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An Ecological Perspective on U.S. Latinos' Health Communication Behaviors, Access, and Outcomes

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Abstract

U.S. Latinos experience constrained access to formal health care resources, contributing to higher incidence of preventable diseases and chronic health conditions than the general population. The authors explore whether a rich set of informal health communication connections—to friends, family, radio, television, Internet, newspapers, magazines, churches, and community organizations—can compensate, even partially, for not having access to doctors. The authors find no evidence of any such compensatory mechanism among respondents to the Pew Hispanic Center/Robert Wood Johnson Latino Health Survey (*N* = 3,899). Analyses revealed that the *informal health communication ecologies* of respondents with favorable immigration/nativity status and greater income, education, and language proficiencies were more diversified than those of respondents reporting less favorable social status. Further analyses revealed that diversified informal health communication ecologies related to health care access (regular doctor visits, uninterrupted health insurance, and regular health care location) and favorable health outcomes (self-ratings of general health, health-related efficacy, and knowledge of diabetes symptoms).

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Researchers have clearly established that U.S. Latinos suffer disproportionately high incidence of chronic diseases, including diabetes, hypertension, heart disease, and obesity (U.S. Department of Health & Human Services, 2009). These health disparities are often attributed to constrained health care access resulting from lack of insurance coverage and irregular doctors' visits, which in turn are correlated with lower socioeconomic status as well as limited language proficiencies and education (e.g., Documét & Sharma, 2004; Reinschmidt et al., 2006; Siegal, Cokkinides, Jemal, & Ward, 2006).

Prevalence of preventable diseases and other health outcomes can also be affected by the extent to which individuals are well informed about health care matters such as nutrition, sanitation, and the availability of health care resources (Kim, Moran, Wilkin, & Ball-Rokeach, 2011; Salmon, Wooten, Gentry, Cole, & Kroger, 1996; Schwarte et al., 2010). While such information can come from a variety of sources, having regular access to doctors and other professional health care providers increases the likelihood of prevention and treatment of chronic illness among Latinos (Documét & Sharma, 2004; Doty & Holmgren, 2006; Siegal et al., 2006).

Given that disadvantaged social status (in terms of income, language proficiency, education, and residency status) is related to limited health care access, we question whether these indicators are also associated with constrained access to informal channels individuals can engage to formulate alternative health communication strategies. These strategies can include interactions with friends and family, connecting with different forms of media, and/or connecting with community organizations to access health-related advice and information.

Is it possible for a rich set of informal health communication connections to compensate, even partially, for not having access to doctors? In this article, we explore how social status intersects with the health communication connections we consider collectively as an *informal health communication ecology*, and we assess how this ecology is related to health outcomes.

Latino Health Communication Ecologies

What we refer to as *communication ecology* is the array of interpersonal, mediated, and organizational communication options available to an individual to achieve everyday goals (Ball-Rokeach, 1998; Wilkin, Ball-Rokeach,

Matsaganis, & Cheong, 2007). Researchers at the Metamorphosis Project at the University of Southern California have explored how individuals develop their own health communication ecologies (inclusive of formal health communication channels like doctors) and how people's ecologies vary across communities and ethnic groups (Wilkin, 2006; Wilkin et al., 2007).

Our primary concern in this article is the *informal* health communication ecology; that is, how much health-related information Latinos receive from communication resources other than health care professionals. By doing so, we do not suggest that informal health channels are equivalent substitutes for access to formal health communication channels. Since the benefits of access to doctors is well established in the literature and such access remains out of reach for so many Latinos, we wished to explore whether connections to informal health channels might, to some degree, mitigate lack of access to doctors.

Past research has confirmed relationships between Latinos' health outcomes and their interpersonal social networks (e.g., Domínguez & Watkins, 2003; Jasso, Massey, Rosenzweig, & Smith, 2004), connections to local organizations and institutions (Harralson et al., 2007; Reinschmidt et al., 2006; Rhodes, Foley, Zometa, & Bloom, 2007), and connections to media (Matsaganis, Katz, & Ball-Rokeach, 2011; Subervi-Vélez, 1999; Vargas & dePyssler, 1999). Latinos' connections to these communication channels are, however, seldom considered in relation to each other.

Research conducted by the Metamorphosis Project is an exception. Data collected in six Latino communities in Los Angeles revealed that residents create individualized health communication ecologies from combinations of their interpersonal, organizational, and mediated communication channels (Wilkin & Ball-Rokeach, 2006; Wilkin et al., 2007). Across communities, residents named friends and family as well as television and radio content in Spanish among their top ways for connecting with health information[1] (Wilkin et al., 2007).

The communication ecology approach permits examination of cumulative effects of information received through multiple channels on individuals' access to health care and their health outcomes. Receiving health messages through multiple communication channels can have convergent effects that have been associated with persistent changes in health attitudes and behavior in minority and immigrant communities. For example, Mock et al. (2007) found that immigrant women were more likely to have a Pap smear after receiving cervical cancer prevention messages through interpersonal, organizational, and mediated communication channels, when compared with women who only received campaign messages through one communication channel. Viswanath, Steele, and Finnegan (2006) found that community organization

membership predicted residents' recall of health messages from their local media. Given that convergence of messages from multiple communication channels can encourage positive health outcomes, one can read these researchers' findings to suggest that a diverse informal health communication ecology is beneficial precisely because it makes such convergence possible.

An ecological approach also facilitates consideration of content and channels missing from an individual's informal health communication ecology. For example, although Spanish-language media can provide health content tailored to Latino concerns, these media may not be realizing their potential in this regard. Wilkin and González' (2006) content analysis of Spanish-language television revealed few health stories and even fewer ties to relevant local resources for addressing those health concerns. Their conclusions supported Subervi-Vélez' (1999) earlier finding that Spanish-language television may cover health issues affecting Latinos but does not specify behaviors to help viewers address the concerns they raise. Vargas and dePyssler (1999) found similar patterns in Spanish-language newspapers, which report on medical research but do not make the information relevant to Latino readers. For Spanish-dominant Latinos, limitations in Spanish-language media coverage can pose challenges for achieving health-related goals.

Individuals often develop strategies to address or circumvent those constraints. Spanish-dominant Latinos may depend on their children to connect them with communication channels (e.g., mainstream media) that require understanding English (Katz, 2010; Orellana, 2009). Immigrants who cannot read or write often depend heavily on radio broadcasts in their spoken language (Browne, 2005). Likewise, Latinos without regular access to health care providers often rely on their interpersonal networks and on traditional and/or alternative health care options as partial compensation strategies (Pylypa, 2001; Ransford, Carrillo, & Rivera, 2010).

Drawing from these prior findings, we define a *diversified informal health communication ecology* as one where an individual can regularly connect with a relatively wide array of informal health communication channels to achieve health-related goals. These channels include friends and family, community organizations, newspapers, television, radio, and the Internet. Individuals with more diversified informal health communication ecologies are more likely to experience convergence between multiple communication channels than individuals who have less diversified ecologies. In the next section, we explore how individuals' informal health communication ecologies can be influenced by socioeconomic and demographic factors.

Social Status and Informal Health Communication Ecologies

Social status distinctions among U.S. Latinos are most often tied to nativity/immigration status, which is generally correlated to education, income, as well as English proficiency (Bean & Stevens, 2003; Livingston, 2009; Passel & Cohn, 2009; Tienda & Mitchell, 2006).

U.S.-born Latinos have higher levels of educational attainment and income than their foreign-born counterparts, are more fully fluent in English, and have full legal access to social safety net programs. Among foreign-born Latinos, those who have become citizens have typically spent at least 5 years residing in the United States, have demonstrated their English proficiency during the naturalization process, and are civically enfranchised. As a group, the foreign born who are legal permanent residents, but not citizens, represent a category of lesser access to resources in English or provided by government agencies. Unauthorized migrants constitute the least privileged rung of this hierarchy. As a whole, this group is younger and has less education than foreign-born legal residents or naturalized citizens (Passel & Cohn, 2009). Unsurprisingly, among Latinos, the undocumented are also the group least likely to have regular (or indeed any) access to formal health care (Rodríguez, Bustamante, & Ang, 2009).

Given these distinctions in social status, we see two ways that connections with doctors, nurses, and other health professionals could be related to the relative diversification of an individual's informal health communication ecology. The first possibility is that Latinos with limited access to formal health care develop compensating strategies by depending more heavily on the informal communication channels they do have available. In this case, individuals who could not see a doctor regularly would develop alternative resources for health information within their mediated, interpersonal, and/or organizational communication channels. They would exhibit benefits of a diversified informal health communication ecology despite a lack of regular access to formal medical care.

The second possibility is that such compensating mechanisms are uncommon and that regular interactions with health care professionals are correlated with having a diversified informal health communication ecology.

Prior research leads us to predict that the second possibility is the most likely scenario. The relationship between social status and access to information and resources has been studied as the "knowledge gap" since the 1970s (e.g., Donahue, Olien, & Tichenor, 1970; Viswanath & Finnegan, 1996). The knowledge gap hypothesis posits that individuals of higher social status will

receive and gain knowledge from media content at a faster rate than those of lower status, in part due to the social networks with whom they discuss this content, as well as the resources they can access to act on what they have learned. Knowledge gap researchers document the consequences of having less diversified health communication ecologies; low-income immigrants and ethnic minorities are more affected by preventable health conditions because they lag behind in learning how these conditions are contracted and spread (Deibert et al., 2007; Kim et al., 2011; Rothman et al., 2005; Salmon et al., 1996; Shim, 2008).

How is social status related to having access to a wider array of informal channels one can access to achieve health-related goals? Higher incomes facilitate access to a wider range of media channels by facilitating purchases of media artifacts and new communication technologies like "Smartphones," Internet access, and cable television. Higher levels of education foster traditional literacies that facilitate access to print media channels like newspapers and are also correlated with new media literacy needed for optimal Internet connectedness (DeBell & Chapman, 2006; Rideout, Roberts, & Foehr, 2005). Broader language capacities can also facilitate a wider range of media connections to address health concerns.

Social status is also associated with more varied interpersonal communication channels (i.e., social networks). Relationships in heterogeneous social networks are more likely to contain diverse resources that can be successfully deployed for a range of goals (e.g., Hernández-León, 2008; Waldinger & Lichter, 2003). Latinos of lower social status are more likely to have homogeneous social networks bounded by ethnicity, language, and socioeconomic status, which limits those networks' utility for addressing health-related challenges (Domínguez & Watkins, 2003). Social status can also be related to more diverse organizational connections through relationships to more varied individuals associated with those groups (Small, 2011).

Given these relationships, we test the following hypotheses:

Hypothesis 1: Advantaged social status is positively related to a diversified informal health communication ecology.

Hypothesis 2: A diversified informal health communication ecology is positively related to regular health care access, namely (a) having a regular place for health care, (b) having seen a doctor in the past year, and (c) reporting uninterrupted health insurance over the past year.

Hypothesis 3: A diversified informal health communication ecology is positively related to healthy outcomes, namely (a) self-rated good

health, (b) higher ratings of health efficacy, and (c) greater knowledge of diabetes symptoms.

Method

A nationally representative telephone survey of Latino adults was conducted by the Pew Hispanic Center/Robert Wood Johnson Latino Health Survey between July and September of 2007. Survey questions elicited responses on health-related attitudes and behaviors among respondents of Latino descent. Respondents who refused to provide their age or other key demographic variables (n = 114) were omitted from analyses, yielding a final analysis sample of N = 3,899. Interviews were conducted by trained bilingual interviewers using a Computer-Assisted Telephone Interviewing (CATI) system. Interviews were conducted in Spanish or English, according to respondent preference; 75% of interviews were conducted in Spanish, 21% in English, and 4% in a mix of Spanish and English.

Survey data were weighted with a two-stage weighting design to ensure accurate representation of the national Latino population. This was achieved using poststratification weights by nativity, sex, age, and education to make the sample representative, matching the distributions of Latinos in the Current Population Survey annual demographic file for March 2007.[2]

Sample Characteristics

Table 1 presents survey respondents' demographic characteristics. Respondents reported a mean age of approximately 40 years, and about half (48%) of the sample participants were female. Twenty-four percent reported household incomes below US$15,000, and 14% reported incomes over US$60,000. Thirty nine percent had less than a high school diploma, while only 11% had graduated from college. Almost half of respondents (44%) were U.S. born; the remainder was legal permanent residents (21%), foreign-born naturalized U.S. citizens (19%), or undocumented (16%). Half of the sample population was Spanish dominant (49%), 35% were bilingual, and 16% were English dominant.

Measures

Advantaged social status. For the first hypothesis, we wished to explore whether *advantaged social status*—here defined in terms of higher income,

Table 1. Sample Characteristics of Pew Hispanic Center/Robert Wood Johnson Foundation Latino Health Survey Participants

Sample characteristics	
N	3,899
Mean age in years (*SD*)	39.7 (15.5)
Female	48%
Household income (%)	
US$0 to US$14,999	24
US$15,000 to US$24,999	20
US$25,000 to US$34,999	20
US$35,000 to US$59,999	22
US$60,000+	14
Education (years; %)	
<High school diploma	39
High school graduate	29
Some college	21
College graduate	11
Primary language (%)	
English dominant	16
Bilingual	35
Spanish dominant	49
Nativity/immigration status (%)	
U.S.-born citizen	44
Foreign-born U.S. citizen	19
Foreign-born legal resident	21
Foreign-born undocumented migrant	16

favorable immigration status, and greater educational attainment and language proficiencies—were related to reporting a more diversified informal health communication ecology. Respondents reported their total annual household *income* in the last year in ranges staggered from less than US$15,000 to more than US$60,000. Respondents indicated their *education level* as ranging from less than a high school diploma to college graduate. Respondents were asked a series of questions to determine *primary language*, including whether they can carry a conversation or read newspapers or books in English, Spanish, or both.[3] Respondents were also asked questions related to *nativity/immigration status* that designated them as U.S.-born citizens,

foreign-born U.S. citizens, foreign-born legal residents, and foreign-born undocumented migrants.[5]

Informal Health Communication Ecology Index. The Informal Health Communication Ecology Index (IHCEI) is a six-item index designed to capture the range of communication channels respondents may connect with informally for health information. Respondents were asked separate questions about how much information about health and health care they had received in the past year from (a) family or friends, (b) radio, (c) Internet, (d) television, (e) newspapers or magazines, and (f) churches or community organizations. For each communication channel they could report getting "a lot" of information, "a little," or "none at all." To create the IHCEI, each of these six potential channels were dummy coded, where "1" indicated receiving "a lot" or "a little" information from that communication channel and "0" indicated not receiving any information. Factor analyses revealed that these six items clustered to form a reliable scale ($\alpha = .65$).

Access to health care. The dependent variables for the third hypothesis were operationalized as follows. Responses to the question, "Is there a place that you usually go to when you are sick or need advice about your health?," indicated whether respondents had a *usual place for health care,* with "1" indicating a "yes" response and "0" indicating a "no" response. Respondents' answers to the question, "About how long has it been since you last saw a doctor or another health care provider about your health?," were operationalized as having *seen a doctor in the past year,* with response categories collapsed into 0 to 12 months (coded as "1") and more than 12 months (coded as "0"). *Uninterrupted health insurance* was indicated by the question, "During the last 12 months, did you have health insurance all the time, or was there a time during the year when you did not have any health coverage?" Respondents indicated whether they had always been covered (coded as "1") or had had a time without insurance (coded as "0").

Healthy outcomes. Dependent variables for the fourth hypothesis were operationalized as follows. We began with *self-rated health* as a basic indicator of respondents' health status, measured by responses to the question: "In general, how would you describe your own health?" Responses of "excellent," "very good," or "good" were coded as "1," and responses of "fair" or "poor" were coded as "0."[5]

A series of items designed to capture dimensions of *health efficacy* asked respondents to indicate on a scale from 1 (*strongly disagree*) to 4 (*strongly agree*) the extent to which they agreed with statements describing proactive behaviors or attitudes toward maintaining good health. Factor analyses determined which items best configured an index of health efficacy, containing the

following items: (a) "I exercise on a regular basis, meaning activities like walking, running, swimming, aerobics, or using exercise equipment"; (b) "Most days of the week I eat at least 5 servings of fruits or vegetables"; (c) "Before I go to a new health care provider, I find out as much as I can about his or her qualifications"; and (d) "When I do not understand, I am persistent in asking a doctor to explain something until I understand it." Cronbach's alpha indicated the index was reliable for this sample ($\alpha = .63$).

Finally, as an indicator of respondents' abilities to detect a disease for which they are at disproportionate risk, *diabetes knowledge* was measured with an index validated in prior research (González et al., 2009). Respondents were asked whether they thought any of the following could be symptoms of diabetes: (a) frequent urination, (b) increased fatigue, (c) excessive thirst, and (d) blurry vision. These four items were entered into a factor analysis that indicated a Cronbach's alpha of .77.

Sociodemographic covariates. Nativity/immigration status, household income, education, and primary language were entered as covariates into any analysis that did not include them as independent variables. In addition, gender and age were entered into all analyses as covariates. *Gender* was coded as "1" for male and "0" for female. Respondents were asked to indicate their *age* in categories staggered from 18 to 24 and up to 65 years and older.

Data Analysis

The first hypothesis was tested using stepwise multivariate regression. The IHCEI was regressed on education, income, primary language, and nativity/immigration status. Age and gender were entered as potential covariates. Covariates that were not significant in the original model were removed through a backward stepwise procedure until a final model was achieved.

The second hypothesis was tested using stepwise logistic regression for the binary variables measuring access to health care. Each of these outcomes was regressed on the IHCEI with age, gender, education, income, primary language, and nativity/immigration entered into the models as potential covariates. Covariates that were not significant at the .05 level in the initial model were removed using stepwise regression from the final models.

The third hypothesis was tested using stepwise logistic regression for the binary self-rated health variable. Stepwise multivariate regressions were used for the continuous variables of health efficacy and knowledge of diabetes. Each of these outcomes was regressed on the IHCEI with age, gender, education, income, primary language, and nativity/immigration entered into the

Table 2. Standardized Beta Coefficients for Association Between Social Status and the Informal Health Communication Ecology Index (IHCEI)

	Informal Health Communication Ecology Index (β)
Age	
50 to 64 years	–0.34**
65+ years	–0.46***
Education	
<High school diploma	–0.98***
High school graduate	–0.43***
Income	
US$60,000+	0.24*
Nativity/immigration status	
Foreign-born undocumented migrant	–0.23*
Primary language	
Bilingual	0.17*

*$p < .05$. **$p < .01$. ***$p < .001$.

models as potential covariates. Covariates that were not significant at the .05 level were removed using stepwise regression from the final models.

Results

Analyses supported our first hypothesis, showing that advantaged social status was significantly related to a diversified informal health communication ecology, $R^2 = .12$, $F(16, 3881) = 19.4$, $p < .001$, with education, income, immigration status, age, and primary language as significant covariates. Table 2 summarizes the final model for these analyses.

Our second hypothesis predicted that a diversified informal health communication ecology would be positively related to greater health care access. Regression analyses for H2(a) found that IHCEI predicted having a regular place for health care, $R^2 = .21$, $F(17, 3880) = 15.8$, $p < .001$, with gender, age, income, and immigration/nativity status as significant covariates. H2(b) analyses showed that IHCEI predicted having seen a doctor in the past year, $R^2 = .20$, $F(17, 3880) = 16.4$, $p < .001$, with gender, age, and nativity/immigration status as significant covariates. Results for H2(c) found IHCEI predicted having had uninterrupted health insurance in the past year, $R^2 = .24$, $F(17, 3880) = 28.3$, $p < .001$, with age, education, and nativity/immigration

Table 3. Adjusted Odds Ratios for Associations Between Having (a) a Regular Place for Health Care, (b) Seen a Doctor in the Past Year, and (c) Uninterrupted Health Insurance in the Past Year

	Regular place for health care	Saw doctor in past year	Uninterrupted insurance in past year
Female	2.89***	3.52***	1.06
Age			
30 to 49 years	1.55***	0.90	1.66***
50 to 64 years	2.81***	1.51*	2.36***
65+ years	7.71***	4.95***	11.82***
Education			
<High school diploma	1.02	0.82	0.68**
High school graduate	1.06	1.10	0.69**
Some college	1.12	0.85	0.68**
Annual household income			
US$35,000-US$59,999	1.65**	1.06	1.81***
US$60,000+	1.79*	1.25	3.78***
Nativity/immigration status			
Foreign-born legal resident	0.72	0.76	0.57***
Foreign-born undocumented migrant	0.45***	0.42***	0.31***
Informal Health Communication Ecology Index (IHCEI)	1.14***	1.14***	1.03*

*$p < .05$. **$p < .01$. ***$p < .001$.

status as significant covariates. Table 3 presents final models for H2(a), (b), and (c).

The third hypothesis predicted a diversified informal health communication ecology would be positively associated with better health outcomes. Logistic regression analyses for H3(a) revealed IHCEI predicted better self-rated health, $R^2 = .17$, $F(17, 3880) = 16.8$, $p < .001$, with age, education, and income as significant covariates. Table 4 presents the final model.

H3(b) tested the relationship between IHCEI and health efficacy. Analyses revealed IHCEI predicted higher scores on our health efficacy index, $R^2 = .13$, $F(17, 3880) = 16.8$, $p < .001$, with nativity/immigration status as a significant covariate. H3(c) explored the relationship between IHCEI and diabetes knowledge. Analyses revealed IHCEI predicted greater knowledge of

Table 4. Adjusted Odds Ratios Indicating the Relationship Between Self-Report of Good Health and Informal Health Communication Ecology Index (IHCEI)

	Self-report of good health	95% confidence interval
Age		
30 to 49 years	0.77	(0.60, 0.98)*
50 to 64 years	0.39	(0.29, 0.53)***
65+ years	0.44	(0.31, 0.63)***
Education		
<High school diploma	0.43	(0.33, 0.58)***
High school graduate	0.51	(0.37, 0.71)***
Some college	0.72	(0.55, 0.93)**
Annual household income		
US$15,000-US$24,999	1.29	(1.02, 1.62)*
US$25,000-US$34,999	1.31	(1.02, 1.69)*
US$35,000-US$59,999	1.68	(1.24, 2.27)**
US$60,000+	3.62	(2.39, 5.50)***
Nativity/immigration status		
Foreign-born U.S. citizen	0.82	(0.62, 1.09)
Foreign-born legal resident	0.81	(0.61, 1.08)
Foreign-born undocumented migrant	0.77	(0.57, 1.06)
Informal Health Communication Ecology Index (IHCEI)	1.08	(1.02, 1.14)*

*$p < .05$. **$p < .01$. ***$p < .001$.

diabetes symptoms, $R^2 = .12$, $F(17, 3880) = 11.7$, $p < .001$, with gender, age, education, and primary language as significant covariates. Table 5 presents final models for H3(b) and H3(c).

Discussion

This article explored how social status relates to U.S. Latinos' access to health-related information from resources other than health care professionals; we defined this set of resources as a diversified informal health communication ecology. Our primary aim was to examine how information from an array of informal health channels affects individuals' health access and outcomes. Our results indicate that social status is positively related to having a diversified informal health communication ecology and that respondents'

Table 5. Standardized Beta Coefficients Indicating Associations Between (a) Health Efficacy and Informal Health Communication Ecology Index (IHCEI), and (b) Diabetes Knowledge and IHCEI

	Health efficacy (β)	Diabetes knowledge (β)
Female	0.09	0.36***
Age		
30 to 49 years	–0.12	0.53***
50 to 64 years	0.43	0.66***
65+ years	0.02	0.42***
Education		
<High school diploma	–0.17	–0.35**
High school graduate	–0.37	–0.25**
Annual household income		
US$60,000+	0.29	0.24*
Nativity/immigration status		
Foreign-born U.S. citizen	–0.98**	–0.05
Foreign-born legal resident	–1.04**	–0.04
Primary language		
English	–0.83	–0.23*
IHCEI	0.18*	0.07***

*$p < .05$. **$p < .01$. ***$p < .001$.

informal health communication ecologies have significant effects on their overall health.

As noted previously, extant research indicated that disadvantaged social status among Latinos is strongly associated with inadequate health insurance coverage and limited access to medical professionals. Our results show that limited education, foreign nativity, and undocumented status were also predictive of lower IHCEI scores. As further evidence of this link, our second hypothesis revealed that low IHCEI scores were associated with constrained access to health care by several measures. Conversely, higher social status is associated with more robust informal resources for health information and with greater access to information from medical professionals.

These findings suggest that Latinos' informal health communication ecologies are closely linked with both social status and health care access. All three indicators seem to rise and fall together. Without seeking to draw lines of causality, it is sufficient to note that there is a strong association between

access to a diversity of informal health communication channels and these two measures of social well-being. Moreover, analyses of our third hypothesis shows that Latinos with more diversified informal health communication ecologies are not only more likely to recognize symptoms of chronic diseases for which they are at risk, but also, to have the self-confidence (i.e., health efficacy) to be proactive in prevention or treatment. A diversified informal health communication ecology is also predictive of self-ratings of good health, which is likely a cumulative result of social status, access to care, and self-efficacy.

These findings have a number of important implications for our understanding of health status determinants among U.S. Latinos. First, our results show that those who do not have access to doctors and other health care professionals are unlikely to get health-related information from other communication channels like family and friends, media sources, or community organizations. We find no evidence of a compensatory mechanism. Latinos appear to either get a lot of information from a wide range of formal and informal communication channels or get very little health information from any sources.

This finding in particular should be of concern for those involved in health promotion and social marketing to U.S. Latinos. Our results suggest that there are individuals in a kind of health void, where they receive neither medical care nor health information, and that those individuals are most likely to have low levels of education and to be unauthorized immigrants. Lack of information about disease prevention and treatment, combined with the lack of access to health care seems certain to produce not only unnecessary illness but also increased health care costs.

These results have implications for how we understand Latinos' social well-being and validate the communication ecology approach to understanding access to health care access and outcomes. The same approach can help us better understand information flows in other realms, such as civic engagement (which has already been explored in Ball-Rokeach, Kim, & Matei, 2001; Kim et al., 2011; Wilkin et al., 2007), employment mobility, purchasing decisions, and so on. Further study is needed to explore lines of causality; for example, one could ask whether access to a diversity of communication channels is a catalyst or a byproduct of social advancement.

Finally, the communication ecology approach can be a means of understanding compounded disadvantage in which individual characteristics (e.g., immigration status) interact with contextual factors (e.g., the cost and availability of health insurance) to create large effects (e.g., negative health outcomes). An individual's abilities to access information resources for his or

her own purposes remain an essential but insufficiently understood variable in that formula.

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Notes

1. Health professionals were generally ranked second behind friends and family, although the relative importance of communication channels varied slightly by community (Wilkin, Ball-Rokeach, Matsaganis, & Cheong, 2007).
2. For more details on the research design, please see Rodríguez, Bustamante, and Ang (2009) and González, Vega, Rodríguez, Tarraf, and Sribney (2009).
3. For more details on the creation of the primary language variable for this dataset, see Alegría, Sribney, Perez, Laderman, and Keefe (2009) and Rodríguez et al. (2009).
4. See Ortega et al. (2007) and Rodríguez et al. (2009) for more detail on the creation of these measures.
5. Self-rated health has been used as an outcome variable in prior research (see Brown, Ang, & Pebley, 2007).

References

Alegría, M., Sribney, W., Perez, D., Laderman, M., & Keefe, K. (2009). The role of patient activation on patient-provider communication and quality of care for US and foreign born Latino patients. *Journal of General Internal Medicine, 24*(Suppl. 3), 534-541.

Ball-Rokeach, S. J. (1998). A theory of media power and a theory of media use: Different stories, questions, and ways of thinking. *Mass Communication & Society, 1*, 5-40.

Ball-Rokeach, S. J., Kim, Y. C., &Matei, S. (2001). Storytelling neighborhood: Paths to belonging in diverse urban environments. *Communication Research, 28*(4), 392-428.

Bean, F. D., & Stevens, G. (2003). *America's newcomers and the dynamics of diversity.* New York, NY: Russell Sage Foundation.

Brown, A. F., Ang, A., & Pebley, A. R. (2007). The relationship between neighborhood characteristics and self-rated health for adults with chronic conditions. *American Journal of Public Health, 97*(5), 926-932.

Browne, D. R. (2005). *Ethnic minorities, electronic media, and the public sphere: A comparative approach*. Cresskill, NJ: Hampton Press.

DeBell, M., & Chapman, C. (2006). *Computer and Internet use by students in 2003* (NCES 2006-065). Washington, DC: National Center for Education Statistics.

Deibert, C., Maliski, S., Kwan, L., Fink, A., Connor, S., & Litwin, M. (2007). Prostate cancer knowledge among low-income minority men. *The Journal of Urology, 177*(5), 1851-1855.

Documét, P., & Sharma, R. (2004). Latinos' health care access: Financial and cultural barriers. *Journal of Immigrant Health, 6*, 5-13.

Domínguez, S., & Watkins, C. (2003). Creating networks for survival and mobility: Social capital among African-American and Latin American low income mothers. *Social Problems, 50*(1), 111-135.

Donahue, G. A., Olien, C. N., & Tichenor, P. J. (1970). Mass media flow and differential growth in knowledge. *Public Opinion Quarterly, 34*(2), 159-170.

Doty, M. M., & Holmgren, A. L. (2006, August). *Health care disconnect: Gaps in coverage and care for minority adults*. Retrieved from http://www.commonwealthfund.org/publications/publications_show.htm?doc_id=386220

González, H. M., Vega, W. A., Rodríguez, M. A., Tarraf, W., & Sribney, W. M. (2009). Diabetes awareness and knowledge among Latinos: Does a usual source of healthcare matter? *Journal of General Internal Medicine, 24*(3), 528-533.

Harralson, T. L., Emig, J. C., Polansky, M., Walker, R. E., Crus, J. O., & Garcia-Leeds, C. (2007). Un corazón saludable: Factors influencing outcomes of an exercise program designed to impact cardiac and metabolic risks among urban Latinas. *Journal of Community Health, 32*(6), 401-412.

Hernández-León, R. (2008). *Metropolitan migrants: The migration of urban Mexicans to the United States*. Berkeley: University of California Press.

Jasso, G., Massey, D. S., Rosenzweig, M. R., & Smith, J. P. (2004). Immigrant health: Selectivity and acculturation. In N. Anderson, P. Bulatao, & B. Cohen (Eds.), *Critical perspectives on racial and ethnic differences in health in late life* (pp. 227-268). Washington, DC: National Academies Press.

Katz, V. S. (2010). How children use media to connect their families to the community: The case of Latinos in Los Angeles. *Journal of Children and Media, 4*(3), 298-315.

Kim, Y. C., Moran, M. B., Wilkin, H. A., & Ball-Rokeach, S. J. (2011). Integrated Connection to a Neighborhood Storytelling Network (ICSN), education, and

chronic disease knowledge among African Americans and Latinos in Los Angeles. *Journal of Health Communication, 16*, 393-415.

Livingston, G. (2009). *Hispanics, health insurance and health care access*. Retrieved from http://pewhispanic.org/reports/report.php?ReportID=113

Matsaganis, M., Katz, V. S., & Ball-Rokeach, S. J. (2011). *Understanding ethnic media: Producers, consumers and societies*. Thousand Oaks, CA: Sage Publications.

Mock, J., McPhee, S. J., Nguyen, T., Wong, C., Doan, H., Lai, K. Q., . . . Bui-Tong, N. (2007). Effective lay health worker outreach and media-based education for promoting cervical cancer screening among Vietnamese American women. *American Journal of Public Health, 97*(9), 1693-1700.

Orellana, M. F. (2009). *Translating childhoods: Immigrant youth, language and culture.* New Brunswick, NJ: Rutgers University Press.

Ortega, A. N., Fang, H., Perez, V. H., Rizzo, J. A., Carter-Pokras, O., Wallace, S. P., & Gelberg, L. (2007). Health care access, use of services, and experiences among undocumented Mexicans and other Latinos. *Archives of Internal Medicine, 167*(21), 2354-2360.

Passel, J. S., & Cohn, D. (2009). *A portrait of unauthorized immigrants in the United States.* Retrieved from http://pewhispanic.org/files/reports/107.pdf

Pylypa, J. (2001). Self-medication practices in two Californian Mexican communities. *Journal of Immigrant Health, 3*(2), 59-75.

Ransford, H. E., Carrillo, F. R., & Rivera, Y. (2010). Health care-seeking among Latino immigrants: Blocked access, use of traditional medicine, and the role of religion. *Journal of Health Care for the Poor and Underserved, 21*(3), 862-878.

Reinschmidt, K., Hunter, J., Fernandez, M., Lacy-Martinez, C., Guernsey de Zapien, J., & Meister, J. (2006). Understanding the success of *promotoras* in increasing chronic disease screening. *Journal of Health Care for the Poor and Underserved, 17*(2), 256-264.

Rhodes, S. D., Foley, K. L. Zometa, C. S., & Bloom, F. R. (2007). Lay health advisor interventions among Hispanics/Latinos: A qualitative systematic review. *American Journal of Preventive Medicine, 33*(5), 418-427.

Rideout, V., Roberts, D. F., & Foehr, U. G. (2005). *Generation M: Media in the lives of 8-18-year-olds.* Menlo Park, CA: Henry J. Kaiser Family Foundation.

Rodríguez, M. A., Bustamante, A. V., & Ang, A. (2009). Perceived quality of care, receipt of preventive care, and usual source of health care among undocumented and other Latinos. *Journal of General Internal Medicine, 24*(3), 508-513.

Rothman, R. L., Malone, R., Bryant, B., Wolfe, C., Padgett, P., DeWalt, D. A., . . ., Pignone, M. (2005). The spoken knowledge in low literacy in diabetes scale: A diabetes knowledge scale for vulnerable patients. *The Diabetes Educator, 31*(2), 215-224.

Salmon, C. T., Wooten, K., Gentry, E., Cole, G. E., & Kroger, F. (1996). AIDS knowledge gaps: Results from the first decade of the epidemic and implications for future public information efforts. *Journal of Health Communication, 1*(2), 141-156.

Schwarte, L., Samuels, S. E., Capitman, J., Ruwe, M., Boyle, M., & Flores, G. (2010). The Central California Regional Obesity Prevention Program: Changing nutrition and physical activity environments in California's heartland. *American Journal of Public Health, 100*(11), 2124-2128.

Shim, M. (2008). Connecting Internet use with gaps in cancer knowledge. *Health Communication, 23*, 448-461.

Siegal, R., Cokkinides, V., Jemal, A., & Ward, E. (2006). *Cancer facts and figures for Hispanics/Latinos*. Atlanta, GA: American Cancer Society.

Small, M. L. (2011). *Unanticipated gains: Origins of network inequality in everyday life.* Oxford, UK: Oxford University Press.

Subervi-Vélez, F. (1999). Spanish-language television coverage of health news. *The Howard Journal of Communication, 10*, 207-228.

Tienda, M., & Mitchell, F. (Eds.). (2006). *Hispanics and the future of America*. Washington, DC: The National Academies Press.

U.S. Department of Health & Human Services. (2009). *Office of Minority Health*. Retrieved from http://www.omhrc.gov/templates/browse.aspx?lvl=1&lvlID=2

Vargas, L., & dePyssler, B. (1999). U.S. Latino newspapers as health communication resources: a content analysis. *The Howard Journal of Communication, 10*, 189-205.

Viswanath, K., & Finnegan, J. R. (1996). The knowledge gap hypothesis: Twenty-five years later. *Communication Yearbook, 19*, 187-227.

Viswanath, K., Steele, W. R., & Finnegan, J. R., Jr. (2006). Social capital and health: Civic engagement, community size, and recall of health messages. *American Journal of Public Health, 96*(8), 1456-1461.

Waldinger, R., & Lichter, M. I. (2003). *How the other half works.* Berkeley: University of California Press.

Wilkin, H. A. (2006). Diagnosing communication connections: Reaching underserved communities through existing communication ecologies. *Dissertation Abstracts International, 67*(06).

Wilkin, H. A., & Ball-Rokeach, S. J. (2006). Reaching at risk groups: The importance of health storytelling in Latino media. *Journalism: Theory, Practice, Criticism, 7*(3), 283-304.

Wilkin, H. A., Ball-Rokeach, S. J., Matsaganis, M. D., & Cheong, P. (2007). Comparing the communication connections of geo-ethnic communities: How people stay on top of their communities. *Electronic Journal of Communication, 17*(2), Retrieved from http://www.cios.org/EJCPUBLIC/017/1/01711.HTML.

Wilkin, H., & González, C. (2006, June). *Are Spanish-language television shows connecting Latino residents in Los Angeles to their health storytelling networks?* Presented at the International Communication Association Annual Conference, Dresden, Germany.

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