

Measuring Acculturation in the U.S. Hispanic Population
Wendy Mansfield, Jordon Peugh, Jannet Torres, and Tom Wells
Knowledge Networks

Introduction

Immigrants arriving in the United States after 2005 and their first-generation of children are projected to account for 82% of the country's population growth from 2005 to 2050, with Hispanics comprising nearly 60% of this growth (Passel and Cohn, 2008). Currently, Hispanics constitute about 15% of the U.S. population, and by 2050, 29% of the U.S. population will be of Hispanic descent (Passel and Cohn, 2008). The large proportion of the U.S. population—and the large proportion of U.S. immigrants—composed of Hispanics underscores the importance of assessing the acculturation of Hispanics and the effect on survey results of sampling Hispanics from a limited range of the acculturation scale.

There are various definitions of acculturation, but it generally refers to the process by which individuals of one cultural group, typically a minority group, adapt their culture of origin to the culture of another group (<http://www.rice.edu/projects/HispanicHealth/Acculturation.html>, 4/18/10). In practice, this may take the form of changes in language preference and the adoption of attitudes, values, customs, beliefs and behaviors of another culture (Abraído-Lanza, 2006).

Both unidimensional and bidimensional measures of acculturation are used in research. Typical unidimensional assessments include nativity or generational status, citizenship, length of stay in the United States, and language use (Abraído-Lanza, 2006). Implicit in these unidimensional measures is the view that moving to one cultural identity is simultaneously a movement away from another cultural identity (Kang, 2006). Bidimensional measures, on the other hand, are based on the assumption that individuals can adopt the beliefs and behaviors of the mainstream culture while still maintaining their ethnic identity, that individuals can maintain bicultural identities (Kang, 2006). An example of a bidimensional measure is the Bidimensional Acculturation Scale for Hispanics (BAS) (Marín and Gamba, 1996), which provides two scores: one for the Hispanic domain, one for the non-Hispanic domain. It consists of 24 items (12 per domain) across three subscales (a Language Use Subscale, a Linguistic Proficiency Subscale, and an Electronic Media Subscale).

This paper explores two survey research aspects of acculturation of Hispanics. First, it examines unidimensional and bidimensional measures of acculturation to see which measures, if any, are more likely to define meaningful subgroups of Hispanics—that is, for which (1) the more acculturated a subgroup is, the more similar its views are to non-Hispanic U.S.-born citizens, and (2) the views of different subgroups are statistically different from each other. Four acculturation measures—three unidimensional measures and one bidimensional measure—are examined: citizenship status, immigration generation, years living in the U.S., and the Linguistic Proficiency Subscale (BAS/LP)¹

¹ Marín and Gamba (1996) indicate that the Linguistic Proficiency Subscale can be used by itself (rather than the full BAS) to get a quick and efficient measure of acculturation. The 12 items in this scale (six for each cultural domain) have “fairly high internal consistency and high validity coefficients” (p. 309).

of the BAS. Second, it investigates the effect on survey results from excluding Spanish-language survey takers from Hispanic samples. The research questions to address these issues are summarized as follows:

1. To what extent do various acculturation measures—citizenship status, immigration generation, years living in the U.S., and BAS/LP—define meaningful subgroups of Hispanics, so that (a) the views of the more acculturated subgroups are more similar to the views of non-Hispanic U.S.-born citizens, and (b) the views of the Hispanic subgroups are statistically different from one another?
2. To what extent do survey results for Hispanics differ when the full range of Hispanics are sampled from compared to when only English-language Hispanic survey takers are included?

The hypotheses were that the bidimensional acculturation variable, BAS/LP, would have defined more meaningful subgroups of Hispanics than would the unidimensional measures, and that statistically significant differences between Hispanics in the U.S. and non-Hispanic U.S.-born citizens were more likely to occur when sampling from all Hispanics, rather than from only English-language Hispanic survey takers.

Methods

Sample

The sample used for the analysis was KnowledgePanel[®], a nationally representative, probability-based panel of approximately 50,000 individuals who were recruited from random-digit dial (RDD) telephone frames and address-based sample (ABS) frames from the U.S. Postal Service's Delivery Sequence file. The panel covers cell-phone-only households and non-Internet households (Knowledge Networks provides free laptops and Internet access to the latter). The panel includes KnowledgePanel LatinoSM, a representative sample of the national Hispanic population, with about 4,700 English- and Spanish-language Hispanics. For example, the tables below show that the reported U.S. citizenship (Table 1) and number of years lived in the U.S. (Table 2) for KnowledgePanel Latino members is similar to Pew Hispanic Center research benchmarks (somewhat over-representing U.S. born Hispanics), and the country of birth (Table 3) for KnowledgePanel Latino members is very similar to benchmarks from the U.S. Census.

Status	KnowledgePanel Latino	Pew Hispanic Center*
U.S. Born	51%	41%
Naturalized U.S. Citizen	17%	22%
Not a U.S. Citizen	31%	37%

*August 2008. Pew Hispanic Center and the Robert Wood Johnson Foundation.
Hispanics and Health Care in the United States.

Table 2. Years Lived in the U.S.

Years	KnowledgePanel Latino	Pew Hispanic Center
0-5	13%	16%
6-10	23%	18%
11-20	30%	29%
21+	34%	36%

*August 2008. Pew Hispanic Center and the Robert Wood Johnson Foundation. *Hispanics and Health Care in the United States.*

Table 3. Country of Birth

Country	KnowledgePanel Latino	U.S. Census*
Mexico	35.3%	35.4%
United States	42.4%	41.8%
Caribbean	7.3%	9.4%
Central American (other than Mexico)	4.8%	7.5%
South America	6.0%	5.2%
Other	3.9%	0.8%

*June 2009. U.S. Census Bureau. *Current Population Survey.*

Instrument

Each year KnowledgePanel participants complete several profile surveys in their language of choice (English or Spanish). The profile surveys cover a range of topics, including public affairs, health, lifestyle, technology usage, and media usage. For this analysis, 10 items (Box 1) were selected from three profile surveys conducted in 2009: Lifestyle, Politics/Public Affairs, and Health.

The data for the acculturation measures were also drawn from profile surveys conducted in 2009 (Box 2): Ethnic and Group Membership Profile Survey and Hispanic Profile Survey.

Box 1. Profile Survey Questions Used in AnalysisLifestyle Profile Questionnaire

(Using a 5-point scale, from strongly agree to strongly disagree)

1. So much of my time is spent working that I have very little time left for myself
2. I feel stressed most of the time
3. I live a healthy lifestyle
4. My family life is satisfying
5. I am looking forward to my retirement
6. I go out of my way to buy environmentally friendly products

Politics/Public Affairs Profile Questionnaire

7. Do you feel things in this country...
 - Are generally going in the right direction?
 - Have gotten off on the wrong track?
8. In general, how interested are you in politics and public affairs?
 - Very interested
 - Somewhat interested
 - Slightly interested
 - Not at all interested
9. Do you happen to have in your home or garage any guns or revolvers?

Health Profile Questionnaire

10. Compared to other developed countries – like Canada, France, Germany, or the United Kingdom, do you think the US health care system does a better or worse job of providing affordable healthcare to people like you?

Box 2. Items Used for Acculturation Measures

Citizenship Status (Ethnic and Group Membership Profile Survey)

Are you a citizen of the United States?

Were you born a United States citizen or are you a naturalized U.S. citizen?

Immigration Generation (Hispanic Profile)

In what country were you born?

In what country was your father born?

In what country was your mother born?

In what country was your father's father born?

In what country was your father's mother born?

In what country was your mother's father born?

In what country was your mother's mother born?

Number of Years Lived in the U.S. (Hispanic Profile)

In total, how many years have you lived in the United States?

BAS/LP Subscale (Hispanic Profile)*

How well do you speak English?

How well do you read in English?

How well do you understand television programs in English?

How well do you understand radio programs in English?

How well do you write in English?

How well do you understand music in English?

How well do you speak Spanish?

How well do you read in Spanish?

How well do you understand television programs in Spanish?

How well do you understand radio programs in Spanish?

How well do you write in Spanish?

How well do you understand music in Spanish?

*The response categories were very well (4), well (3), poorly (2), and very poorly (1). Responses across the first six items were averaged to create a score for the non-Hispanic domain, and responses across the next six items were averaged to create a score for the Hispanic domain. Following Marín and Gamba's (1996) recommendation, a score of 2.5 was used as the cut-off for low or high adherence to that domain.

Based on current panelists, the completion rates for the above profile surveys ranged from 64% to 94% (Table 4).

Profile Survey	Completion Rate
Public Affairs Profile	94%
Health Profile	93%
Hispanic Profile	82%
Ethnic and Group Membership	78%
Lifestyle Profile	64%

Analysis

Acculturation Measures. For each acculturation variable, Hispanic panelists were classified into the following categories (from least to most acculturated):

- Generation
 - First generation American (foreign born)
 - Second generation American (U.S. born with foreign-born parents)
 - Third (or higher) generation American (U.S. born with U.S. born parents)
- Citizenship
 - Not a citizen
 - Naturalized citizen
 - U.S.-born citizen
- Years Living in the U.S.
 - 0 to 8 years
 - 9 to 17 years
 - 18 or more years
 - U.S.-born citizen
- Bidimensional Acculturation Scale/Linguistic Proficiency Subscale
 - High on Hispanic domain only
 - High on both domains
 - High on non-Hispanic domain only

Dependent Variables. The response options for the 10 survey questions were collapsed so that each would be a dichotomous variable. For example, for the six Lifestyle questions with a 5-point scale from “strongly agree” to “strongly disagree,” “strongly agree” and “somewhat agree” were combined into one value and “neither agree nor disagree,” “somewhat disagree,” and “strongly disagree” into another. Similarly, for the Public Affairs question, “very” and “somewhat” interested were collapsed into one value, and “slightly” and “not at all” interested into another value. And for the Health question, “the same” or “worse” were recoded into one value, leaving “better” as the second value.

Research Question 1. To what extent do various acculturation measures—citizenship status, immigration generation, years living in the U.S., and BAS/LP—define meaningful subgroups of Hispanics, so that (a) the views of the more acculturated subgroups are more similar to the views of non-Hispanic U.S.-born citizens, and (b) the views of the

Hispanic subgroups are statistically different from one another? For this question, logistic regression was performed separately for each of the four acculturation measures with each of the 10 dependent variables (that is, 40 individual regressions were conducted). For each acculturation variable, the reference group was non-Hispanic U.S.-born citizens.

Included in each regression were the variables Knowledge Networks uses for weighting purposes: gender (female, with male as the reference group), age (30-44, 45-59, and 60 and older, with 29 and younger as the reference group), education (high school, some college, and college degree, with less than high school as the reference group), region (Midwest, South, and West, with Northeast as the reference group), metropolitan status (metropolitan, with nonmetropolitan as the reference group), and Internet access (has access, with no access as the reference group).

Results were analyzed to determine whether the least acculturated subgroup in each acculturation measure was statistically different from non-Hispanic U.S.-born citizens. The size of the regression coefficients and level of statistical significance for each acculturation subgroup was examined to assess whether the less acculturated groups had larger coefficients and higher levels of statistical significance than more acculturated groups (that is, the difference between less acculturated groups and U.S.-born non-Hispanics was greater than the difference between more acculturated groups and U.S.-born non-Hispanics). For each dependent variable, t-tests were also conducted to compare the results for each subgroup within each acculturation measure to the results for the next most acculturated subgroup, to see whether the results were statistically different.

Research Question 2. To what extent do survey results for Hispanics differ when the full range of Hispanics are sampled from compared to when only English-language Hispanic survey takers are included? For this research question, two sets of logistic regressions were conducted. In the first set, for each acculturation variable, all of the Hispanic subgroups were collapsed into one group, and the reference group was non-Hispanic U.S.-born citizens. The regressions were run separately for each of the four acculturation measures with each of the 10 dependent variables (that is, 40 individual regressions were conducted). Again, included in each regression were the variables Knowledge Networks uses for weighting purposes (gender, age, education, region metropolitan status, and Internet income, with the reference groups identical to those named above).

The second set of regressions was identical to the first set, with the exception that Spanish-language survey takers were excluded from the analysis. It had been anticipated that Spanish-language survey takers would fall predominantly into the least acculturated subgroup for each acculturation measure and, thus, dropping that subgroup would exclude the vast majority of Spanish-language survey takers. While the largest proportion of Spanish-language survey takers were captured in the least acculturated subgroup, enough Spanish-language survey takers remained in the more acculturated subgroups that dropping the least acculturated group would still retain from 7% to 71% of Spanish-language survey takers, depending on the acculturation measure (Table 5). Accordingly, Spanish-language survey takers were dropped from all subgroups.

Table 5. Proportion of Spanish-language Survey Takers Captured in the Least Acculturated Group

Acculturation measure	Percentage
Generation	93%
Citizenship	68%
BAS/LP	63%
Years Living in the U.S.	29%

The results from the first set of regressions were compared to the results from the second set of regressions to see whether statistically significant differences were more likely to be found between Hispanics and non-Hispanic U.S.-born citizens when Spanish-language survey takers were retained.

Results

Examining the logistic regression results for Research Question 1 showed that the estimate for the least acculturated subgroup was statistically different from that for non-Hispanic U.S.-born citizens for all 10 of the dependent variables for BAS/LP and Years Living in the U.S., and for 9 of the dependent variables for Generation and Citizenship (Table 6).

Furthermore, the expected pattern—with larger regression coefficients and higher levels of statistically significant differences for less acculturated subgroups and smaller coefficients and lower levels of statistically significant differences for more acculturated subgroups (indicating greater differences between non-Hispanic U.S.-born citizens and less acculturated subgroups)—appeared for all 10 of the dependent variables for BAS/LP and Citizenship and for 8 of the dependent variables for Generation (table not shown). That pattern was found for only 3 of the dependent variables for Years Living in the U.S.

Results were more mixed for the t-tests conducted to see whether the differences between one subgroup and the next most acculturated subgroup were statistically different—that is, the acculturation measures defined distinct subgroups. The responses for each subgroup were statistically different from the responses for the next most acculturated subgroup for each subgroup for 5 of the dependent variables for BAS/LP, 4 of the dependent variables for Generation and Citizenship, and 1 of the dependent variables for Years Living in the U.S. (table not shown).

Table 6. Regression Coefficients for Least Acculturated Subgroup Compared to Non-Hispanic U.S.-Born Citizens

	Generation		Citizenship		Years in U.S.		BAS/LP	
	Estimate	p	Estimate	p	Estimate	p	Estimate	p
Agree that so much of my time is spent working that I have very little time left for myself	0.59	<.01	0.66	<.01	0.64	<.01	0.86	<.01
Agree that I feel stressed most of the time	0.11	0.10	0.15	0.07	0.23	0.05	0.20	0.03
Agree that I live a healthy lifestyle	0.85	<.01	0.96	<.01	0.77	<.01	1.08	<.01
Agree that my family life is satisfying	0.71	<.01	0.89	<.01	0.78	<.01	1.12	<.01
Agree that I am looking forward to my retirement	-0.82	<.01	-1.30	<.01	-1.23	<.01	-1.06	<.01
Agree that I go out of my way to buy environmentally friendly products	0.68	<.01	0.88	<.01	0.71	<.01	1.03	<.01
Do you feel things in this country...Are generally going in the right direction	1.52	<.01	1.90	<.01	1.85	<.01	1.94	<.01
Agree that I feel stressed most of the time	-0.44	<.01	-0.51	<.01	-0.43	<.01	-0.54	<.01
Do you happen to have in your home or garage any guns or revolvers?	-1.88	<.01	-2.35	<.01	-2.32	<.01	-2.50	<.01
Compared to other developed countries – like Canada, France, Germany, or the United Kingdom, do you think the US health care system does a better or worse job of providing affordable healthcare to people like you?	0.35	<.01	0.54	<.0	.61	<.01	0.86	<.01

The logistic regression results for Research Question 2 generally support the hypothesis that statistically significant differences between Hispanics in the U.S. and non-Hispanic U.S.-born citizens were more likely to be found if both English- and Spanish-language survey takers are included than if only English-language survey takers are sampled. For each of the four acculturation measures, when comparing all Hispanics (both English- and Spanish-language survey takers) to non-Hispanic U.S.-born citizens, statistically significant differences appeared for 8 of the 10 dependent variables. For each of the four acculturation measures, when limiting the Hispanic sample to only English-language

survey takers, the number of dependent variables for which there were statistically significant differences dropped to 4 of the 10 dependent variables. Table 7 presents the results for the BAS/LP acculturation measures (results were highly similar for all four of the acculturation measures).

Table 7. Regression Coefficients from Comparing All Hispanics and English-Language Hispanics to Non-Hispanic U.S.-Born Citizens, using the BAS/LP Acculturation Measure

	All Hispanics		English-Language Hispanic Survey Takers	
	Estimate	p	Estimate	p
Agree that so much of my time is spent working that I have very little time left for myself	0.29	<.0001	0.11	0.06
Agree that I feel stressed most of the time	0.02	0.66	-0.05	0.37
Agree that I live a healthy lifestyle	0.36	<.0001	0.00	0.97
Agree that my family life is satisfying	0.32	<.0001	-0.01	0.83
Agree that I am looking forward to my retirement	-0.49	<.0001	-0.28	<.0001
Agree that I go out of my way to buy environmentally friendly products	0.34	<.0001	0.06	0.32
Do you feel things in this country...Are generally going in the right direction?	0.91	<.0001	0.28	<.0001
Agree that I feel stressed most of the time	-0.22	<.0001	-0.01	0.87
Do you happen to have in your home or garage any guns or revolvers?	-1.04	<.0001	-0.62	<.0001
Compared to other developed countries – like Canada, France, Germany, or the United Kingdom, do you think the US health care system does a better or worse job of providing affordable healthcare to people like you?	0.06	0.18	-0.33	<.0001

Discussion

For Research Question 1, results offered only minimal support for the hypothesis that the bidimensional acculturation measure was more likely than the unidimensional measures to define subgroups of Hispanics for which (1) the more acculturated a subgroup is, the more similar its views are to non-Hispanic U.S.-born citizens, and (2) the more distinct different subgroups' views are. Table 8 summarizes the findings. Results were mostly similar across the four acculturation variables, though Years Living in the U.S. was somewhat less successful in meeting the various criteria. All of the acculturation measures defined a least acculturated subgroup for which survey results were statistically different from those for non-Hispanic U.S.-born citizens for all or almost all of the dependent variables. All of the acculturation measures except for Years Living in the U.S. defined subgroups such that differences between the subgroups and non-Hispanic U.S.-born citizens were greater for less acculturated subgroups than for more acculturated subgroups, for all or almost all of the dependent variables. And all of the acculturation measures except for Years Living in the U.S. defined subgroups such that survey results for one subgroup were statistically different from the results of the next most acculturated group, for about half of the dependent variables. Overall, Years Living in the U.S. was the least successful measure in meeting these criteria. The BAS/LP variable—the only bidimensional variable among the four acculturation measures—met the criteria most

often, though the difference between its results and those for Generation and Citizenship were minor.

Table 8. Number of Dependent Variables for Which Certain Requirements Were Met, by Acculturation Measure

Criteria	Generation	Citizenship	Yrs. in US	BAS/LP
Anticipated pattern: Greater differences found for non-Hispanic U.S.-born citizens with less acculturated subgroups than with more acculturated subgroups	8 of 10	10 of 10	3 of 10	10 of 10
Meaningful subgroups defined (i.e., subgroup's result differs from next most acculturated subgroup at .05 significance)	4 of 10	4 of 10	1 of 10	5 of 10

Stronger support was found for the hypothesis for Research Question 2. Statistically significant differences between Hispanics in the U.S. and non-Hispanic U.S.-born citizens were twice as likely to be detected when the full range of Hispanics were included in the sample, versus when the sample was limited to English-language survey takers.

Conclusion

This study highlights the importance of sampling from the full range of Hispanics, including both English- and Spanish-language survey takers. Given the sizeable proportion of the U.S. population accounted for by Hispanics, and the expected growth in this proportion over the coming years, the need to sample from the entire spectrum of Hispanics will become even more critical for obtaining accurate results that fully represent all Hispanics.

This study also suggests that both bidimensional and some (but not all) unidimensional acculturation variables can successfully capture distinctions among the views of Hispanics in different acculturation subgroups, though the bidimensional BAS/LP measure appears slightly more capable of doing so. Further research examining the views of different subgroups of Hispanics on a range of topics will shed more light on the relative usefulness of the acculturation measures in defining meaningful subgroups of Hispanics.

References

- 2008 National Population Projections*, August 14, 2008. U.S. Census Bureau.
- Abraído-Lanza, Ana F., Adria N. Armbrister, Karen R. Flórez, and Alejandra N. Aguirre. August 2006. "Toward a theory-driven model of acculturation in public health research." *American Journal of Public Health*, 96(8): 1342–1346.
- Current Population Survey (CPS)*. June 2009. Published jointly by the U.S. Census Bureau and the Bureau of Labor Statistics.
- Current Population Survey (CPS)*, December 2009. Published jointly by the U.S. Census Bureau and the Bureau of Labor Statistics.
- <http://www.rice.edu/projects/HispanicHealth/Acculturation.html>, 4/18/10.
- Hispanics and Health Care in the United States*. August 2008. Pew Hispanic Center and the Robert Wood Johnson Foundation.
- Kang, Sun-Mee. November 2006. Measurement of acculturation, scale formats, and language competence: their implications for adjustment. *Journal of Cross-Cultural Psychology*, 37(6): 669-693.
- Marín, Gerardo and Raymond Gamba. August 1996. A new measurement of acculturation for Hispanics: The Bidimensional Acculturation Scale for Hispanics (BAS). *Hispanic Journal of Behavioral Sciences*, 18(3): 297-316.
- Passel, Jeffrey S. and D'Vera Cohn. February 11, 2008. *U.S. Population Projections: 2005–2050*. Pew Research Center.