<td>16</td>
</tr>
<tr>
<td>Barriers, language</td>
<td>.(a)</td>
<td>.</td>
<td>16</td>
</tr>
<tr>
<td>Barriers, transportation</td>
<td>.(a)</td>
<td>.</td>
<td>16</td>
</tr>
<tr>
<td>Barriers, child care</td>
<td>1.000 (** )</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Barriers, insurance</td>
<td>.(a)</td>
<td>.</td>
<td>16</td>
</tr>
<tr>
<td>Barriers, legal status</td>
<td>.(a)</td>
<td>.</td>
<td>16</td>
</tr>
<tr>
<td>Barriers, cost</td>
<td>1.000 (** )</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Barriers, other</td>
<td>.(a)</td>
<td>.</td>
<td>16</td>
</tr>
<tr>
<td>Barriers, none</td>
<td>0.467</td>
<td>0.068</td>
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<tr>
<td>Preventive</td>
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<td>0.014</td>
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<tr>
<td>Unapplicable</td>
<td>.(a)</td>
<td>.</td>
<td>16</td>
</tr>
</tbody>
</table>

Note: *Correlation is significant at the 0.05 level (2-tailed). **Correlation is significant at the 0.01 level (2-tailed). a. Cannot be computed because at least one of the variables is constant.
Statistical analysis of the test-retest

The Pearson Correlations statistical analysis was run on the 16 test-retests of the novel survey instrument which was created by the researcher with the guidance and assistance from the research advisor and was based on the pilot study survey instrument. For the statistically significant demographic characteristic questions such as gender, age, zip code, marital status, country of birth for self and for mother, the length of time in the United States, and the monthly salary level for the participants the relationship of the test-retest was perfectly direct and positive, $r = 1.000$, $p < 0.01$. The correlation values for the country of birth for the father ($r = .792$), education level ($r = .693$), number of people in the home ($r = .959$), health status ($r = .873$), level of trust ($r = .713$) and amount of information ($r = .835$) for the source of health information category, seeking information due to an illness ($r = .674$), language choice ($r = 1.00$), and that barriers exist ($r = 1.00$), in particular child care ($r = 1.00$), and the cost of health care ($r = 1.00$) are all statistically significant at the $p < 0.01$ level. The values that are statistically significant at the $p < .05$ level are the participant biweekly salary ($r = .988$), and the main source of health information category ($r = .511$). Due to the small numbers of the test-retest participants, the data for a particular variable were sometimes too few to analyze due to the range of answer choices available.

Survey Administration Training

Six female members of the community (all acquaintances of the researcher) that were bilingual in English and Spanish volunteered to conduct the
orally-administered surveys for the research study. They all took the required Collaborative Institutional Training Initiative (CITI) online Basic Courses in the Protection of Human Research Subjects and were listed as key personnel on the research study protocol submitted to the University of Cincinnati Institutional Review Board Social & Behavioral Sciences. The training required attendance at only one of several scheduled opportunities provided by the researcher, but one administrator attended two. The women were all trained by the researcher in one of four different sessions (both group and individual one-on-one; three late afternoons and one morning), at three different locations. Training sessions took place at a local health center (two sessions), a workplace office of an administrator, and a home of an administrator. Training included a distribution of the materials, explanation of the materials, and practice with each other conducting the survey. Questions by the survey administrators were noted and answers were discussed.

Following the sessions, the researcher e-mailed a revised set of guidelines to the survey administrators with the questions and answers included so that all were aware of the discussion. This was necessary because the training took place at different dates, times and locations for the various women. As noted in the Table of Contents (Appendix A), a list of the topics included in the discussion were human subjects training (CITI), the issue of respect and confidentiality of the participants’ identity and responses, the study materials themselves, and the need for documentation of the details for each survey. The discussion included the stigma of shame that often accompanies low literacy
levels especially in a language that is not native to the individual. A research article summary and copy of the scale’s handbook was provided for one of the subscales (REALM-SF, based on REALM) for a sense of context for the survey administrators. This word recognition subscale included a list of nine words that were to be read aloud in English and scored as “correct”, “mispronounced”, or “not attempted”. A discussion about foreign-born people having an accent took place so that the survey administrators would not incorrectly score a word if the participant had an accent. The dictionary pronunciation was the standard, but accents are acceptable, too. Discussion included the timing of the offering the $5.00 grocery store gift card. Based on the research study protocol, the gift card was to be given following the reading of the information sheet at the time of agreement to participate in the research study. This was intended to eliminate any sense of obligation to finish the survey rather than stop at any time the participant wished to end their participation.

The numeracy portion of the Short Test of the Functional Health Literacy of Adults (S-TOFHLA) included prescription bottles (2) and a laminated card for a clinic appointment and a blood glucose level. The survey administrators each read through the materials, including the prompts for each prop on the score sheet. Practice in the form of role-playing took place for each of the eight questions related to that section of the S-TOFHLA. Discussion followed and any questions were noted and answered. The reading comprehension portion of the S-TOFHLA is a timed (7 minutes) section. Discussion and role-playing included how to end that section with respect for the participant should they not complete
the section in the allotted time. These were included in the subsequent guidelines for the survey administrators to increase inter-rater reliability. By role-playing and discussing each line of the orally-administered survey, the researcher made attempts to assure that each administrator would conduct the survey instrument in a consistently reliable and accurate way.

Orally-administered survey data collection

The orally-administered surveys were conducted by the researcher and six trained bilingual individuals. There were at least 301 people presented with the opportunity to participate in the research study in at least eleven (11) locations in the tri-state area between mid-August and mid-October 2009 (Table 4.3). The number may be higher if survey administrators missed making any tally marks at the bottom of their tally sheet for those people they approached, but that did not wish to read the research study information sheet. Of those approached, 79 people (36.9% of 301) did not take the time to read the research study information sheet or learn more about the study opportunity. Eight (3.7%) of those approached did take the time to read the research study information sheet, and then declined to participate. The reasons given were lack of time ($n = 1$) or lack of interest ($n = 7$). The final number of participants that did agree to participate by taking part in the research study orally-administered surveys was 214, which was 71% of those approached. Of the 214 surveys, only 2 surveys were not usable due to incomplete information. In both of those cases, no health information or scales were completed and one did not complete the
demographic information. In these two cases, one had a young child that needed their immediate attention, and one had to go with a group of people with whom they had arrived (transportation issue). The number of usable research study surveys was 212 (99%).
<table>
<thead>
<tr>
<th>Administrator</th>
<th>Locations visited</th>
<th>Number of Surveys Completed</th>
<th>Opportunity declined</th>
<th>Declined to participate after invitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>8</td>
<td>84</td>
<td>39</td>
<td>28</td>
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<tr>
<td>B</td>
<td>4</td>
<td>35</td>
<td>16</td>
<td>23</td>
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<tr>
<td>C</td>
<td>3</td>
<td>27</td>
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<td>9</td>
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<td>D</td>
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<td>E</td>
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<td>2</td>
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<td>F</td>
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<td>G</td>
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<td>8</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Location</td>
<td>n</td>
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<td></td>
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<tr>
<td>-------------------------------------------------------------------------</td>
<td>----</td>
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<td></td>
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</tr>
<tr>
<td>2009 Cincinnati Hispanic Fest (2 days), Ohio</td>
<td>112</td>
<td>52</td>
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<td></td>
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<tr>
<td>Su Casa Hispanic Community Center, Ohio (multiple visits),</td>
<td>31</td>
<td>15</td>
<td></td>
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<tr>
<td>Lincoln Height’s Health Center, Ohio</td>
<td>15</td>
<td>7</td>
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<td>Price Hill Women’s Health Fair, Ohio</td>
<td>14</td>
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<tr>
<td>Centro de Amistad Community Center, Kentucky</td>
<td>11</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price Hill Women’s Connection Learning Center, Ohio</td>
<td>6</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beech Acres Service Organization Office Complex, Ohio</td>
<td>6</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Action Agency, Cincinnati, OH</td>
<td>5</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic Heritage Month Kickoff, Cincinnati, Ohio</td>
<td>5</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apartment complex, Springdale, Ohio</td>
<td>5</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>West Chester, Ohio</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cincinnati (Carthage), Ohio</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cincinnati (Clifton), Ohio</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The orally-administered survey participants’ demographic characteristics are presented in Table 4.1A-C. The participants all self reported to be Latino (100%). The majority of the participant population chose to take the survey in the Spanish language ($n = 188, 88.7\%$), and the remaining participant population took the survey in the English language ($n = 24, 11.3\%$). Approximately two-thirds of the participants were women ($n = 141, 66.5\%$) and the remaining participants were male ($n = 70, 33.5\%$). The marital status of the survey participants was varied. Almost half were married ($n = 99, 46.9\%$), others were single ($n = 47, 22.3\%$), living together but not married, ($n = 43, 20.4\%$), separated but not divorced ($n = 10, 4.7\%$), divorced ($n = 10, 4.7\%$), or widowed ($n = 2, 0.9\%$).

The education level of the research study survey participants was as follows: more than high school ($n = 100, 47.8\%$), eleventh or twelfth grade ($n = 41, 19.6\%$), ninth or tenth grade ($n = 8, 3.8\%$), sixth to eighth grade ($n = 30, 14.4\%$), fourth or fifth ($n = 16, 7.7\%$), second or third ($n = 7, 3.3\%$), and first grade or less ($n = 7, 3.3\%$).

The country of origin by regional breakdown for the group of survey participants was Mexico ($n = 91, 42.9\%$), Central America ($n = 60, 28.3\%$), South America ($n = 36, 17.0\%$), Puerto Rico and the United States ($n = 24, 11.3\%$), and Spain ($n = 1, 0.5\%$). By individual countries or origin, the distribution for the survey participants was: Mexico ($n = 91, 42.9\%$), Guatemala ($n = 35, 16.5\%$), Colombia ($n = 20, 9.4\%$), Puerto Rico ($n = 13, 6.1\%$), Peru ($n = 12, 5.7\%$), United States ($n = 11, 5.2\%$), Panama ($n = 10, 4.7\%$), Honduras ($n = 7, 3.3\%$), El
Salvador ($n = 5, 2.4\%$), Venezuela ($n = 3, 1.4\%$), Nicaragua ($n = 2, 0.9\%$), Cuba ($n = 1, 0.5\%$), Chile ($n = 1, 0.5\%$) and Spain ($n = 1, 0.5\%)$.

In addition, due to the diversity of the country of origin ($n = 14$) for the survey sample, the researcher had to group the countries by region in order to have sufficient numbers for data analysis. The survey participants were grouped into four regions, and the one participant from Spain was not included in the analysis due to the small representation ($n = 1$) from that location. The four regional groupings were: Mexico, Central America, South America, and the United States and Puerto Rico were combined into one group.

The length of time (total number of years) that the survey participants have lived in the United States ranged from 0.3 years (4 months) to 69 years. Of the 212 participants that took the survey, 95\% ($n = 202$) answered the question. The mean was 12 years, the median was 8 years, and the mode was 5 years lived in the United States. For statistical analysis, the length of time in the U.S. was grouped into categories: five years or less ($n = 63, 30.7\%$), six to ten years ($n = 66, 32.2\%$), and eleven or more years ($n = 76, 37.1\%$). Each category had approximately a third of the participants. The majority of the survey participants have lived in the United States for ten years or less ($n = 129, 62.9\%$).

The number of members per household ranged from 1-9 members. Of the 212 participants that took the survey, 94\% ($n = 200$) answered the question. The mean was 4 people, the median was 4 people, and the mode was 4 people. The survey participants were grouped into two categories: four people or fewer ($n = 129, 62.9\%$) and five or more ($n = 83, 40.3\%$).
The age range for the participants was 60 years (18-78 years). Of the 212 participants that took the survey, 97% ($n = 205$) answered the question. The mean age was 37, the median was 35, and the mode was 28 years. The various ages were grouped by decade for statistical analysis: the youngest and smallest range of 18-20 had $n = 7$, 3.3%; ages 21-30 ($n = 70$, 33.0%), ages 31-40 ($n = 62$, 29.2%), ages 41-50 ($n = 32$, 15.1%), ages 51-60 ($n = 23$, 10.8%), ages 61-70 ($n = 3.8$, 8%), and ages 71 or more ($n = 10$, 4.7%). The majority (62.2%) of the participants were under the age of 40 years.

The annual salary for the participants was determined by asking several questions in order to “best estimate” a value to approximate an annual salary for the household. Participants were asked if they knew the household’s income (biweekly or monthly), or if they didn’t know it ($n = 54$, 25.5% checked the box), and if they knew their own salary biweekly or monthly. From the 212 surveys, 142 (67%) participants answered at least one of the questions so that the researcher could estimate an income for the participants’ household. With that note in mind, the range for the participants’ household estimated annual income was $0 to $106,800. The mean annual income was $21,198 with a standard error of the mean of $1,512. The median and mode income were $15,600 and $12,000 respectively. The incomes were grouped into the following ranges: $0-15,999 ($n = 72$, 50.5%), $16,000-$24,999 ($n = 40$, 28.1%), $25,000-$50,999 ($n = 22$, 15.4%), $51,000-75,000 ($n = 5$, 3.5%), and more than $76,000 ($n = 3$, 2.1%).
Therefore, half (50.5%), of the survey participants’ households had annual income less than $15,999/year and almost a half (43.5%) of the survey participants’ households had an annual income between $15,000 and $50,999/year. Therefore, approximately 94% of the survey participants’ households had an annual income less than $51,000.

The survey participants encompassed a geographical region which was reflected in 55 different U.S. Postal Service zip codes. The majority of participants provided their zip code (95.8%) and only nine surveys (4.2%) were missing that information. There were 26 (12.2%) zip codes from Kentucky, and the rest (87.8%) were from Ohio. Based on the self-reported postal zip codes, no survey participants were from Indiana.

The general health status of the survey participants was a self-report item. Of the 212 participants that allowed the survey, 99% (n = 210) answered the question. The results of the participants’ health status were: good (n = 136, 64.8%), very good (n = 48, 22.9%), and poor (n = 26, 12.4%). The majority (64.8%) of the participants responded that they perceived their health as being “good”. No individuals (0%) reported their health to be in the “very poor” category.

*Distribution normality testing on the survey participants’ demographic data*

The demographic characteristics of the survey participants were examined for distribution normality in order to determine how much each distribution varied from a normal distribution. Both statistical and graphical methods for testing
normality were used on the dataset. SPSS frequencies had a frequency histogram which superimposed a normal distribution over the variable's frequencies. That allowed for a view for the skewness (the symmetry) of the distribution and the kurtosis (peakedness) of the distribution for each variable. When a distribution is normal, the values of skewness and kurtosis are zero. A positive skewness piles cases to the right, and a negative skewness piles cases to the left. Values for kurtosis that are above zero indicate a distribution that is too peaked, and values that are below zero indicate a flat distribution. By calculating the ratio of a variable’s skewness to its standard error, it is possible to determine if the ratio is significantly greater than zero which would indicate a distribution that is not normal. The results of the calculations on the variables' skewness ratio to its standard error (greater than 2) determined that the distributions were not normal for the demographic characteristics (other than general health status), and therefore nonparametric tests would be needed for the statistical analyses of the data.
Table 4.5
Variable Distributions for survey participants demographics ($N = 212$)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Skewness ratio (s)</th>
<th>Kurtosis ratio (k)</th>
<th>Normal distribution</th>
<th>Regrouped variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>-4.31</td>
<td>-4.49</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Age</td>
<td>5.51</td>
<td>1.59</td>
<td>No</td>
<td>4.78</td>
</tr>
<tr>
<td>Marital status</td>
<td>2.38</td>
<td>0.96</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Education</td>
<td>-6.47</td>
<td>0.16</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Country of birth</td>
<td>7.48</td>
<td>0.91</td>
<td>No</td>
<td>4.19</td>
</tr>
<tr>
<td>Length of time in US</td>
<td>5.85</td>
<td>12.00</td>
<td>No</td>
<td>-0.69</td>
</tr>
<tr>
<td>Number of people in the home</td>
<td>2.08</td>
<td>5.73</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Annual salary</td>
<td>11.78</td>
<td>17.45</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Health status</td>
<td>-0.07</td>
<td>-0.28</td>
<td>Yes</td>
<td>N/A</td>
</tr>
</tbody>
</table>
For example, in the case of country of birth, the skewness statistic ratio is seven times its standard error.

*Distribution testing for the survey participants scale variables*

Prior to running the statistical analysis to determine whether a result is significant or not, it was first necessary to determine the skewness and kurtosis of the variable’s distribution in order to determine if the distribution was normal or not. That determines whether parametric or nonparametric tests are used on the data.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Skewness ratio (s)</th>
<th>Kurtosis ratio (k)</th>
<th>Normal distribution</th>
<th>Regrouped variable Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAS Non-Hispanic domain</td>
<td>2.25</td>
<td>-3.11</td>
<td>No</td>
<td>2.05</td>
<td>-5.64</td>
</tr>
<tr>
<td>BAS Hispanic domain</td>
<td>-15.19</td>
<td>-3.11</td>
<td>No</td>
<td>24.30</td>
<td>43.87</td>
</tr>
<tr>
<td>REALM grade levels</td>
<td>-2.79</td>
<td>-3.73</td>
<td>No</td>
<td>1.72</td>
<td>-3.51</td>
</tr>
<tr>
<td>TOFLHA-English</td>
<td>-11.71</td>
<td>1.75</td>
<td>No</td>
<td>-6.67</td>
<td>-1.59</td>
</tr>
<tr>
<td>TOFHLA-Spanish</td>
<td>-0.44</td>
<td>0.81</td>
<td>No</td>
<td>-0.46</td>
<td>-1.61</td>
</tr>
</tbody>
</table>
Sources of Health Information for Survey Participants

The survey participants were directed to select the one source of health information that they used the most (“Check one”) from the following main category choices: Medical, Media, People, Self-help, and Other. In order to analyze the data, the results from the dataset needed to be filtered for only those participants that had selected only one main category as their source of health information. The question was answered by 98% \((n = 208)\) of the participants. Of the participants that provided a response, 182 (86%) participants selected, as instructed, one main category for their health information source that they used the most as directed, whereas 25 (12%) selected two (2) source categories, and 3 (1.5%) participants selected three (3) categories.

A list of corresponding subcategories, which were determined from focus group input findings, was included for the next question. For example, the Medical main category had the following subcategory choices within it: hospital, clinic, doctor, nurse, medical pamphlet. The Media main category had the subcategory choices of television, radio, Internet, magazines, books, library, and electronic mail (e-mail). The People main category had the subcategory choices of community center, family, friends, neighbor, promotores/health educator, and church. The Self-help main category offered the choices of prayer, teas, natural medicine, and folk healers. The ‘Other” category remained available followed by the instruction word “list.”
The next question then directed the survey participants to select an item from a corresponding subcategory, “For this most used source (selected above), check which type you use the most: (Check one)”. The results for the category and subcategory choices are listed in Tables 4.7, and 4.8 respectively.
Table 4.7
Single Category Selection Health Information Source ($n = 182$)

<table>
<thead>
<tr>
<th>Category</th>
<th>$n$</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical</td>
<td>77</td>
<td>42.3</td>
</tr>
<tr>
<td>People</td>
<td>34</td>
<td>18.7</td>
</tr>
<tr>
<td>Self-help</td>
<td>32</td>
<td>17.6</td>
</tr>
<tr>
<td>Media</td>
<td>26</td>
<td>14.3</td>
</tr>
<tr>
<td>Other</td>
<td>13</td>
<td>7.1</td>
</tr>
</tbody>
</table>
The majority of participants (187 out of 212, 88.2%) did follow the directions and selected a single main category choice. From those 187 surveys, the following results were found: Medical was selected 77 times (42.1%), People was selected 34 times (18.6%), Media was selected 26 times (14.2%), Self-help was selected 32 times (18.0%) and Other was chosen 13 times (7.1%). The subcategories for each of the main categories had frequencies listed in Table 4.8.
Table 4.8
Frequencies for health information subcategory choices (N = 187)

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>doctor</td>
<td>52</td>
<td>27.8</td>
</tr>
<tr>
<td>clinic</td>
<td>44</td>
<td>23.5</td>
</tr>
<tr>
<td>Internet</td>
<td>30</td>
<td>16.0</td>
</tr>
<tr>
<td>friends</td>
<td>30</td>
<td>16.0</td>
</tr>
<tr>
<td>hospital</td>
<td>26</td>
<td>13.9</td>
</tr>
<tr>
<td>natural medicine</td>
<td>26</td>
<td>13.9</td>
</tr>
<tr>
<td>family</td>
<td>24</td>
<td>12.8</td>
</tr>
<tr>
<td>television</td>
<td>24</td>
<td>12.8</td>
</tr>
<tr>
<td>community center</td>
<td>18</td>
<td>9.6</td>
</tr>
<tr>
<td>prayer</td>
<td>18</td>
<td>9.6</td>
</tr>
<tr>
<td>folk healers</td>
<td>14</td>
<td>7.5</td>
</tr>
<tr>
<td>magazines</td>
<td>14</td>
<td>7.5</td>
</tr>
<tr>
<td>teas</td>
<td>12</td>
<td>6.4</td>
</tr>
<tr>
<td>church</td>
<td>11</td>
<td>5.9</td>
</tr>
<tr>
<td>medical pamphlet</td>
<td>10</td>
<td>5.3</td>
</tr>
<tr>
<td>promotores/health educator</td>
<td>9</td>
<td>4.8</td>
</tr>
<tr>
<td>books</td>
<td>8</td>
<td>4.3</td>
</tr>
<tr>
<td>nurse</td>
<td>4</td>
<td>2.1</td>
</tr>
<tr>
<td>library</td>
<td>4</td>
<td>2.1</td>
</tr>
<tr>
<td>radio</td>
<td>3</td>
<td>1.6</td>
</tr>
<tr>
<td>e-mail</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>neighbor</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>other</td>
<td>2</td>
<td>1.1</td>
</tr>
</tbody>
</table>
The preferred source for health information that was the most often selected by participants that had made only one main category choice (n = 187) was the doctor (27.8%), a clinic (23.5%), the Internet or friends (16.0%), the hospital or natural medicine (13.9%), family members or television (12.8%), a community center or prayer (9.6%), folk healers or magazines (7.5%), teas (6.4%), church (5.9%), medical pamphlets (5.3%), a promotores / health educator (4.8%), books (4.3%), a nurse or the library (2.1%), the radio (1.6%), and e-mail, a neighbor or other (for example, the telephone) (1.1%).

The survey included the following three multiple choice questions and answer choices regarding the source of health information that the participant used the most:
1) “The source of information I use most is ____ trustworthy.”
   a) very, b) somewhat, c) a little, d) not
2) “When I receive information from this source, it gives me ____ information.”
   a) too much, b) enough, c) too little
3) “When I receive information from that source, the information is usually ____ to understand.” a) very difficult, b) difficult, c) easy, d) very easy

From the 212 completed surveys, 200 (94%) of the participants answered the question on trust; 206 (97%) of the participants answered the question on the amount of information received; and 205 (97%) of the participants answered the question on the understanding of the information received. The results of the for the level of trust that participants had for their source of health information source
was that just more than half of the participants felt their source was very trustworthy ($n = 116, 58\%$), approximately a third chose somewhat trustworthy ($n = 66, 33.0\%$), less for ‘a little’ ($n = 17, 8.5\%$), and only one participant indicated that their source was not trustworthy ($n = 1, 0.5\%$).

The results of the amount of information that the participants received from their chosen source was mostly “enough”. The number of participants that felt they received “too much” was 14 (6.8\%), “enough” was 157 (76.2\%), and “too little” was 35 (17.0\%). The majority of participants who reported having found information from their respective choice also reported that it was easy to understand. The frequencies for the responses were: very difficult ($n = 11, 5.4\%$), difficult ($n = 32, 15.6\%$), easy ($n = 146, 71.2\%$), and very easy ($n = 16, 7.8\%$).

The 212 participants were asked if they looked for health information due to an illness. The majority ($n = 203, 96\%$) of the survey participants answered the question. More than half responded “yes” ($n = 146, 71.9\%$) and the remaining participants responded “no” ($n = 57, 28.1\%$). The majority of the survey participants have looked for health information due to an illness in the past. If no response was recorded by the participant, the question was coded as “missing” (99). If the “no” response was marked and the following two questions were left blank, then they were coded as “no response required” (88). If the “yes” response was recorded by the participant for this question, then the two questions that followed required a response. If either of them were left blank, the lack of response was coded as “missing” (99). The status of a “no” response was revised to a “yes” by the researcher if either a topic or a recipient was provided to
the subsequent two questions. Depending on the response for the original question regarding looking for health information for an illness, the status of the responses (or lack thereof) changed from a “missing” (99) to a “not required” (88) if answers were provided by the participant.

The topic of the aforementioned search and the intended recipient of that information were requested in two open-ended questions:

a) “What information were you looking for? (topic?)
b) “If the information was for someone else, who was it for?”

For the first question (a), the participants that answered the question (n = 164, 77.4%), listed a wide variety of health topics. Following translation (if needed) by a bilingual member of the researcher’s key personnel, the researcher grouped the responses into the following four categories: 33 different conditions/diseases (n = 61, 37.2%), 17 different parts of the body (n = 30, 18.3%), 2 versions of general health/physical exams (n = 18, 11%), and 24 ‘other’ topics (n = 29, 17.7%). In some cases, topics in each category were mentioned by more than one study participant, and in others, the writing was illegible to the researcher and to the translator. There was no pre-set limit to the number of responses.

Regarding the recipient of the health information sought, most participants (n = 191, 90%) responded with a response which indicated that it was for themselves (me=“mi”, for me=“para me”, I=“yo”, self, myself, etc.), or listed others (n = 60, 31.4%) such as individual family members, or friends, etc., or both themselves and others (n = 2, 1%). If an information topic was provided, and no recipient was specified, the researcher assumed that the participant sought
information for themselves. If no information topic was provided, and yet a recipient was specified, the researcher assumed that the participant indeed sought information and changed the response for a topic from an “88” (not required) to a 99 (“missing”).

The survey participants were asked to indicate the language(s) of the information that they preferred by selecting any of the following (“check all that apply”): English, Spanish, other. Most (n = 209, 98.6%) of the participants answered the question. The language the survey participants preferred for health information was overwhelmingly Spanish (n = 156, 74.6%). The remaining preferences were almost evenly split between English (n = 28, 13.4%) and both English and Spanish (n = 25, 12.0%).

The survey participants were asked where the most convenient place would be for them to find health information the next time that they needed it. There were 193 responses and 28 surveys were left blank for that question. Some surveys had multiple responses from individuals since no limit was pre-set by the researcher. The open-ended question allowed for a variety of responses. Following translation (if needed) by a bilingual member of the researcher’s key personnel, the researcher grouped the 193 responses into the following categories, which paralleled the subcategories listed previously in the survey itself:
Table 4.9

Results of Most Convenient Single Source of Health Information

<table>
<thead>
<tr>
<th>Most Convenient Single Source of Health Information</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical</td>
<td>55.4</td>
</tr>
<tr>
<td>Media</td>
<td>25.4</td>
</tr>
<tr>
<td>People</td>
<td>13.0</td>
</tr>
<tr>
<td>Self-help</td>
<td>0.0</td>
</tr>
<tr>
<td>Other</td>
<td>4.1</td>
</tr>
</tbody>
</table>
Table 4.10
Most Convenient Source Subcategory Results from Survey participants

<table>
<thead>
<tr>
<th>Medical</th>
<th>$n$</th>
<th>Media</th>
<th>$n$</th>
<th>People</th>
<th>$n$</th>
<th>Self-help</th>
<th>$n$</th>
<th>Other</th>
<th>$n$</th>
</tr>
</thead>
<tbody>
<tr>
<td>hospital</td>
<td>32</td>
<td>television</td>
<td>1</td>
<td>community centers</td>
<td>9</td>
<td>Prayer</td>
<td>0</td>
<td>phone</td>
<td>8</td>
</tr>
<tr>
<td>clinic*</td>
<td>41</td>
<td>radio</td>
<td>1</td>
<td>family</td>
<td>4</td>
<td>teas</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>doctor</td>
<td>29</td>
<td>Internet</td>
<td>34</td>
<td>friends</td>
<td>2</td>
<td>natural medicine</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>nurse</td>
<td>1</td>
<td>magazines</td>
<td>4</td>
<td>neighbor</td>
<td>1</td>
<td>folk healers</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>medical pamphlet</td>
<td>4</td>
<td>books</td>
<td>2</td>
<td>Promoters health educator</td>
<td>0</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>library</td>
<td>0</td>
<td>Church</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>e-mail</td>
<td>0</td>
<td>Community</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>newspapers</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>comm. media</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>107</td>
<td>49</td>
<td>25</td>
<td>0</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: includes health centers
*italics* typeface are subcategories that the survey participants contributed
Don't know ($n = 4$)
Four participants listed “folletos” and the researchers coded them as Medical/medical pamphlets. One participant listed “medical books” and it was coded in Media/books since the entire survey is health information based, it was assumed the books would include medical types of books. One individual responded “in the community”, and another simply said “people”; both were coded as ‘people’. Four participants simply listed various forms of the words “medios de communication” and were included in the Media category. The individuals that responded “in my home” could be referring to some of the self-help, but the researcher was uncertain of the participant’s intention and coded it, and “telephone”, as ‘other’. Telephone had been one participant’s “other” response in the previous main source/category of health information section of the survey. The subcategories that the respondents named that were not listed in the prior subcategory selections were “health centers” (which could be used interchangeably with the term clinics and were coded as such), newspapers, and telephone.

Barriers to obtaining health information

The survey asked the participants whether they had any problems or if anything got in their way when trying to obtain health information. A checklist of answers was formed for the survey based on the input from the focus group participants. Participants were asked to check all that applied to their situation. Most of the participants answered the question \( n = 209, 98.6\% \). The responses were almost two-thirds in the negative \( n = 130, 62.2\% \), and over a third
affirmative \((n = 79, 37.8\%)\). The choice of barriers most often selected by almost a quarter of the participants was language \((n = 50, 23.7\%)\), followed by the cost of health care \((n = 42, 19.9\%)\), transportation \((n = 29, 13.7\%)\), lack of health insurance \((n = 26, 12.3\%)\), childcare concerns and fear of their legal status were very close \((n = 14, 13 \text{ and } 6.6\%, 6.2\% \text{ respectively})\), and only 3 participants checked ‘other’ \((n = 3, 1.0\%)\).

In the section of the survey on preventive measures, the survey participants were asked if they ever looked for health information before they were sick (yes/no). The majority of the participants answered question \((n = 205, 96.7\%)\). The numbers were close to evenly mixed. The participants that did not look for health information before getting sick were just over half, 109 (53.2\%), and the participants that did look for information in a preventive way were 96 (46.8\%). A very low number of participants \((n = 17, 8\%)\), checked the line which read, “Not applicable, I do not seek help with my health”, and 195 (92\%) left it blank. The response to the question impacted the coding for the remaining three open-ended, follow-up questions and a check box if applicable:

a) “If yes, How often?” and b) “Where do you go for that information?”

b) “If not, Why not?” and, d) “Not applicable, I do not seek help with my health”.

If the “no” response was marked for the initial preventive question, and the following two questions were left blank, then they were coded as “no response required” (88). However, in that situation, a response to the third part, “c” was required. If nothing was provided as to a reason, then the response was coded as a 99 (missing).
If the “yes” response was recorded by the participant for that initial question, then the two questions that followed required a response (a, b). If either of them were left blank, the lack of response was coded as “missing” (99). The status of a “no” initial response was revised to a “yes” by the researcher if either a timeframe (a) or an information source (b) was provided to the subsequent two questions. Depending on the response for the original question regarding looking for preventive health information, the status of the responses (or lack thereof) changed from a “missing” (coded as 99) to a “not required” (coded as 88) if respective answers were provided by the participant.

Frequencies for preventive information seeking ---how often?

After the initial yes/no preventive question discussed previously, participants were then asked, “If yes, how often?” (referred to as ‘a’ above). There were 66 participants (31%) that provided a handwritten response, 115 were not required to due to a previous “no” response (‘88’,54%), and 31 were missing (‘99’,15%). Due to the question being open-ended, the responses were varied to the point that of 66 responses, only 3 were seen as duplications by SPSS. In order to analyze the results, the researcher devised a coding scheme which grouped in the responses into sets with time parameters mentioned (days, weeks, months, years), illness related (“when I fall sick”), descriptors which were generally vague, but tended to be either in the affirmative (“frequently”, “from time to time”, “continuously”, “once in a while”), or in the negative (“very little”, “not often”), and
a group for “don’t know” responses to how often preventive health information was sought. The categories then became Time-specified (n = 32, 48.5%), Vague-positive (n = 16, 24.6%), Vague-negative (n = 9, 13.6%), Illness-related (n = 3, 4.5%), and Don’t know (n = 6, 9.0%). The Time-specified category had the following distribution for specific time frames: days (n = 1, 1.5%), weeks (n = 5, 7.6%), months (n = 16, 24.2%) and years (n = 10, 15.2%). The other categories were not analyzed any further.

Frequencies for sources for preventive information

Following the “how often?” question regarding seeking preventive health information, another question was asked, “Where do you go for that information?” Of the 212 usable surveys, 112 were not required due to a previous “no” response (‘88’, 53%), and 22 were missing (‘99’, 10 %). The 78 responses (37%) were grouped into categories that paralleled the original sources of health information: Medical, Media, People, Self-help, Other, and one was added for “Don’t know”. The responses fell into the following category distribution: Medical (n = 34, 40.5%), Media (n = 22, 26.2%), People (n = 23, 27.4%), Self-help (n = 0), Other (n = 4, 5%), and Don’t know (n = 1, 1.2%). The ‘Other’ category had four responses which were all either ‘tiendas’ or ‘Hispanic tiendas’.

Frequencies for reasons for not seeking preventive information

Those participants that had provided a “no” response to the preventive health information question, “Do you ever look for health information before you
are sick?” were then asked a follow-up question, “If not, why not?” There were 57 (26.9%) handwritten responses, 97 (coded ‘88’, 45.8%) responses that were not required due to a prior “yes’ response to an earlier question, and 58 responses were missing (coded ‘99’, 27.4%). The various reasons were grouped by the researcher into the following seven categories with their respective distributions: Not needed (n = 28, 49.1%), Lack of Time (n = 6, 2.5%), Lack of Medical Insurance (n = 6, 10.5%), Lack of Money (n = 5, 8.8%), Lack of knowledge/skill (n = 4, 7.0%), Other (n = 4, 7.0%), Don’t know (n = 3, 5.3%), Language (n = 1, 1.8%). Regarding the final line in the section (“Not applicable, I do not seek help with my health”), only a frequency of 8% of participants (n = 17) checked the line.

Validated Scales Analysis

This survey instrument used three validated scales: one was a 12-item linguistic proficiency subscale (6 on English language ability and 6 on Spanish language ability) for a Bi-dimensional Acculturation Scale (BAS) (Marín and Gamba, 1996); a brief word recognition scale using nine English words, of which the first two are not scored, for an approximation of grade level in the English language (Rapid Estimate for Adult Literacy in Medicine - Short Form, REALM-SF) (Arozullah, et al., 2007), and the brief version of the Short Test of Functional Health Literacy in Adults (S-TOFHLA) which included a 4 point numeracy portion and a timed (7 minute) 36 item reading comprehension portion (Baker, et al., 1998). Reliability statistics were run on the three scales using
SPSS v15. The results of the internal reliability coefficients (consistency) are in the table below.
Table 4.11
Scale Reliability Test Results

<table>
<thead>
<tr>
<th>Validated Scale</th>
<th>Cronbach’s Alpha (α)</th>
<th>Number of items (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bi-dimensional Acculturation (1-6) for English</td>
<td>.970</td>
<td>6</td>
</tr>
<tr>
<td>Bi-dimensional Acculturation (7-12) for Spanish</td>
<td>.948</td>
<td>6</td>
</tr>
<tr>
<td>REALM-SF (7) in English (recognition)</td>
<td>.951</td>
<td>7</td>
</tr>
<tr>
<td>S-TOFHLA (4) Numeracy</td>
<td>.739</td>
<td>4</td>
</tr>
<tr>
<td>S-TOFHLA (1-36) Reading comprehension in English or Spanish</td>
<td>.986</td>
<td>36</td>
</tr>
</tbody>
</table>
The results of the reliability testing of the validated scales using the Cronbach’s alpha ($\alpha$) test for internal consistency showed high internal consistency for all scales.

Bi-dimensional Acculturation Scale (BAS)

The survey participants circled answers on a 4-point Likert scale which responded to their perception of their language ability in English and in Spanish. The linguistic proficiency subscale asked the same six questions for both of the languages. The average for the answers in each language was calculated by the researcher using a hand-held calculator. If an average of the six items fell between the range of 1 and 2.4, the participant was considered to have low acculturation to that culture. If an average fell between 2.5 and 4, the participant was considered to have high acculturation to that culture. The frequency table below depicts the levels of acculturation for the participants.
Table 4.12
Frequency of participants’ acculturation

<table>
<thead>
<tr>
<th>Acculturation</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Non-Hispanic Acculturation</td>
<td>121</td>
<td>58.5</td>
</tr>
<tr>
<td>High Non-Hispanic Acculturation</td>
<td>86</td>
<td>41.5</td>
</tr>
<tr>
<td>Low Hispanic Acculturation</td>
<td>11</td>
<td>5.2</td>
</tr>
<tr>
<td>High Hispanic Acculturation</td>
<td>200</td>
<td>94.8</td>
</tr>
</tbody>
</table>
The results in table 4.12 showed that the majority of the survey participants had high adherence to the Hispanic domain ($n = 200, 94.8\%$). The results showed that a large number of the participants had high adherence to the Non-Hispanic domain as well ($n = 86, 41.5\%$). Over half of the participants had low adherence to the Non-Hispanic domain ($n = 121, 58.5\%$).

Rapid Estimate of Adult Literacy in Medicine-Short Form (REALM-SF)

The REALM-SF provided a brief, validated instrument for assessing participant literacy in English (in the form of reading grade level) for the various settings that this research study employed. The list of nine words (only seven are scored) that the participants read aloud were scored as to their correct pronunciation (dictionary standard) as follows: 1=correct pronunciation, 2=mispronounced, and 3= not attempted. The total score ranged from 0-7 points. The scoring was then assigned the corresponding grade level: a score of zero (0) was equal to less than or equal to third grade (\(\leq 3^{rd}\)); a score of 1-3 points was equivalent to fourth to sixth (4\(^{th}\)-6\(^{th}\)) grade; a score of four to six points (4-6) was equivalent to seventh to eighth (7\(^{th}\)-8\(^{th}\)) grade; and, a score of seven points (7) was equivalent to greater or equal to ninth (\(\geq 9^{th}\)) grade. The results of the data analysis were that 18\% ($n = 37$) of the participants had a reading level in English of third grade or less, 17.5\% ($n = 35$) had a reading level in English of fourth to sixth grade, 39.3\% ($n = 79$) had a reading level in English of seventh to eighth grade, and 24.9\% ($n = 50$) had a reading level in English of greater or equal to ninth grade.
Functional Health Literacy

The short version of the Test of Functional Health literacy in Adults (S-TOFHLA) has a brief version that requires less time than the TOFHLA (12 minutes compared to 22 minutes) and still measures both numeracy and reading comprehension. The instrument is available in both English and Spanish languages which was critical for this research study population. The brief version was better suited for this research study due to the various conditions of the study and for the participants involved in the study. The numeracy portion consisted of four items (#1, 4, 5, & 8) and reading comprehension passages A and B (not C). The reliability statistics for internal consistency for the results of this scale in this research study were very good. The Cronbach’s alpha for numeracy was 0.739 and the Cronbach’s alpha for reading comprehension was 0.986. Each of the numeracy items had a weighted value of 7, for a total of 28 possible points, and the comprehension items were assigned a value of 2, for a total of 72 possible points. The total score for this brief version of S-TOFHLA is 100. Literacy level scores are:

- Inadequate Functional Health Literacy (I-FHL) 0-53
- Marginal Functional Health Literacy (M-FHL) 54-66
- Adequate Functional Health Literacy (A-FHL) 67-100

It is important to note that the results of each language version must be reported separately for the particular language involved. The results of the data analysis of the S-TOFHLA scores for the survey participants are:
Table 4.13

Short Test of Functional Health Literacy in Adults (S-TOFHLA) Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Spanish (N = 187)</th>
<th>English (N = 24)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Inadequate FHL</td>
<td>41</td>
<td>21.9</td>
</tr>
<tr>
<td>Marginal FHL</td>
<td>23</td>
<td>12.3</td>
</tr>
<tr>
<td>Adequate FHL</td>
<td>123</td>
<td>65.8</td>
</tr>
</tbody>
</table>
The results in table 4.13 showed that the majority of the participants that took the S-TOFHLA in Spanish had adequate functional health literacy in Spanish (65.8%), and that the majority of the participants that took the S-TOFHLA in English had adequate functional health literacy in English (91.7%) as well.

Hypotheses

This study investigated fourteen (14) hypotheses. The hypotheses and the results of the data analysis follow. The probability value used was p=.05. The population studied was a convenience sample of Latino adults in the Cincinnati tri-state area in the Midwest. The population was unified in that 100% of the participants self-reported as members of the Latino community.

H$_1$: *The sources of health information for Latino adults in the Midwestern tri-state area vary by country of familial origin.*

H$_{01}$: *The sources of health information for Latino adults in the Midwestern tri-state area do not vary by country of familial origin.*

The nonparametric test that was selected for the analysis of the survey data was a nonparametric Chi-Square test. The test was selected due to the nominal nature of the variable data thus not permitting the computation of means and standard deviations. The chi-square tests for the significance of the differences among frequencies. According to Pyrczak, it is worth noting that
whenever the statistical significance of the frequencies is determined, is also true of the associated percentages (Pyrczak, 2006).

The sources of health information were grouped into five categories: Medical, Media, People, Self-help, and Other. The countries of origin were grouped into four categories: Mexico, Central America, South America, and the United States & Puerto Rico (combined). The number of participants was 212. The purpose of the chi-square test was to determine if the differences in the frequencies of the sources of information based on the countries of origin were significant.

The Chi-square results showed that sources of Health Information varied significantly by the Country/Region of origin ($X^2 = 63.421$, $df=4$, $p<.05$). In other words, source of health information utilized by survey participants differed from one region to another. For example, Latinos from Mexico were almost twice as likely to use medical sources for health information as were the Latino community members from South America. The null hypothesis which stated that the health information sources do not vary by country of origin was rejected.

$H_2$: The sources of health information for Latino adults in the Midwestern tri-state area vary by length of residence in the U.S.

$H_{02}$: The sources of health information for Latino adults in the Midwestern tri-state area do not vary by length of residence in the U.S.

The nonparametric test that was conducted was the Kruskal-Wallis ($H$) test which compared three or more groups of sample data when the assumptions
about distribution were not met. The sources of health information for members of the Latino community were divided into 5 categories (Medical, Media, People, Self-help, and Other) and the length of time lived in the United States was divided into 3 categories: 0-5 years, 6-10 years, and 11+ years. The result was statistically significant and the sources of health information for Latino adults in the Midwestern tri-state area did vary with the length of time spent living in the United States ($X^2 = 8.979$, $df = 2$, $p < .05$). That is to say that as the length of time in the United States increased; participants were more likely to report using medical sources of health information. Therefore, the null hypothesis was rejected.

$H_3$: The sources of health information for Latino adults in the Midwestern tri-state area vary by education level.

$H_{03}$: The sources of health information for Latino adults in the Midwestern tri-state area do not vary by education level.

The nonparametric test that was conducted was the Kruskal-Wallis (H) test which compared three or more groups of sample data when the assumptions about distribution were not met. The sources of health information for members of the Latino community had 5 categories (Medical, Media, People, Self-help, and Other) and the education level had 7 categories: first or less, second or third, fourth or fifth, sixth through eighth, ninth or tenth, eleventh or twelfth, and more than high school. The result was statistically significant showing that the sources
of health information for Latino adults in the Midwestern tri-state area did vary with the education level
\((X^2 = 11.151, df = 4, p<.05)\). In other words, participants selecting medical sources had higher levels of education than those selecting self help or people sources. Therefore, the null hypothesis was rejected.

\(H_4: \text{The sources of health information for Latino adults in the Midwestern tri-state area vary by age.}\)

\(H_{04} \ \text{The sources of health information for Latino adults in the Midwestern tri-state area do not vary by age.}\)

The data was analyzed with the non parametric chi-square test. The sources of health information had 5 categories (Medical, Media, People, Self-help, and Other) and the ages of the participants were grouped into 7 categories by decade. The result of the data analysis showed that there was a statistically significant difference in the frequencies for the sources of health information by age of participants \((X^2 = 12.230, df = 4, p<.05)\). Participants selecting medical sources of health information were more likely to be in the 21-50 age ranges and participants selecting people and self help sources were more likely to be in the 21-30 age group. Therefore, the null hypothesis was rejected.

\(H_5: \text{The sources of health information for Latino adults in the Midwestern tri-state area vary by gender.}\)
\(H_05:\) The sources of health information for Latino adults in the Midwestern tri-state area do not vary by gender.

The non parametric chi-square test was conducted for the data analysis. The sources of health information had 5 categories (Medical, Media, People, Self-help, and Other) and gender had two: male and female. The chi-square value showed that the difference in frequencies was statistically significant for sources of health information and for gender \( (X^2 = 63.421, df = 4, p < .05) \). Both genders utilized medical sources most often. However women used people and self help more than men as their source of health information. Therefore, the null hypothesis was rejected.

\(H_6:\) There exists a relationship with the level of health literacy in English and the level of health literacy in Spanish.

\(H_{06}:\) There exists no relationship with the level of health literacy in English and the level of health literacy in Spanish.

The chi-square test was used to analyze the data to determine if a relationship existed between the level of health literacy in English (using the four REALM-SF grade levels) and the level of health literacy in Spanish (using the three TOFHLA-S health literacy levels). The REALM-SF grade levels in English were, \(<= 3^{rd} \) grade, \(4^{th} - 6^{th}\) grades, \(7^{th} - 8^{th}\) grades, and \(>= 9^{th}\) grade. The three levels of TOFHLA-S functional health literacy levels were: Inadequate FHL, Marginal FHL, and Adequate FHL. The results of the chi-square analysis showed a statistically significant relationship between the frequencies for the REALM-SF
grade level which measured word recognition in English and the frequencies for
the functional health literacy level in Spanish which measured numeracy skills
and reading comprehension ($X^2= 91.166$, $df = 2$, $p<.05$). In other words,
participants with inadequate health literacy were more likely to fall into a lower
reading level than those with adequate health literacy. Therefore, the null
hypothesis was rejected.

$H_7$: There exists a relationship between health literacy levels in English and
acculturation to U.S. culture.

$H_{a7}$: There exists no relationship between health literacy levels in English and
acculturation to U.S. culture.

A chi square test was conducted to analyze the frequency data from the
four REALM-SF grade levels ($\leq$ 3rd grade, 4th-6th grades, 7th-8th grades, and
$\geq$ 9th grade) and the adherence to the Non-Hispanic culture (as measured by the
Bi-dimensional Acculturation Scale six-item English linguistic proficiency
subscale). The result of the test showed that the relationship was statistically
significant and that low acculturation to the non-Hispanic culture was related to
lower reading grade levels in English according to the REALM-SF measurement
scale ($X^2= 20.019$, $df = 3$, $p<.05$). Therefore, the null hypothesis was rejected.

$H_8$: There exists a relationship between health literacy levels in English and
acculturation in Spanish culture.
\(H_{08}:\) There exists no relationship between health literacy levels in English and acculturation to the Spanish culture.

A chi-square test was conducted to analyze the relationship between the four REALM-SF grade levels (\(\leq 3^{rd}\) grade, \(4^{th}-6^{th}\) grades, \(7^{th}-8^{th}\) grades, and \(\geq 9^{th}\) grade) and the level of adherence to the Hispanic culture as measured by the Bi-dimensional Acculturation Scale Hispanic culture domain. The result of the test showed that the relationship was statistically significant. Latino adults with high acculturation to the Hispanic culture were more likely to have reading grade levels in English at the \(7^{th}\) grade level or above, according to the REALM-SF measurement scale (\(X^2 = 20.019, df = 3, p < .05\)). Therefore, the null hypothesis was rejected.

\(H_{09}:\) There exists no relationship between health literacy levels in English and country of familial origin.

\(H_{09}:\) There exists no relationship between health literacy levels in English and country of familial origin.

The chi-square test was conducted to analyze the frequencies data from the four REALM-SF grade levels (\(\leq 3^{rd}\) grade, \(4^{th}-6^{th}\) grades, \(7^{th}-8^{th}\) grades, and \(\geq 9^{th}\) grade) and the sixteen countries of origin which were grouped into four categories: Mexico, Central America, South America, and the United States & Puerto Rico (combined). The result of the test showed that the relationship was statistically significant and that more Latino adults with lower English health literacy grade levels (\(X^2 = 20.019, df = 3, p < .05\)) were from a particular region.
than those with higher grade levels who were from a different region. For example, Mexican participants and those from the Central American region had lower English health literacy grade levels than the participants from the South American region and the United States and Puerto Rico. Therefore, the null hypothesis was rejected.

\( H_{10}: \) There exists a relationship between health literacy levels in Spanish and country of familial origin.

\( H_{o10}: \) There exists no relationship between health literacy levels in Spanish and country of familial origin.

The chi-square test was conducted to analyze the frequencies data from the three levels of TOFHLA-S functional health literacy levels in Spanish (Inadequate FHL, Marginal FHL, and Inadequate FHL) and the four countries of origin which were grouped into four categories: Mexico, Central America, South America, and the United States & Puerto Rico (combined). The result of the test showed that the relationship was statistically significant for functional health literacy levels in Spanish \( (X^2 = 91.166, df = 2, p<.05). \) Participants with adequate health literacy were more likely to be from Mexico than from the Central or South American regions. Therefore, the null hypothesis was rejected.

\( H_{11}: \) There exists a relationship between health literacy levels in English and length of residence in the US.
$H_{o11}$: There exists no relationship between health literacy levels in English and length of residence in the US.

The Kruskal-Wallis test was conducted to analyze the frequencies data from the four REALM-SF grade levels ($\leq 3$rd grade, 4$^{th}$-6$^{th}$ grades, 7$^{th}$-8$^{th}$ grades, and $\geq 9$th grade) and the length of time lived in the United States had 3 categories: 0-5 years, 6-10 years, and 11+ years. The result of the analysis showed that a statistically significant relationship existed, with participants who had higher reading grade levels in English have lived in the United States longer. ($X^2 = 39.558, df = 2, p < .05$) Therefore, the null hypothesis was rejected.

$H_{12}$: There exists a relationship between health literacy levels in Spanish and length of residence in the US.

$H_{o12}$: There is no relationship between health literacy levels in Spanish and length of residence in the US.

The Kruskal-Wallis test was conducted to analyze the frequencies data from the three levels of TOFHLA-S functional health literacy levels in Spanish (Inadequate FHL, Marginal FHL, and Inadequate FHL) and the length of time lived in the United States which had 3 categories: 0-5 years, 6-10 years, and 11+ years. The result of the test showed that the relationship was statistically significant such that Latino adults with inadequate health literacy levels in Spanish having lived in the United States less years than those with adequate health literacy levels in Spanish ($X^2 = 13.273, df = 2, p < .05$). Therefore, the null hypothesis was rejected.
H_{13}: There exists a relationship between health literacy levels in English and age.

H_{013}: There exists no relationship between health literacy levels in English and age.

A Kruskal-Wallis test was conducted to analyze the relationship between the four REALM-SF grade levels (<=3rd grade, 4^{th}-6^{th} grades, 7^{th}-8^{th} grades, and >=9^{th} grade) and the ages of the participants were grouped into 7 categories by decade (18-21, 21-30, 31-40, 41-50, 51-60, 61-70, 71+). The result was statistically significant showing that as age increased for the participants the reading grade level in English also increased ($X^2 = 9.272$, df = 3, $p<.05$). Such as that survey participants in the age range of 41 years or older had higher English reading grade levels than their younger counterparts. Therefore, the null hypothesis was rejected.

H_{14}: There exists a relationship between health literacy levels in English and gender.

H_{014}: There is no relationship between health literacy levels in English and gender.

The chi-square test was conducted to analyze the frequencies data from the four REALM-SF grade levels (<=3rd grade, 4^{th}-6^{th} grades, 7^{th}-8^{th} grades, and >=9^{th} grade) and the two gender categories: male and female. The result was statistically significant for the relationship between gender and English reading grade levels results ($X^2 = 20.019$, df = 3, $p<.05$). Female Latino adults were more
likely to report having an English reading grade level above the 7th grade than were male participants. Therefore, the null hypothesis was rejected.

Summary

Following the approval process, the researcher conducted focus group sessions which informed changes to a piloted orally-administered survey instrument. The amended research study proposal was reapproved by the UC-IRB (#09-03-02-05). Reliability testing of the instrument was performed by using Pearson Correlations statistical analyses (n = 16, test-retests). Training sessions took place by the researcher for the six bilingual survey administrators. This included role playing with the novel portion of the instrument, and the validated scales (BAS, REALM-SF, and S-TOFHLA). The orally-administered surveys took place at 11 various locations from September-October 2009. The data from the surveys (n = 214) was analyzed by the researcher using SPSS v15 and a hand-held calculator. All of the variables had descriptive analyses performed to determine their frequencies and distribution. The 14 hypotheses that the researcher investigated were to see if the sample population’s sources of health information varied with their respective health literacy levels (in English and/or Spanish), acculturation, and/or other demographic variables such as country/region of familial origin, length of residence in the U.S., education level, age, or gender. Because the variables mentioned above did not meet the assumption of normality distribution, non-parametric statistical analyses were performed to determine if any statistically significant relationships existed. The
results of the analyses showed statistical significance for all of the relationships studied, such that all of the 14 null hypotheses were rejected.
Introduction

The purpose of this research study was to determine the sources of health information and the health literacy levels of Latinos in a Midwestern tri-state area and to determine possible relationships with acculturation levels, country of familial origin, or other demographic characteristics. Variables were observed through focus groups and person-to-person orally-administered surveys with adult participants from the local Latino community. The results of this study may facilitate the ability of health educators and other health professionals to understand preferences and abilities of the Latino community and will contribute to their ability to deliver culturally competent communication and health education messages. The population studied was a convenience sample of Latino adults (N = 214) living in a large, metropolitan area (“tri-state area”) in the Midwest region of the United States.

As stated in chapter one, Latinos are the largest minority group in the U.S. and the fastest growing minority population in the state of Ohio and in the Midwestern tri-state area (Office of Minority Health, DHHS, 2008; U.S. Bureau of the Census, 2000b). Yet, the amount of information specifically centered on this segment of the population, regarding sources of health information and health literacy levels, is sparse. According to the AHRQ Evidence Report (2004) by the Agency for Healthcare Research and Quality (AHRQ), culturally competent and
appropriate health education and health services should include community specificity. The report also stated that low literacy had been linked to: poorer health, less use of preventive care, poorer control of chronic disease, lower quality care, medical errors, poor outcomes, and disparities. The lack of this type of specific information has hindered professional practice (AHRQ, 2004). So, the data from more established and larger Latino communities in other parts of the country does not necessarily reflect the heterogeneity of the local tri-state area’s Latino community members’ current health information needs and health literacy levels. In order for any health education program to be successful, it is necessary that there be knowledge of the intended audience, and especially a specific subgroup of the population (Andreasen, 2006; Campbell & Quintiliani, 2006), which included the communication channels (sources of health information) and some idea of the levels of understanding of health information (health literacy levels). The researcher asked, the question: *What are the sources of health information for Latino adults in the Midwestern tri-state area?*

The wide range of issues which affect minority populations that were included in the review of the literature were all intertwined and had a common theme throughout which was *health communication*. The issues presented in chapter two included demographical characteristics, health disparities among ethnic minority populations, Latino health disparities in the United States and Ohio, Latino health beliefs and acculturation in Ohio, cultural competence in Ohio, health communication (including barriers) among Ohio Latinos, patient-
provider relationship, literacy, health literacy and functional health literacy testing, and sources of health information.

*Healthy People 2010*’s focus on communication goal is to use communication strategically to improve health and the developmental objective (#11-2) within that goal is to improve the health literacy of persons with inadequate or marginal literacy skills. The research questions addressed in this study asked exactly that question in two parts: *What is the level of health literacy for Latino adults in the Midwestern tri-state area for Spanish language health information?* And a second question, *What is the level of health literacy for Latino adults in the Midwestern tri-state area for English language health information?*

For a minority population, it is also important to determine the level of acculturation of its members to the U.S. culture. Acculturation matters. Researchers have found that health education empowers individuals when it is used in the context of the individual’s knowledge, health beliefs, perceived social norms, and environmental influences on lifestyle choices (Skelly et al., 2002). In addition, research shows that health promotion activities which are tailored to the individual’s health literacy level tend to result in improved health outcomes (Kickbush, 2001; Nutbeam, 2000). The researcher asked the question, *Is there a relationship between health literacy levels and acculturation or other demographic variables such as country of familial origin, length of residence in the U.S., education level, age, or gender?*

As stated in the review of the literature, there are a variety of issues which contribute to whether an individual experiences racial/ethnic health disparities or
not: lack of communication skills with health care professionals (including language/cultural barriers and low health literacy levels), lack of access to preventive care, lack of health insurance, lack of transportation and social support, and various others (Office of Minority Health, DHHS, 2008). Skelly and colleagues (2002) stressed the importance of the context in which knowledge and health beliefs were communicated when studying populations of different cultures and ethnicities. Mezzich and colleagues (2000) studied the Latino culture profile, with variations across many demographic lines, and encouraged the incorporation of a wide array of social aspects when looking at health rather than statistics which focused only on mortality and morbidity. As Spector’s research showed, health beliefs tend to vary with Latino demographic variations. Her point was that the Hispanic health profile is marked by diversity (Spector, 2009). So, the researcher asked the question: *What are the preferences of Latino adults in the Midwestern tri-state area regarding health information sources?*

The strategies utilized to attempt to answer these questions and others involved building on the knowledge gained in a pilot study three years earlier. The pilot study was self-funded and yielded valuable first-hand knowledge, experience, and results for the researcher. It was knowledge and skills gained from that pilot study experience that provided the background for this research study experience.

Following approval from the researcher’s Dissertation Committee and the University of Cincinnati Institution Review Board (UC-IRB) the study protocol was approved to conduct focus groups to build on the pilot study experience. Based
on the input gained from the focus groups, the researcher revised the orally-administered survey questions. The novel survey questions were resubmitted to the UC-IRB for approval to the amended research study. In addition, the researcher adjusted the choice of validated scales to include an English literacy test that was a short and more manageable version for the orally-administered surveys. A test-retest was conducted on the survey instrument using correlational data analysis.

The methodology discussed in chapter three included both observational (focus groups) and quantitative methodology (orally-administered surveys) which used a survey instrument that included three validated scales. The data that was collected provided information on the participants’ demographic characteristics, preferred source of health information, level of trust for the source, and barriers to access for health information. Additionally, the validated scales measured acculturation to two domains (Hispanic and Non-Hispanic), literacy in English for medical terms (word recognition), and functional health literacy levels (using both numeracy skills and reading comprehension) in either English or Spanish. The focus groups and orally-administered surveys included written materials in both languages, English and Spanish. The materials were written at a low reading level (eighth grade or less).

The six trained bilingual survey administrators were culturally sensitive to and aware of the intended study population by being either foreign-born in a Hispanic/Latino country themselves or having lived in at least one of several Spanish speaking countries for an extended period of time. The six survey
administrators were all trained in the issues of ethics pertaining to human subject research, especially with vulnerable minority populations, and they also understood the stigma of embarrassment with non-native speakers with the English language and shame that is often associated with low literacy levels.

The methods for recruitment of the sample population included intercept and snowball sampling techniques. The venues for the focus groups and orally-administered surveys were varied and took place over several months which required obtaining permission and making scheduling arrangements. The incentive for participation in the focus groups and the orally-administered surveys required an investment of monetary funds into the research study ($5 gift card/participant to either of two local grocery stores). The researcher was awarded financial support for the research study by the Graduate Student Governance Association (GSGA) which was used to partially fund the survey administrators' wages. Therefore, this research study was self-funded.

The orally-administered surveys took place at a variety of local venues such as health centers, community festivals, and community centers or other recreational facilities, health fairs, churches, and markets (grocery stores). Potential participants were invited to take part in the study while attending these locations for services, entertainment, or other various activities. The total number of orally-administered surveys was 214, which yielded data from 212 usable surveys.

The results described in chapter four were very consistent with the pilot study results. The focus group data, which was unique to this study, paralleled
the pilot study orally-administered survey data. A comparison of the data analysis for the pilot study data and the orally-administered survey data from the current study (Tables 6A-C) showed results with similar sample demographic characteristics, health information sources, and scales with the exception of the newly added scale which provided a variable to determine a grade level of literacy in English across the study sample.

Conclusions

The findings from chapter four were that the participant female to male ratio was 2:1 for both the focus group data and the orally-administered survey results. The comparison of the demographic data from the previous pilot study, the focus groups, and the orally-administered surveys was presented in Tables 4.1-A,B, and C. All three groups were very similar overall, but the country of birth varied and further emphasized the heterogeneity of the Latino population in the local area. A combined total of 17 different countries were represented by the previous pilot study, the focus groups, and the orally-administered survey participants (see Tables 4.1-A,B, and C), but the numbers for participants for some country/regions were very low.

The majority of the orally-administered survey participants chose to be surveyed using the Spanish version of the materials. Two thirds of the survey participants were either married or living together, were well-educated and under the age of 40 years. Almost half of the participants had more than high school education and the remaining half were split almost evenly between eighth grade
or less, and ninth through twelfth grades. The sixty year age range of the survey participants was pretty evenly distributed by thirds: one third was under the age of 30 years, almost one third was in the 30-40 year range, and one third was over the age of 41. Most of the participants had less than four people in the household, and considered themselves to be in good or very good health. Half of the participants had an approximated household annual salary of less than $16,000. The participants were evenly distributed for their years lived in the United States: a third five years or less, a third 6-10 years, and a third eleven years or more. Almost half of the survey participants were born in Mexico, about a quarter from the Central American region and then an eighth each from the South American region and then the United States and Puerto Rico combined.

Regarding the main source of health information for all of the surveyed participants, almost half chose a medical source as their main source for health information. Both categories of people and self-help were close as the second-ranked choice and media followed as the third ranked choice. The rank order of the top five subcategories was: doctor, clinics, the Internet or friends (tied), the hospital or natural medicine (tied), and family members or television (tied). The remaining choices each had less than ten percent of the total: community center & prayer (tied), folk healers & magazines (tied), teas, church, medical pamphlets, promotores/health educator, books, nurse & library (tied), radio, and e-mail / neighbor / other (tied). It was interesting to note that books, library and nurse were all ranked very low.
Three-quarters of the participants answered that they have looked for health information due to an illness in the past, primarily for themselves, and preferred that the information be available in the Spanish language. A third of the participants sought information about a health condition or disease, followed by a specific part of the body, and then general health/physical exams. The results of the question on the level of trust for their source of health information the orally-administered survey participants showed that more than half thought their source was very trustworthy, and about a third thought their source was somewhat trustworthy. Almost three-quarters of the participants thought that their source gave them enough information and that it was easy to understand.

Regarding a convenient source for health information, almost half of the people chose a medical source, followed by an almost even split of people and/or self-help (+/- 1%), and closely followed by media sources. Therefore, there is a wide variety of health information sources used by this population sample with the primary one being medical. The top four health information source choices (subcategories) for convenience for all participants ranked as follows: clinics, hospitals/Internet (split), followed by doctor.

The participants were almost evenly split (half and half) regarding whether they looked for health information on a preventive basis but just slightly more did not. This information paralleled and confirmed the data collected about health information seeking behavior earlier which found that three-quarters looked for information based on an illness, in other words, on an as-needed basis. The reasons for not looking were ranked as: not needed, lack of money, and lack of
medical insurance. For those that did look on a preventive basis, the frequency of preventive health seeking behavior occurred on a somewhat regular basis (time-specified, and/or vague, but affirmative) for three-quarters of the survey participants.

One-third of the survey participants answered that barriers existed for them when seeking health information and two thirds answered that barriers did not exist. Of those that had said yes, for whom barriers existed, the responses were ranked as being language, cost of health care, lack of health insurance, lack of child care, fear of legal status, and other.

The results of the bi-dimensional acculturation scale (BAS) by Marín & Gamba (1996) showed that almost all of the participants had high adherence to the Hispanic domain, slightly more than half had low adherence to the Non-Hispanic domain, and that almost half were bicultural. The results of the reading grade level estimate for literacy in the English language with medical term word recognition (REALM-SF) by Arozullah (2007) and colleagues showed that over a third of the participants read at the 7th - 8th grade level, less than a quarter at the 3rd grade or less level, less than a quarter at the >=9th grade level and the remaining read at the 4th-6th grade level.

The brief version of the short form of numeracy skills and reading comprehension test for adults, S-TOFHLA, (Parker, Baker, Williams, & Nurss, 1995) that was available in both English and Spanish, measured the functional health literacy level of the participants. The results showed that the two-thirds of the participants that took the test in Spanish had adequate functional health
literacy in Spanish, almost a quarter had low functional health literacy, and that the remaining had marginal functional health literacy. For those participants that took it in English, the majority had adequate functional health literacy in English and the remaining two participants had marginal or low level functional health literacy respectively.

The 14 hypotheses examined for this research study showed that, by using non-parametric statistical analyses due to lack of normality of sample distribution, statistically significant differences in frequencies did exist for all of the variables measured for this research study’s convenience sample of the local adult Latino population. Hypotheses 1-5 examined whether the sources of health information varied with a person’s country/region of origin, length of residence in the U.S., education level, age, or gender, respectively. The data analyses for each, as listed in Table 5, were either a non-parametric Chi-square or a non-parametric Kruskal-Wallis Chi-square. The analyses showed that an adult member of the local Latino community’s health information source selection was indeed impacted by their country/region of origin, as well as the length of residence in the U.S., their education level, their age, and finally their gender. The latter was made apparent when the surveyed women ranked the medical sources first, then people or self-help (almost tied) for their health information choices. Whereas, the surveyed men chose medical sources most, followed by self-help/ media/people/ other, almost all evenly split across the board. Medical sources were also the first choice of the older participants that had lived in the
U.S. longer, with a higher level of education, and most likely originated from Mexico than the South American region.

Hypotheses 6-9, and 11, 13, and 14 all examined whether a person’s health literacy in English (i.e., their ability to read medical terms in English) varied with their health literacy in Spanish, their acculturation to the U.S. cultural domain, their acculturation to the Hispanic domain, their country/region of origin, their length of residence in the U.S., their age, or their gender. According to the results of the data analyses, using either a non-parametric Chi-square or a non-parametric Kruskal-Wallis Chi-square, statistically significant differences did exist. This meant that a person’s ability to read health information (medical terminology) in the English language was indeed impacted by the above mentioned variables. So, as the results of the research study determined, an adult member of the local Latino community would have their English reading level (English literacy) impacted by their inadequate functional health literacy in Spanish, or their low acculturation to the U.S. culture, or their high acculturation to the Spanish culture, or their short length of residence in the U.S., their younger age, or their gender.

Finally, hypotheses 10 and 12 examined the level of functional health literacy (FHL) in Spanish to see if it varied with a person’s country of origin or length of residence in the U.S. According to the results of the data analyses, using either a non-parametric Chi-square or a non-parametric Kruskal-Wallis Chi-square, statistically significant differences did exist and so there is impact between the FHL in Spanish and the two variables mentioned. Participants with
adequate FHL in Spanish were more likely to be from Mexico than from the regions of Central or South America. In addition, the local adult members of the Latino community researched in this study that had inadequate FHL levels in Spanish had lived in the U.S. a shorter length of time than those with adequate FHL levels in Spanish.

Research questions

Data analysis revealed statistically significant answers to the following research questions:

1) What are the sources of health information for Latino adults in the Midwestern tri-state area? As stated earlier in the chapter, the main source of health information for all of the surveyed participants was a medical source. Both of the categories of People and Self-help were practically tied as a close second, and media followed as the third-ranked choice. The rank order of the subcategories was the doctor, clinics, the Internet or friends (tied) and the hospital or natural medicine (tied) family members or television (tied). It was determined that the selection of health information source was indeed impacted by country/region of origin, as well as the length of residence in the U.S., education level, age, and finally gender.

2) What is the level of health literacy for Latino adults in the Midwestern tri-state area for Spanish language health information? As stated in the earlier chapters, two-thirds of the participants that took the test in Spanish had adequate
functional health literacy in Spanish, almost a quarter had low functional health literacy in Spanish, and that the remaining few had marginal functional health literacy in Spanish.

3) What is the level of health literacy for Latino adults in the Midwestern tri-state area for English language health information? The results of the reading grade level estimate for literacy in the English language with medical term word recognition (REALM-SF) by Arozullah (2007) and colleagues showed that a little more than three quarters of the participants read at or below the 7th -8th grade level in English, and that less than a quarter at the &gt;9th grade level in English. For those participants that took the S-TOFHLA in English, the majority had adequate functional health literacy in English and the remaining two participants each had marginal or low level functional health literacy respectively.

4) Is there a relationship between health literacy levels and acculturation or other demographic variables such as country of familial origin, length of residence in the U.S., education level, age, or gender? As discussed earlier, the results of the bi-dimensional acculturation scale (BAS) by Marin & Gamba, (1996) showed that almost all of the participants had high adherence to the Hispanic domain, slightly more than half had low adherence to the Non-Hispanic domain, and that almost half of the research study participants were bicultural. A person’s health literacy in English (i.e., their ability to read medical terms in English) varied with their health literacy in Spanish, their acculturation to the U.S. cultural domain, their
acculturation to the Hispanic domain, their country/region of origin, their length of residence in the U.S., their age, or their gender. In addition, the local adult members of the Latino community researched in this study that had inadequate FHL levels in Spanish had lived in the U.S. a shorter length of time than those with adequate FHL levels in Spanish.

5) What are the preferences of Latino adults in the Midwestern tri-state area regarding health information sources? Regarding a convenient source for health information, almost half of the people chose a medical source, followed by an almost even split of people and/or self-help (+/- 1%), and closely followed by media sources. Therefore, there is a wide variety of health information sources used by this population sample with the primary one being medical. The top four health information source choices (subcategories) for convenience for all participants ranked as follows: clinics, hospitals/Internet (tied), followed by doctor which is in agreement with the ranked subcategory sources which the sample population were currently using: doctor, clinics, the Internet or friends (tied) and the hospital or natural medicine (tied) family members or television (tied). In addition, the focus group participants voiced their concern that the information they desire needs to be “practical, current, and brief” and from trusted sources. Spanish was the preferred language for health information by almost all of the participants in the focus groups and the survey participants. Although three-quarters of the participants have looked for health information due to an illness in the past, the respondents were split approximately in half regarding preventive
health information seeking behavior versus those that preferred to look for information only when ill.

Discussion

In addition to providing the information for the answers to the research questions above, the research participants informed the researcher that majority of them trust their source, that they receive enough information, and that is was easy to understand. The majority (54%) of the study participants looked for health information when they were already ill, rather than approximately half which did seek health information in a preventive context. Just as Hudson and Watts found in 1996 with a sample of the Latino community in Texas, the female members (often the mother in the family) were the ones to make most of the health care decisions (Hudson & Watts, 1996). The female participants in this study sample looked for health information on behalf of their family members. This family health management by females was documented in the research by Aguirre, Ebrahim, and Shea (2005) and will be discussed in the section involving the gender difference with literacy scores.

The focus group participants voiced that the information they desired needed to be “practical, current, and brief.” This is completely in line with the Clear Health Communication Initiative by Pfizer which notes that “Clear health communication is an important part of a patient’s ability to understand and act upon health information.” In fact, Pfizer is a leader in this area and has become an advocate for clear health communication by partnering with nationally
recognized organizations and experts to develop tools and solutions that can help improve communication between patients and providers. The website has information specifically directed toward Public Policy/Researchers, Public Health Professionals, Physicians and other providers, and the Media.

Regarding reported level of trust for their source of health information participants showed that more than half thought their source was very trustworthy, and about a third thought their source was somewhat trustworthy. Almost three-quarters of the participants thought that their source gave them enough information and that it was easy to understand. As will be discussed in the section below, those are just some of the components necessary for good health communication to occur: adequate, available information that was easy to understand and from a trusted source

Trust must be established in order to transcend racial, age, gender and economic differences (Vaughn, 2008) and for effective health communication to take place. The use of interpreters is a communication tool, however, the focus group participants mentioned that involves yet another stranger knowing about their health concerns plus there was doubt that the message they were trying to convey was what was actually being said. Adeyanju (2008) stressed the importance of developing listening and speaking skills for all those involved in health care delivery services. He goes on to emphasize that health care providers (including health educators)

...must demonstrate skill in listening, speaking, empathizing, probing, advocating, confronting, conveying immediacy, caring, and showing
concern while responding to the health care needs of their clients and clients’ families. They must understand the literacy levels of their clients and promote cross-cultural understanding. They should be prepared to recognize and meet the physical, social, emotional, mental, and spiritual needs of their clients (p. 159) (Adeyanju, 2008).

Unfortunately, the participants in the focus groups shared that there was a lack of health care providers that could adequately meet that need, which is what other studies have shown as well (Betancourt et al., 2004; Morales et al., 1999; Rojas-Guyler, Wagner, & Chockalingam, 2006). Thus, in order for health educators to work with clients whose health knowledge, beliefs, practices, and attitudes differ significantly from those of the recipient of health messages there needs to be an awareness that such cultural factors influence clients’ responses and that these clients require the development of culturally sensitive health education programs to influence their knowledge, attitudes, and behaviors. As Adeyanju stated, communication skills demonstrate if a health educator respects and values cultural diversity (2008). In the National Women’s Health Report (2009), Flowers explained that one needs to find a health care profession that is trusted and sometimes that means someone with the same color skin, or speaks with the same accent, because if you don’t trust your health care professional, you are unlikely to return for the routine care that is needed to follow their recommendations (Flowers, 2009).

As the study results demonstrated, both the focus group participants and the orally-administered survey participants shared that barriers existed for one-
third of them when seeking health information and two-thirds answered that barriers did not exist. Of those that had said yes, for whom barriers did exist, the responses were ranked as being language, cost of health care, lack of health insurance, lack of child care, fear of legal status, and other. That information reflected both national research findings and local findings (du Pre, 2005; Flores, Castro, & Fernandez-Esquer, 1995; Morales, Cunningham, Brown, Liu, & Hays, 1999; Rojas-Guyler et al., 2008; Sarver & Baker, 2000; Sleath, Rubin, Campbell, Gwyther, & Clark, 2001). Locally, this study had findings that were similar to the findings of the Greater Cincinnati Hispanic/Latino Health Survey (GCHLHS) (2005). It had stated the following results: 1) The majority of Hispanic/Latino respondents did not have health insurance; 2) The proportion of Hispanic/Latinos that reported a usual source of care or medical home was 58.6% compared to 79.7% of the region; 3) Hispanic/Latinos reported going to community health centers or clinics or private doctor’s offices the most when they are ill; 4) the high cost of health care, lack of insurance, and the inability to communicate with a healthcare provider were the most frequently experienced barriers to getting healthcare (Health Foundation of Greater Cincinnati, 2006). Therefore, strategies need to be taken to address such barriers. Previous studies have shown that effective methods to overcoming such barriers include institution-wide change such as with the Cambridge (MA) Health Alliance and the Cambridge Public Health Department which adopted a policy that all patient education materials be written in English at a sixth grade level or less before being translated (Quality Letter, 2003). Another example across the country was the
cultural and language infrastructure changes that took place at the Long Beach Memorial Medical Center / Miller Children’s Hospital. The goal was to attract more Hispanic mothers-to-be to the medical center for delivery and the follow-up child’s health care. The center determined how many employees were bilingual and how they could communicate better with patients. They also held twelve 1-hour Spanish classes (beginning and advanced); they offered Lamaze classes in Spanish and a “stork club” where expectant women could talk with their peers; the women received language appropriate material on pregnancy written up to the sixth grade level. In addition, they had a hospital representative try to “demystify” old wives tales, if necessary (Quality Letter, 2003). As evidenced by both the aforementioned study and the present research, women turn to other women and talk to each other for information.

In the present study, three-quarters of the survey participants answered that they have looked for health information due to an illness in the past, primarily for themselves, and preferred that the information be in the Spanish language. The focus group women reported seeking health information for their family members more often than for themselves. The National Women’s Health Report recognized that for many women, their own health is “simply not a priority” (NWHR, p. 5). This fact was also noted in the Aguirre study (2005) which examined the performance of the English and Spanish S-TOFHLA among publicly insured Medicare and Medicaid patients. The authors noted that women scored higher than men in each of three study groups: non-Hispanic English, Hispanic English, and for Hispanic Spanish as well. This may have been due to
the fact that women have more experience in managing family health. The researchers studied 1304 participants of whom 368 self-identified as Hispanic (93% Puerto Rico, 4% other, 2% Mexican, 1% Dominican, and 1% Cuban) who took the English TOFHLA and then another 1,066 Hispanics (85% Puerto Rican, 10% Dominican, and 5% other) who took the Spanish S-TOFHLA. The women were the majority of the respondents (>75%) in each group and their education and age varied significantly across the groups. According to the authors, the Hispanic Spanish group had significantly less education than the other two groups. The Hispanic English group was the youngest. Younger respondents scored significantly higher than older respondents. The researchers found strong linear relationships between overall scores and formal education; gender differed as discussed; and although the two language versions are not exactly comparable, the Hispanics that took the S-TOFHLA in English scored higher than non-Hispanics who took it in English and especially Hispanics who took it in Spanish who had the worst performance (Aguirre, et. al., 2005).

In addition, a study by Bevan & Pecchioni (2008) provides insight into understanding the impact of family caregiver cancer literacy on patient health outcomes. The researchers conclude that the extent to which family caregivers can comprehend the health information they receive along with the patient is crucial for the patient to receive the most successful health outcome. This is especially important for cultures which are family-centered for health care decisions compared to the U.S. culture’s Western medical model which stresses patient autonomy and for which privacy rules interfere with family support.
A third of the survey participants sought information about a health condition or disease, followed by a specific part of the body, and then to a lesser extent, general health/physical exams. These results are consistent with a study by Wolff & Ellis (2008) which studied awareness of common health conditions, access to health services and utilization of health services in limited-English-proficiency (LEP) Hispanic/Latino adults. That study had sixty Spanish-speaking adult participants from the Charleston, South Carolina area. There was limited preventive care which the researchers said was supported by similar reports nationwide by the AHRQ.

The language preference for health information was Spanish such that the members of the population sampled could be assured that the necessary patient-provider health communication could occur. That implied that the health care provider and / or health educator needed to be experienced enough in the Spanish culture and the language to understand the patients’ meanings behind the words as well. The language barrier has been researched by many professional in the past and must continue to be studied. Stallworth and colleagues (2009) researched the diffusion of effective behavioral interventions in the DEBI Project. It is a national HIV prevention program of the Division of HIV/AIDS Prevention of the Centers for Disease Control and Prevention (CDC). The article studied the DEBI project and its 8-step process with the residents of Puerto Rico. It provided materials in English and Spanish, which were culturally specific for Hispanics/Latinos and was adapted based on the formal community assessment which was conducted. It is important to note that the authors
discouraged Latino serving agencies to select an intervention because it was available in Spanish already rather than a thoughtful selection of an intervention that addressed the risk determinants displayed by the target population. Thus, underlining the importance for health educators to fully consider language as part of the cultural context in the planning, implementation and evaluative phases of health education programming.

The results of the questions pertaining to the sources of health information and the variables measured by the validated scales for the focus groups and orally-administered surveys are very similar to the findings from the prior pilot study. The participant demographic characteristics were similar for the pilot study to this study, and the participants had high adherence to the Hispanic domain and adequate functional health literacy levels in Spanish as well. In the pilot study, the results showed that the convenience sample of the population had a primary source of health information that was a medical source followed by a media source, especially when the participants were ill. The barriers were similar to this study, too, in that the predominant reason for not finding health information was language and the lack of knowledge/skills. The Wolff & Ellis (2009) study had also found that language and lack of knowledge of the U.S. health care system were barriers to preventive care. The researchers noted that language barriers cause LEP patients shame, and contribute to the potential compounding of the overall disease burden due to poor service utilization. The focus group participants in the present study mentioned the fear that is a barrier due to
perceived discrimination toward Latinos and the lack of trust for the organizations that are not culturally sensitive or competent in their services.

The research studies with samples of the local Latino population determined that there was high adherence to the Hispanic domain as well (Rojas-Guyler, King, Monteith, 2008; Riffe, Turner, Rojas-Guyler, 2008). The white paper from the OSOPHE study in Ohio had asked sixty Latino community members about the impact that health literacy had on health status. The responses generally acknowledged that health literacy had a high impact on health status (Thomas, Hiermer, Wright, & Ferguson, 2007).

**Recommendations**

The high participation rate and the high percentage of usable data from the focus groups and orally-administered surveys in this research study were a tribute to the high level of cooperation from the sample population. Generally speaking, the majority of the participants were willing to be of assistance in order to advance research pertaining to the study of sources of health information and health literacy levels. Based on the findings of this research study, it was determined that a small convenience sample of Latino adults varied their health information seeking behavior with relation to their demographic characteristics, their acculturation level and their ability to read, compute numbers, and understand written medical passages in English and in Spanish.

Some obvious practical implications of the research study were that, since the sources of health information varied with the study participants'
demographics for this population sample, and with the study participants’ level of acculturation to the U.S. and Hispanic culture too, then members of the health care professions, such as health educators, would want to study those aspects when conducting a needs assessment for an intended audience. Health care professionals need to go beyond that level of understanding population segments. Health educators may help to better meet the needs of individuals by being culturally sensitive and incorporating culturally competent, bilingual, bicultural professionals and coworkers to help plan and implement programs. Community-based research methods which incorporate members of the intended community to be a part of a team approach to health education and health promotion programs can be effectively used (Sparks & Nussbaum, 2008). Asking specific questions of targeted groups and then actively listening to their responses may be quite beneficial to improving the health status of selected populations. Sparks & Nussbaum (2008) studied health literacy and cancer communication with older adults. Many of their findings link effective health communication to health literacy and “as such can encourage cancer prevention, inform cancer detection and diagnosis, guide cancer treatment, support successful cancer survivorship, and finally promote the best end-of-life care in unique ways that can lead to better health outcomes.” (p. 349) They also discussed message framing which has been a postulate of Prospect Theory (gains and losses) for utilization in the health domain. The paper stated that research suggests that female participants were more convinced to conduct breast self-examinations after being exposed to negatively framed messages
than positively framed messages. Another important point in the paper was that in Hispanic cultures, older adults are treated with respect and generally have more authority. In the United States, older adults are perceived negatively. Also, the NCI's HINTS (2005) study results indicated that the place people would go for cancer information for 50% were their provider, followed by the Internet (34%), library (5%), family (4%), and print media (4%). According to recent research, the only source of health information that older adults use consistently is their doctor as cited by Sparks & Nussbaum (2008).

Age proved to be a predictor of 536 patients with “less-than-adequate” health literacy in a study by Downey & Zun (2008). The researchers found that age, education, and language spoken at home were found to be significantly related to health literacy using the S-TOFHLA. The patients that spoke Spanish at home (27%) or preferred it as the language used in medical settings (30%) had the highest levels of inadequate or marginal health literacy. Conversely, those who spoke English at home or for medical information had 82% adequate health literacy (Downey & Zun, 2008).

The research study by Brice, Travers, Cowden, Young, Sanhueza, & Dunston (2008) examined health literacy among Spanish-speaking patients in the Emergency Department in Chapel Hill, North Carolina. The study used a matched cohort design with 86 pairs of study enrollees. The researchers found that the majority of Spanish-speaking subjects had “less-than-adequate” functional health literacy as measured by the TOFHLA. Participants were from Mexico, El Salvador, Honduras, Guatemala, Venezuela, and the United States.
The study determined that Spanish speakers were 55.8% male, an average 30 years of age, had a mean of 7.95 years of school, and had a mean TOFHLA score of 59.72, with 74% being less than adequate FHL. Brice and colleagues found that the TOFHLA score was not predicted by socioeconomic status which was consistent with the existing literature, but was positively predicted by self-assessed reading ability and years of school completed. The researchers found that one of the greatest flaws of the TOFHLA (full version) is the length of time that it takes to administer. It was suggested that if a provider could predict a patient’s TOFHLA score simply by gathering their last grade completed and (self-assessed) reading ability, time could be saved and explanation and instruction reflecting the specific needs of each patient provided.

Given the needs presented in the studies reviewed above, in addition to the results from the present study, three general approaches are recommended. First, evaluation and assessment of literacy, reading grade level and numeracy skills (for example, using numeracy props techniques) of the target audience for health education programs in the Latino community must be conducted. Second, the selection of the tools to measure these abilities must be practical and reliable to support their use in the field. And third, we must meet health education program participants at the appropriate language and reading level needs of the individuals.

Improving the research

There was room for improvement for this research study. Although it was necessary to use valid tools to assess the study sample population for
acculturation, reading grade level in English, numeracy skills and reading comprehension, the survey instrument was a total of eight pages long and some participants were not pleased with that length and they felt it was too long. It was difficult to create an instrument with a readability level low enough to reach all of the intended audience of the study population. The language barrier existed for the researcher, too, such that the study could have been improved if the researcher had been bilingual, too. Some locations for data collection that are well attended by the study population are not always ideal for the gathering of data due to noise, inclement weather, availability, and time constraints on the part of the participants. The social and political climate toward new immigrant residents in a particular area can influence the participants’ level of trust (fear of repercussions due to their legal status) which can impact the research study. The number of test-retests done for reliability could have been higher. The sample number of participants \((N = 214)\) fell between the 90\% (96 people) and the 95\% (379 people) confidence level range and could have higher as well.

For future research

As stated in the study’s purpose, the results of this study may facilitate the ability of health educators and other health professionals to understand preferences and abilities of the Latino community and contribute to their ability to deliver culturally competent communication and health education messages. The profession of health promotion and health education uses health information sources to convey health-related messages to improve health and health
outcomes. The researcher was concerned that the messages were often times not being tailored to a segment of the population for the most effective use of the message. As mentioned in chapter one, literacy is an issue of social justice and that to improve health literacy; we must look at social inequities (Rudd, 2008). This research study identified some variables (certain demographic characteristics, acculturation levels, and literacy levels) that were linked to the sources of health information choices for a sample of local Latino adults, considered to be a vulnerable minority population. Based on the fact that these identified variables are related, it is important to the profession that health educators continue to explore health literacy and investigate how its social determinants impact our messages for our intended audiences. The questions the researcher would propose that health educators ask about the intended population segments would be: What demographic characteristics are known? What is the reading level of medical terminology, and/or the level of understanding / comprehension of health information for the members of the intended segment of the population? How acculturated to the U.S. culture was this particular segment? What barriers existed for this segment that prevented the most well-planned, well-intentioned health message from reaching them?

There are ways that health educators can assist in promoting good health communication with others of diverse cultures. In addition to conducting assessments which answer the previously outlined questions, there are tools via the Partnership for Clear Health Communication website. One example is the “Ask Me 3” patient education program by the National Patient Safety Foundation
(http://www.npsf.org/askme3/). The three questions are designed to promote communication between health care providers and patients in order to improve health outcomes. The program encourages patients to understand the answers to three questions: 1) What is my main problem?; 2) What do I need to do?; 3) Why is it important for me to do this? This program also has materials available in Spanish.

Another resource is based on an article listed in the Quality Letter for Healthcare Leaders by Darren DeWalt, MD at UNC in Chapel Hill. He says that providers have to keep in mind what can jeopardize good communication between themselves and their patients--- and what can improve it and improve outcomes: a) high levels of patient anxiety; b) too many recommendations; c) severe illness impact; d) powerful emotions.

Kreps & Sparks (2008) listed the following lessons learned from past efforts to increase the effectiveness of health communication interventions with vulnerable populations. They include: (p.331)

- Involving and empowering vulnerable and at-risk consumers in health communication efforts;
- Developing inter-organizational partnerships to support intervention efforts;
- Providing appropriate training and support for both consumers and providers;
- Designing culturally appropriate messages and materials for communication efforts;
Focusing on the family and the community for delivering and reinforcing messages;

- Providing consumers with choices and options for promoting their health.

As Andreasen has noted, it is not realistic to have a “one size fits all” approach to the social marketing of health promotion programs (Andreasen, 2006). However, if health care professionals fail to determine the social determinants of health for a particular segment of the local population, especially for one which was a vulnerable ethnic/racial minority, then the information gap will continue to widen and health disparities will continue to exist.

Health literacy is a multifaceted issue that requires a multi-sectorial approach for our society. It is the researcher’s opinion that there is room for improvement in the ways in which health education and health promotion programs connect with racial/ethnic minority populations. If language is a barrier, then we need to place bilingual personnel where needed. If the reading level is low, then we need to offer written materials not only at low readability levels, but offer audio and visual alternatives with pictures as well. How well do we train our future health educators to use the “teach-back” method to measure a message recipient’s understanding? Simply asking an individual, “Do you understand?” is not enough! How well are we meeting our professions’ Code of Ethics preamble which states, “…By acknowledging the value of diversity in society and embracing a cross-cultural approach, Heath Educators support the worth, dignity, potential, and uniqueness of all people”? In addition, Article IV: Responsibility in
the Delivery of Health Education, Section 1 states, “Health educators are sensitive to *social and cultural diversity* and are in accord with the law when planning and implementing programs” (Cottrell & McKenzie 2005, p. 290-1).

Future directions for research include, but are not limited to, investigation into the role of health educators and low health literacy in other minority populations; how health educators could partner with local branches of the public library system to create a health literacy kiosk for anyone seeking health information; how a policy could be established for state and national level approaches to improve health literacy levels for all but especially for minority populations; investigate health disparities and the connection to low health literacy; explore funding sources to conduct more research: for example, obtain funds to pay interpreters & provide incentives for participants; determine if health literacy is incorporated into the national health educator credentialing examination questions and study guides material (Certified Health Education Specialist -- CHES); explore if the American Public Health Association (APHA) could expand the health literacy special interest group into a section or a caucus; explore whether the Medical Library Association could collaborate with the APHA to combat health literacy issues which impact health disparities; investigate what Ohio is doing at the state and local level to improve health literacy and thus improve health outcomes; establish a ‘one stop’ website for both the community members and health care professionals at the local area/county/state levels to promote networking and the sharing of resources in many languages (many of these already exist in other states which can be tapped into); and many more.
REFERENCES


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http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program

U.S. Bureau of the Census. (2006). Table B-3: County population estimates by age, sex, race and Hispanic origin: April 1, 2000 to July 1, 2005 Series, 22, 13. Retrieved 10/28/06, from
http://quickfacts.census.gov/qfd/states/39000.html


Appendix A

List of Data Collection Locations

Santa Maria Community Services
Becky Montenegro
Bienestar Program Coordinator, East Price Hill
3301 Warsaw Avenue
Cincinnati, OH 45205
Phone (513) 557 - 2700 ext. 207
Fax (513) 557 - 2724
Becky_Montenegro@santamaria-cincy.org
www.santamaria-cincy.org

Su Casa Hispanic Ministry
Giovanna Alvarez
7036 Fairpark Ave., Cincinnati, Ohio 45216
Phone: (513)761-1588 ext. 14, ext. 21
Fax: (513) 761-9538

Women’s Connection
Jenny Brady and Linda Keller
4042 Glenway Avenue, Cincinnati, Ohio 45205
513-471-4673
www.thewomensconnection.org

Lincoln Heights Healthcare
Bernard Lenchitz MD
1401 Steffen Ave., Cincinnati, OH 45215
(513) 554-4100 - Bernard Lenchitz MD
(513) 554-1102 - Fax

Centro de Amistad
Sr. Juana Mendez
947 Donaldson Rd., Erlanger, KY 41018
Phone: (859) 538-1177

Shirley Ahmed-Moreno
Leasing Consultant
The Colony of Springdale
Phone: 513 771-9365
Fax 513-771-6335
shirley_ahmed01@yahoo.com

Griselda Geygan
2009 Cincinnati Hispanic Festival Coordinator
(513) 746-7944
Appendix B  Introduction script and summary for the study and Participant Information Sheet

Hello,

My name is Denise Britigan and this is my interpreter, __________. Do you prefer to speak English or Spanish?

We are from the University of Cincinnati and we are here to conduct a study about how Latino adults obtain, understand, and use health information. We have a few questions for you that will take about 30 minutes of your time and your answers will be recorded and written down. Everything will be confidential. I will not need to know your name.

The questions in this short survey will ask about where you are from, what language you prefer to use, and your reading ability/skill.

We have a sheet with information for you and a grocery store gift card to give to you at the end of the survey.

Are you interested?
Title of Study: “FINDING AND USING HEALTH INFORMATION”

Introduction:
You are being asked to take part in a research study. Please read this paper carefully and ask questions about anything that you do not understand.

Who is doing this research study?
The person in charge of this research study is Denise H. Britigan of the University of Cincinnati (UC) Department of Health Promotion and Education. She is being guided in this research by Dr. Liliana Rojas-Guyler. There may be other people on the research team helping at different times during the study.

What is the purpose of this research study?
The purpose of this research study is to help public health promotion programs tailor their health education materials to better meet the needs of Latino adults in the tri-state area.

Who will be in this research study?
About 125 people will take part in this study. You may be in this study if you are an adult of Spanish or Latin American descent living in the tri-state area.

What will you be asked to do in this research study, and how long will it take?
You will be asked to answer questions on how you get, understand, and use health information. A focus group discussion will last one hour. A survey interview will take about 30 minutes or less. The research will take place now right here.

Are there any risks to being in this research study? It is not expected that you will be exposed to any risk by being in this research study.

Are there any benefits from being in this research study? You will probably not get any benefit from taking part in this study. But, being in this study may help public health educators understand the needs of the Latino community better.

Will you have to pay anything to be in this research study? You will not have to pay anything to take part in this study.

What will you get because of being in this research study? Payment for your time and participation will be a $5 gift card to a local grocery store.
Do you have choices about taking part in this research study?
If you do not want to take part in this research study you may simply not participate.

How will your research information be kept confidential?
Information about you will be kept private by using a study ID number instead of the participant's name on the research forms. Your information will be kept in a locked cabinet in the faculty researcher's campus office for 3 years from the close of the study. After that it will be destroyed by shredding and the tape recordings will be erased as soon as they are transcribed. Agents of the University of Cincinnati may inspect study records for audit or quality assurance purposes. The researcher will ask people in the focus group to keep the discussion confidential, but they might talk about it anyway.

What are your legal rights in this research study?
Nothing in this consent form waives any legal rights you may have. This consent form also does not release the investigator, the institution, or its agents from liability for negligence.

What if you have questions about this research study?
If you have any questions or concerns about this research study, you should contact Denise Britigan at (513) 582-6512. Or, you may contact Dr. Liliana Rojas-Guyler at (513)556-0993.

The UC Institutional Review Board – Social and Behavioral Sciences (IRB-S) reviews all non-medical research projects that involve human participants to be sure the rights and welfare of participants are protected.

If you have questions about your rights as a participant or complaints about the study, you may contact the Chairperson of the UC IRB-S at (513) 558-5784. Or, you may call the UC Research Compliance Hotline at (800) 889-1547, or write to the IRB-S, 300 University Hall, ML 0567, 51 Goodman Drive, Cincinnati, OH 45221-0567, or email the IRB office at irb@ucmail.uc.edu.

Do you HAVE to take part in this research study?
NO ONE HAS TO BE IN THIS RESEARCH STUDY. Refusing to take part will NOT cause any penalty or loss of benefits that you would otherwise have. You may start and then change your mind and stop AT ANY TIME. To stop being in the study, you should tell the interviewer, or Denise Britigan at (513) 582-6512.

BY TURNING IN YOUR COMPLETED SURVEY YOU INDICATE YOUR CONSENT FOR YOUR ANSWERS TO BE USED IN THIS RESEARCH STUDY.

PLEASE KEEP THIS INFORMATION SHEET FOR YOUR REFERENCE.
Appendix C

STRUCTURED SURVEY

Health Information Sources Used by Latino Residents of Southwest Ohio

Demographics
Are you Latino? _____ Yes _____ No
What is your gender? _____ Female _____ Male
What is your age? _____ (in years)
What zip code do you live in? ________ Or, Which neighborhood? __________
What is your marital status?
_____ Single, never married _____ Separated, but not divorced
_____ Married _____ Divorced
_____ Living together, but not married _____ Widowed
What country is your father from? ___________________
What country is your mother from? __________________
What country were you born in?
________________________________________
How long have you been living in the United States? ___________________
How much school have you completed?
____ 1st grade or less, ____ 3rd grade or less, ____ 5th grade or less, ____ 8th grade or less
____ 10th grade or less, ____ 12th grade or less, ____ more than high school
How many people live in your household? _______
How much money does your household make each month/year?
$_______ biweekly $________/month $_______/year _____ Don’t know
_____ for self only

Health topics
In general, would you say your health is: $1=Very poor 2=poor 3=good 4=very good$
Think about a recent time (the last time) that you looked for health information, Not applicable _____
a) was it due to an illness? ____ Yes, ____ No
b) was the information for yourself or someone else, or both? __________ If
for someone else, who? __________________________
c) what information where you looking for? __________________________

Health Information Sources

C) Where did you look for health information?
d) Why do you use that source for health information?____________________________
e) How useful was the information you found?__________________________________
f) Did you find enough information?____________________________________________
g) Was the information you found easy to understand?_____________________________
h) Did you trust the information you found?______________________________________
i) If you need health information again, where would you like to find it?______________

**Barriers to obtaining health information:**
Did you have any problems when trying to obtain health information?
___Yes  ___No  If yes, what problems? ________________________

**Preventive health information sources**
Do you ever look for health information before you are sick?  ___Yes,  ___No
If yes, where do you go for that information? _______________________

Focus group discussion topics

- How often do you look for answers to health questions?
- When you need health information for yourself, where do you look for it?
- When you need health information for your family, where do you look for it?
- In what format do you like to find answers to your health questions?
- Of these sources, which one do you trust the most?
- Of these sources, which one do you trust the least?
- How easy is it to get answers to your health questions?
- If you need health information again, where would you like it to be so that you can get it?
Health Information Sources

- folletos / Pamphlet
- los periódicos / las revistas /
- los libros
- la Radio
- la televisión / Television
- cuartos de la charla del Internet
- conversación con un profesional del cuidado médico
- Conversation with a health care professional
- los amigos(as)
- los miembros de la familia; Members of your family
- Sacerdote, pastor o consejero: Priest, Pastor, or spiritual advisor
- el hospital: Hospital
- grupos de ayuda pacientes: Patient support groups
- clínicas / Centros de la Salud de la Comunidad: Clinics / Community Health Centers
- publicación médicas: Medical journal
- oficina del doctor privado: Private Doctor’s office visit
- un curandero, medicina tradicional, traditional
## Bi-dimensional Acculturation Scale (BAS)

### Acculturation: Linguistic Proficiency (English)

<table>
<thead>
<tr>
<th>Question</th>
<th>Very well</th>
<th>Well</th>
<th>Poorly</th>
<th>Very poorly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How well do you speak English?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2. How well do you read English?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3. How well do you understand television programs in English?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4. How well do you understand radio programs in English?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>5. How well do you write in English?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>6. How well do you understand music in English?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>7. How well do you speak Spanish?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>8. How well do you read Spanish?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>9. How well do you understand television programs in Spanish?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>10. How well do you understand radio programs in Spanish?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>11. How well do you write in Spanish?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>12. How well do you understand music in Spanish?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

### Acculturation: Linguistic Proficiency (Spanish)

<table>
<thead>
<tr>
<th>Question</th>
<th>Muy bien</th>
<th>Bien</th>
<th>No muy bien</th>
<th>Muy mal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ¿Que tan bien habla usted inglés?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2. ¿Que tan bien lee usted en inglés?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3. ¿Que tan bien entiende usted los programas de televisión en inglés?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4. ¿Que tan bien entiende usted los programas de radio en inglés?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>5. ¿Que tan bien escribe usted en inglés?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>6. ¿Que tan bien entiende usted música en inglés?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>7. ¿Que tan bien habla usted español?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>8. ¿Que tan bien lee usted en español?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>9. ¿Que tan bien entiende usted los programas de televisión en español?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>10. ¿Que tan bien entiende usted los programas de radio en español?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>11. ¿Que tan bien escribe usted en español?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>12. ¿Que tan bien entiende usted música en español?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
Rapid Estimate of Adult Literacy in Medicine_Short Form List of words

Fat
Flu
Behavior
Exercise
Menopause
Rectal
Antibiotics
Anemia
Jaundice

English version of the Short Test of Functional Literacy in Adults (STOFHLA)

READING COMPREHENSION EXERCISE:

"Here are some medical instructions that you or anybody might see around the hospital. These instructions are in sentences that have some of the words missing. Where a word is missing, a blank line is drawn, and 4 possible words that could go in the blank appear just below it. I want you to figure out which of those 4 words should go in the blank, which word makes the most sense. When you think you know which one it is, circle the letter in front of that word, and go on to the next one. When you finish the page, turn the page and keep going until you finish all the pages."

Short Test of Functional Health Literacy in Adults/ English

PASSAGE A
Your doctor has sent you to have a ________ X-ray.

  a. stomach
  b. diabetes
  c. stitches
  d. germs

You must have an ________ stomach when you come for_______.

  a. asthma  a. is.
  b. empty    b. am
  c. incest   c. if.
  d. anemia  d. it.
The X-ray will ________ from 1 to 3 _______ to do.
  a. take  a. beds
  b. view  b. brains
  c. talk  c. hours
d. look  d. diets

THE DAY BEFORE THE X-RAY.
For supper have only a __________ snack of fruit, __________ and jelly with coffee or tea.
  a. little  a. toes
  b. broth  b. throat
  c. attack  c. toast
d. nausea  d. thigh

After ________ , you must not ________ or drink anything at ________ until after you
  a. minute,  a. easy  a. ill          a. are
  b. midnight,  b. ate  b. all   b. has
  c. during,  c. drank  c. each   c. had
  d. before,  d. eat  d. any   d. was

THE DAY OF THE X-RAY.

Do not eat ________.
  a. appointment.
b. walk-in.
c. breakfast.
d. clinic.

Do not ________, even ________.
  a. drive,  a. heart.
b. drink,  b. breath.
c. dress,  c. water.
d. dose  d. cancer.

If you have any ________, call the X-ray ________ at 616-4500.
  a. answers,  a. Department
  b. exercises,  b. Sprain
  c. tracts,  c. Pharmacy
d. questions,  d. Toothache
PASSAGE B

I agree to give correct information to ________ if I can receive Medicaid.

a. hair
b. salt
c. see
d. ache

I ________ to provide the county information to ________ any

a. agree a. hide
b. probe b. risk
c. send c. discharge
d. gain d. prove

statements given in this ________ and hereby give permission to the

a. emphysema
b. application
c. gallbladder
d. relationship

the ________ to get such proof. I ________ that for

a. inflammation a. investigate
b. religion b. entertain
c. iron c. understand
d. county d. establish

Medicaid I must report any ________ in my circumstances

a. changes
b. hormones
c. antacids
d. charges

within ________ (10) days of becoming ________ of the change.

a. three a. award
b. one b. aware
c. five c. away
d. ten d. await
I understand ________ if I DO NOT like the ________ made on my case, I have the ________ to a fair hearing. I can ________ a hearing by writing or ________ the county where I applied.

If you ________ TANF for any family ________, you will have to ________ a different application form. ________, we will use the ________ on this form to determine your ________.

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<td>b. this</td>
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<td>c. that</td>
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<td>c. wrong</td>
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<td>b. reading</td>
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<td>c. calling</td>
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<td>a. wash</td>
<td>a. member,</td>
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<td>b. want</td>
<td>b. history,</td>
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<td>c. cover</td>
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<td>d. tape</td>
<td>d. seatbelt,</td>
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<td>a. relax</td>
<td>a. Since,</td>
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<td>b. break</td>
<td>b. Whether,</td>
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<td>c. inhale</td>
<td>c. However,</td>
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<td>d. sign</td>
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<td>b. date</td>
<td>eligibility</td>
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<td>c. meal</td>
<td>osteoporosis</td>
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<td>d. pelvic</td>
<td>schizophrenia</td>
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Survey Administrator Training Session
Table of Contents

Welcome and Introductions
CITI training review
Confidentiality discussion
Sensitivity to Literacy levels, respect for others, shame issue

Material Packets: Binder of printed materials, pencil pouch, pens, pencils, props*
  • Guidelines (updated versions were based on questions from survey administrators were e-mailed following the training sessions). This ended up being 3 pages including the Q & A’s.
  • Tally sheet for Surveys: Administrator’s name, initials, number of gift cards received. Columns for the following: date, location, language of survey requested (E/S), participate (Y/N), Reason for decline, case code number, gift card given.

  • Introduction script for the orally-administered survey (English and Spanish versions)
  • Information sheet (2-sided) (English and Spanish versions)
  • Grocery gift cards (Kroger or Biggs’ grocery stores)
  • Survey instruments: 9 pages total, English version & Spanish version of surveys including subscales, plus administrator score sheet (cover sheet)
    o Sections:
      ▪ Demographics/Sources (designed by researcher)
      ▪ Bi-dimensional Acculturation Scale
      ▪ Rapid Estimate of Adult Literacy in Medicine (REALM-SF)
        ▪ English only Literacy level based on word recognition
          o Examiner score sheet
      ▪ Short-Test of Functional Health Literacy in Adults (S-TOFHLA)
        ▪ numeracy and reading comprehension
        ▪ Examiner score sheet

*2-sided (English and Spanish versions), laminated card for blood glucose result & clinic appointment, 2 prescription bottles in Spanish and 2 prescription bottles in English.