Cultural Understandings of Mental health: The Role of Language and Ethnic Identity

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Mexican Americans interviewed in Spanish (vs. English) tend to have worse self-rated health despite their low morbidity and mortality. This project tests whether this language-of-interview effect also exists in the realm of mental health, and whether this pattern is due to Spanish-language interviewees' lower acculturation to the United States. Analyses rely on secondary data from 865 Mexican Americans from the National Latino and Asian Americans Study. Multinomial logistic regressions are conducted to test whether language of interview is associated with dissonance between self-rated mental health (SRMH) and diagnostic criteria for any of the most common psychiatric disorders. Acculturation measures are added to the model to explore its role. Results show that respondents interviewed in Spanish have higher risk of worse SRMH despite not having psychiatric disorders. Acculturation measures explain the association between interview language and SRMH without psychiatric disorders. Specifically, language proficiency and ethnic identity (acculturation measures) appear to be the main drivers of this change. Consistent with the physical health literature, Spanish-language interviewees tend to have worse SRMH without psychiatric disorders (dissonant outcomes), compared to English-language interviewees. Results also suggest that lower acculturation to the United States among Spanish-language interviewees explains these patterns. Research on the relationship between acculturation measures and understandings of mental health among Mexican Americans can provide insights about their help-seeking behaviors and treatment. Implications for other cases of international migration are also discussed.
Keywords: Self-rated mental health, psychiatric disorders, language, ethnic identity, Mexican Americans.

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International migration from developing countries to developed countries has steadily increased in the last three decades. In 2017, about 258 million people lived in foreign countries accounting for 3.4 percent of the world population, compared to 2.9 percent in 1990 (United Nations, 2017). This same report shows that the United States hosts the largest number of international migrants with 19 percent of the world's total migrant population in 2017. This means that more and more people (and their children) are having to adapt to the social, economic and political conditions of the United States, to its norms and institutions. Since Mexican Americans are the fastest growing ethnic group in the United States (Colby & Ortman, 2015; Corona et al, 2017), their health outcomes have significant demographic and policy implications for the U.S. and can illustrate the complexity of the immigrant experience more generally. For instance, the mental health of this growing population can have a direct effect on their productivity and quality of life. Psychiatric disorders are the leading cause of years lived with disabilities worldwide (Whiteford et al., 2013). Therefore, understanding how the adaptation process affects Mexican Americans' mental health is the first step to developing public health policies.

The study of Mexican Americans' mental health needs to be contextualized within the literature on the so-called "immigrant health paradox." This paradox contends that immigrants have lower morbidity and mortality than U.S.-born despite their overall socioeconomic disadvantage and discrimination (Burnam et al., 1987; Palloni & Arias, 2004), factors that are associated with poor health (D'Anna, Ponce, & Siegel, 2010). Some studies on the immigrant paradox in relation to physical health have also found that Mexican immigrants rate their own overall health worse than U.S.-born Mexicans, even with their health advantage (Finch, Hummer, Reindl, & Vega, 2002; Kandula, Lauderdale, & Baker, 2007; Ullah, Ashraf, & Shah, 2016). There might be cultural differences in the ways immigrants and U.S.-born understand their health. The latter, for example, may assess their health based on medical diagnoses as it is usually the norm in the U.S.

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(Smith, 2014), while immigrants may rely on factors beyond symptoms, such as social status, to assess their own health.

Language is an essential tool to maintain and acquire cultural values and may trigger cultural responses (Tarman, 2016). Aikhevald and Storch (2013), for example, argue that language and culture are interdependent and they have the power to even shape sensorial and cognitive experiences. For example, cultures that are more egalitarian, such as the Amazonian, tend to rely on the hearing as their main sense to gather information because it is less intrusive, while European cultures rely heavily on their sight. There is also evidence that language of interview can shift one's reported feelings (Dewaele & Nakano, 2012). Spanish, then, may trigger some sensations and feelings that might be different than those when interviewed in English. Language of interview is often used as an indicator of acculturation to the United States, with interviews in English implying proficiency in English, and consequently higher acculturation (Alegría et al., 2007; Guarnaccia et al., 2007; Jiménez, You, Padilla, & Powers, 2003; Kandula et al., 2007; Vijayavalsalan, 2018). Similarly, numerous studies show an association between other measures of acculturation (e.g., nativity) and self-rated health (see review by Lommel & Chen, 2016), which improves with higher acculturation. Unlike the literature on physical health, no one has investigated the role of language of interview in the dissonance between self-rated mental health (SRMH) and psychiatric symptoms. To address this gap, , I use data from the National Latino and Asian American Study to investigate whether adults who identify as Mexican or Mexican American (hereafter "Mexican Americans" who can be immigrants or U.S.-born) rate their mental health and endorse psychiatric symptoms differently in Spanish compared to English, as it has been observed in the literature of overall/physical health. Given the presence of acculturation studies in the immigrant health paradox literature, I also investigate whether any difference in mental health outcomes by language of interview can be explained by levels of acculturation among Spanish- and English-speaking respondents.

Background Dissonance in measures of health

An emerging puzzle in the immigrant health literature is that immigrants rate their overall health worse than U.S.-born (Bzostek et al., 2007; Finch et al., 2002; Kratt, 2018) despite the well-documented health advantages of immigrants (Burnam et al., 1987; Michou et al., 2016; Palloni & Arias, 2004). In other words, the immigrant health paradox holds for medical diagnoses/conditions but not for self-rated health. Some aspects of the immigration experience may affect diagnoses, while other aspects affect self-rated health. The adoption of unhealthy behaviors that are more common in the U.S. such as smoking and eating more high-fat foods may lead to diseases like obesity and diabetes (Kimbro, 2009; James, 2018; Lopez-Gonzalez, Aravena, & Hummer, 2005). On the other hand, better socioeconomic conditions and higher levels of adaptation to American society may lead to a perception that one's health is better. This could explain why the discrepancy between overall self-rated health and mortality risk decreases with more time in the U.S.

If physical conditions and self-rated overall health change with level of adaptation to the United States, the process of adaptation may affect immigrants' mental health as well. Psycho-emotional distress is highly medicalized –conceptualized and treated as a medical condition— in the United States compared to other societies (Conrad, 1992; Smith, 2014; Wilder et al., 2017). For example, Americans may understand intense distress as a sign of a psychiatric/medical problem, while Mexicans may understand it as normal part of life. Then, worse SRMH in the absence of psychiatric disorders may signal that Mexicans do not conceptualize their mental health (only) based on psychiatric symptoms as established by American medical institutions. With more time in the U.S. and greater adoption of American values—considered to reflect higher acculturation—Mexicans may start to rate their mental health based on the presence or absence of symptoms.

Although relatively little research to date has focused on discrepancies between SRMH and psychiatric symptoms, there are at least two studies about this discrepancy among various racial and ethnic minority groups. Compared to non-Hispanic whites, blacks, Latinos and Asians were found to rate their mental health more poorly, despite having lower rates of mood disorders (Kim et al., 2011). This research also found a greater correspondence between non-Hispanic whites' symptoms and SRMH than for blacks and Latinos. On the other hand, at least one study finds discrepancies between SRMH and psychiatric symptoms, but in the opposite direction. Zuvekas and Fleishman (2008) found that blacks and Latinos tended to rate their mental health *better* than non-Hispanic whites, regardless of psychiatric symptoms. These studies, however, group all Latinos together, obscuring important heterogeneity based on national origin and time in the U.S. To my knowledge, no one has investigated whether the discrepancy between SRMH and

psychiatric symptoms holds particularly for Mexican Americans (rather than all Latinos) in the realm of mental health, and whether this discrepancy varies by language of interview.

Language of interview

Researchers have consistently found that Latinos (including Mexican Americans) who are interviewed in Spanish tend to have worse self-rated health than English-interviewees (Angel & Guarnaccia, 1989; Bzostek et al., 2007; Jiménez et al., 2007; Viruell-Fuentes et al., 2011). It is not clear why. Language of interview may represent the language and context in which certain experiences relevant to mental health occur. For instance, being interviewed in Spanish might trigger memories related to racial discrimination and devaluing feelings of the self, which may lead to poorer self-rated (mental) health. Scholars including Dewaele and Nakano (2013) and Aydin and Koch (2012) found that feelings consistently changed when bilinguals were asked to report their feelings in different languages. Moreover, some of these memories or health-related terms may even be language-specific. For Chinese, for example, the lexicon available to describe psycho-emotional distress links parts of the body with intangible emotions (See Lee, Kleinman and Kleinman, 2007). These concepts of health may not be available in English. Something similar may happen for Spanish speakers.

Often, language of interview is used as a measure of acculturation, which refers to "the newcomers' adoption of the culture (i.e., behavior patterns, values, rules, symbols etc.) of the host society (or rather an overly homogenized and reified conception of it)" (Gans, 1997: 877). Based on this definition of acculturation, Mexican Americans who choose to be interviewed in English would be considered more acculturated to the United States than those interviewed in Spanish (Alegría et al., 2007; Guarnaccia et al., 2007; Jiménez et al., 2003; Kandula et al., 2007). The wide use of language of interview as a measure of acculturation is not surprising, given the relevance of language in the transmission of cultural values, traditions and adaptation to new institutions. For example, proficiency in English allows immigrants to learn about and participate in American traditions. Some researchers, however, recommend caution when using language of interview as a measure of acculturation because of potential translation biases (Angel & Guarnaccia, 1989; Bzostek et al., 2007; Faltis, 2014; Heo, Han, Koch, & Aydin, 2011; Marque et al, 2018). There is evidence that the association between language of interview and self-rated overall health remains even after controlling for other acculturation measures (Ahmed, 2016; Angel & Guarnaccia, 1989; Bzostek et al., 2007; Jiménez et al., 2003). Scholars have suggested that some of this association may be explained by inadvertent differences in the meaning of the response categories in the Spanish versus English versions of the survey question, particularly "fair" in English vs. "*regular*" in Spanish (Angel & Guarnaccia, 1989; Bzostek et al., 2007; Viruell-Fuentes et al., 2011). A similar problem may also occur when measuring self-rated *mental* health in different languages.

Acculturation

According to Gans (2007), acculturation is part of the adaptation process to the host society, whereby immigrants and their children "learn the lifestyles of those whose status they seek to achieve" (153). He argues that this process can be intentional or unintentional, but it is inevitable. In order to gain benefits and thrive in the U.S., for example, immigrants or their children need to learn English to find jobs and go to school. In other words, acculturation, desired or not, is an inevitable component of adaptation. As a consequence, immigrants adopt cultural values, attitudes and behaviors from their host society to satisfy their necessities or advance in it. Alegría et al. (2004) found that higher acculturation to the U.S. increases the risk of developing psychiatric disorders for Latino immigrants. Similarly, Campbell et al. (2012) found that Latinos with greater levels of acculturation in the U.S. (measured by U.S. citizenship and economic status) presented worse mental health than less-acculturated Latinos. Moreover, Scribner (1996) argues that acculturation is the most plausible mechanism underlying the immigrant paradox. With greater acculturation to the U.S., immigrants may adopt various aspects of American culture and society (Aydin, 2012) that place them at risk for psycho-emotional distress and psychiatric disorders. I argue that one such adoption is a medicalized concept of health.

Most studies use a few measures of acculturation to represent the entire process without paying attention to particular aspects of it (Alanay & Aydin, 2016). However, I suspect that some aspects of acculturation may help to explain Mexican Americans' mental health outcomes more than others. For instance, ethnic identity has been found to be protective against psycho-emotional distress caused by racism

and discrimination (Duffy et al., 2018; Haslam, Jetten, Postmes, & Haslam, 2009; Hughes, Kiecolt, Keith, & Demo, 2015; Ida & Christie-Mizell, 2012). Ethnic identity, however, may not be equally protective for all Mexican Americans. Ethnic identity is not fully formed until late adolescence (Phinney 1989; Yigit & Tatch, 2017). Those who migrate younger may lack a strong Mexican identity, which may place them at higher risk of psychiatric disorders. On the other hand, migrating young may facilitate acculturation to American culture by entering institutions of socialization such as schools early on in life (Alegría et al., 2007), leading to better SRMH.

Another common measure of acculturation is English proficiency. Since language is the medium through which cultural values, norms and ideologies are transmitted and cultural bonds can be formed, English proficiency is an important proxy for acculturation (Alegría et al., 2007; Damgaci & Aydin, 2014; Guarnaccia et al., 2007). Mexican Americans who are proficient in English may have a better chance to find jobs, go to school and feel better integrated in American society, which could benefit their mental health. However, Mexican Americans with low English proficiency may benefit from their proficiency in Spanish in other ways. Spanish may be protective of mental health by maintaining access to social support from other Mexican Americans and developing ethnic pride against racism (Phinney & Devich-Navarro, 1997). There is evidence from communities around the world that ethnic identity and cultural practices can be reinforced by exposure to a cohesive ethnic community, which may offer support especially to those who do not speak the language of the host country (Ugurlu, 2014). For Mexican Americans, Spanish proficiency may be more beneficial especially for those who are not proficient in English.

Research Aims

Understanding the way Mexican Americans assess their mental health requires a close examination into specific facets of their acculturation experience to the United States. Considering the effect of language of interview as a trigger of cultural norms, ethnic identity and language proficiency as intertwined mechanisms of cultural beliefs advances the literature on the immigrant health paradox, mental health, ethnicity, cultural studies and sociolinguistics. In addition, this paper contributes to the acculturation literature by testing the extent to which language of interview is a reflection of acculturation levels among the Mexican American population. Specifically, this paper aims to answer the following research question: ***Do mental health outcomes vary by language of interview?*** I hypothesize that Spanish-interviewees tend to rate their mental health more poorly, despite their lack of psychiatric disorders (dissonant measures). I also aim to answer: ***What is the role of acculturation?*** I assess whether acculturation can explain the language-of-interview association with mental health outcomes. If acculturation explains this association, it would mean that language of interview is an appropriate measure of acculturation in this context. I also investigate what specific aspects of acculturation affect Mexican Americans' mental health, including interactions between age at immigration and ethnic identity, and English and Spanish proficiency scales.

Data and Methods

To answer these questions, I conduct secondary data analysis using data from the 2002-2003 National Latino and Asian American Study (NLAAS). This is a community-based household survey composed of a nationally representative sample of non-institutionalized adults (18 or older) of Latino (N=2,554) and Asian (N=2,095) descent living in the United States. In particular, the NLAAS sampled the following ethnicities: Mexicans, Cubans, Puerto Ricans, other Latinos, Chinese, Vietnamese, Filipinos and other Asians. Among all Latinos, Mexicans tend to be younger, less educated and poorer socioeconomically than other Latinos (Alegría et al., 2004). The authors of the NLAAS used etic (based on objective, neutral measures) and emic (culture-based measures) methodologies to ensure the validity and reliability of the measures and different scales in the NLAAS, so that other researchers using the NLAAS database can produce accurate estimates. The authors of the NLAAS used etic and emic methodologies to ensure the validity and reliability of the measures and different scales in the NLAAS, so that other researchers using the NLAAS database can produce accurate estimates. For details about the validity and reliability of NLAAS measures, see Alegría et al. (2004). The NLAAS is particularly useful for my analyses because of the large sample of Mexican Americans, and the immigration-related variables included in the survey. Out of 4649 respondents in the original dataset, I limit my sample to 865 respondents who identified themselves as Mexican or Mexican American. Of these 865 respondents, 11.3% had missing responses on at least one variable of interest. Table 1 shows the amount of missing values for each variable used in my analyses. To enhance power and reduce bias (Marshall, Altman, & Holder, 2010), I conduct 15 multiple imputations based

on recommendations by Bodner (2008) and White, Royston and Wood (2011). All results presented include the imputed data.

Measures

Mental health outcomes. I use a measure of SRMH and a measure of diagnostic criteria for multiple psychiatric disorders. The SRMH measure asks respondents to answer the following question: "How would you rate your overall mental health – excellent, very good, good, fair, or poor?" I recode this variable into a binary variable where the fair/poor/good category is labeled "worse SRMH" and the very good/excellent category, which reflects perceptions of optimal health, is labeled "better SRMH."

The psychiatric disorders measure relies on the past-year diagnostic criteria of the DSM-IV using the Composite International Diagnostic Interview (CIDI) of the World Mental Health Survey Initiative version of the World Health Organization (Alegría et al., 2004). I construct this measure based on Alegría's et al. measure of "any disorder" (2007), which includes dysthymia, major depressive episode, agoraphobia, social phobia, agoraphobia without panic disorder, generalized anxiety disorder, post-traumatic stress disorder, panic disorder, drug abuse, drug dependence, alcohol abuse, and/or alcohol dependence (α=.67). I combine these variables into a single binary variable, where meeting criteria for at least one psychiatric disorder is labeled "with disorder" and not meeting criteria for any disorder is labeled "no disorder."

I combine these two dummy variables and create a four-category dependent variable that measures *mental health outcomes*: (1) better SRMH–no disorder, (2) worse SRMH–with disorder, (3) better SRMH–with disorder and (4) worse SRMH–no disorder. Combining both measures into these four groups allows me to investigate the circumstances under which measures of mental health are concordant and discordant among Mexican Americans.

Language of interview. Respondents were asked to select their preferred language for the interview. *Language of interview* is a dichotomous variable where Spanish=1. Interviewers were fully bilingual and were trained to use appropriate terms throughout Spanish interview based on the respondent's country of origin/ancestry. For example, "closets" is translated into Spanish as "armarios" for Mexicans but as "closets" for the rest of Latino subgroups. See Alegría et al., (2004) for details.

Acculturation. I use *age at immigration*, *U.S. citizenship, ethnic identity scale, English proficiency* and *Spanish proficiency scales* and *family language* as measures of acculturation. I include *age at immigration* to measure the stage of life when respondents first came into direct contact with American society. Previous studies have also used age at immigration as an immigration-related factor that can shape immigrants' adaptation to the U.S. (Alegría et al., 2007; Guarnaccia et al., 2007). I create multiple dummy variables: *child* (migrated before age 18), *teen* (migrated at ages 13-17), and *adult* (migrated at 18 years old or older), and *U.S.-born* is used as reference. *U.S. citizenship* is a dichotomous variable, with non-citizens as reference.

To measure *ethnic identity* (α=.74), I use the following items: (1)how strongly do you identify with others of same ethnic descent, where 1-very strong, 2-somewhat strong, 3-not very strong and 4-not at all; (2)how close do you feel in ideas/feelings with people of same ethnic descent, where 1-very close, 2-somewhat close, 3- close and 4-not at all; and (3)how much time would you like to spend with people of same ethnic group, where 1-a lot of time, 2-some time, 3-a little time and 4-not at all. I reverse code each of these items, so higher scores indicate stronger Mexican identity. This three-item scale has been used in other studies (Alegría et al., 2007; Guarnaccia et al., 2007) to approximate the conceptual definition of ethnic identity which mainly refers to the sense of closeness and belonging to one's racial/ethnic group (Phinney 1989).

The language proficiency scales, developed by Felix-Ortiz, Newcomb and Myers (1994), have been used in previous research (Alegría et al., 2007; Guarnaccia et al., 2007). The *English proficiency* scale (α=.97) includes three items that separately measure (based on respondents' self-reports) how well the respondent can (1) speak, (2) read and (3) write in English. Responses range from 1-4: 1-poor, 2-fair, 3-good, or 4-excellent. I use the sum score of how well each participant can speak, read and write in English, with higher scores indicating higher proficiency. I construct the *Spanish proficiency* scale (α=.96) in the same manner.

Family language consists of a single item that asks respondents about the most common language they use with family members in 5 categories: Spanish only, mostly Spanish, Spanish and English equally, mostly English and English only. I recoded this variable into three categories: Mostly/only Spanish; English and Spanish; and mostly/only English as the reference category. Family language, as used in previous research (Guarnaccia et al., 2007; Shell, Peek & Eschbach, 2013), is an important acculturation measure because cultural norms are passed on as part of family values and through a common language.

Control variables. I control for demographic factors and health insurance that could be associated with both predictors and mental health outcomes. *Age at interview* is a continuous variable that ranges from 18 to 97 years. *Income-to-poverty ratio* is a continuous measure (range=0-17) of the ratio of the household's income to the federal poverty threshold for a family of that size and composition. I use *education* as a categorical variable with the following categories: "less than high school" (reference category), "high school", "some college" and "college degree or more." Gender is a dichotomous variable, where males are the reference. The categories for the *marital status* variable are "married/cohabiting," "previously married" (divorced, separated or widowed) and "never married" as reference. *Health insurance* is a dichotomous variable that includes various types of coverage (e.g., through employment), where no insurance is used as reference.

Analytic strategy

I conduct multinomial logistic regression analyses to test the relationship between language of interview (independent variable) and mental health outcomes (four-category dependent variable) in model 1. In model 2, I add acculturation measures to test whether they can explain any relationships found in model 1. I pay closer attention to the worse SRMH–no disorder outcome (compared to better SRMH-no disorder), which aligns to the patterns found in the literature described above. I control for age at interview, income-to-poverty ratio, education, marital status and health insurance coverage in all models. National weights are applied to adjust for complex sampling design and ensure representativeness of non-institutionalized Mexican American adults living in the U.S. To further elucidate the relationship between acculturation and mental health outcomes, I examine interactions between age at immigration and ethnic identity, and English proficiency and Spanish proficiency in model 3.

The interpretation of relative risk ratios for interaction terms can conceal interaction effects that may actually exist (Karaca-Mandic et al., 2012; Norton et al., 2004). Model-fitness tests such as Wald test indicate whether the interaction terms improve the model but can hide the presence of interaction effects. For instance, Table 2 shows no statistical significance for any interaction term and Wald tests indicate significance only for the interaction between age at immigration and ethnic identity. Nonetheless, Figures 1 and 2 illustrate the interactions effects for both sets of variables. Graphing predicted probabilities was necessary to observe interactions between age at immigration and ethnic identity, and Spanish and English proficiency.

Results
Sample characteristics

Table 1 shows the descriptive characteristics for my sample of Mexican Americans (N=865). Mental health outcomes significantly differ by language of interview. About 52.4% of English-interviewees have optimal mental health (better SRMH-no disorder), compared to 47.7% of Spanish-interviewees. The largest language differences lie in the groups with dissonant mental health outcomes. For instance, 75.5% of Spanish-interviewees have worse SRMH and no disorders, compared to 24.5% of English-interviewees. This provides initial support for my hypothesis that Spanish-interviewees may have worse SRMH but no disorders.

Consistent with previous literature, Spanish-interviewees present lower acculturation to the United States than English-interviewees. Spanish-interviewees are much more likely to be foreign-born, to have migrated to the U.S. as adults, to be less proficient in English, more proficient in Spanish, to use Spanish language at home, and less likely to be U.S. citizens. There was no statistically significant difference in ethnic identity between Spanish- and English-interviewees, with both groups reporting strong Mexican identity.

The effect of language of interview

Table 2 shows the results from multinomial logistic regression analyses to test whether the language-of-interview association with self-rated overall health—where Mexicans rate their health worse if interviewed in Spanish rather than English, regardless of physical conditions—is also present in mental health. Results in Table 2 are net of demographic factors and insurance coverage. The reference for all groups is better SRMH and no disorder (concordant outcome).

The association between language of interview and mental health outcomes is only statistically significant for respondents with worse SRMH-no disorder (discordant outcome), compared to better SRMH-no disorder. Model 1 (before adding acculturation measures) shows that Mexicans interviewed in Spanish have higher relative risk (RRR=2.12, p<.01) of worse SRMH-no disorder (a discordant outcome), compared to English-interviewees. This remains even when controlling for sociodemographic factors and health

insurance. Aligned to research in physical health, my results provide empirical evidence to support my hypothesis that Spanish-interviewees have worse SRMH-no disorder compared to English-interviewees.

Table 1.
Sample characteristics and bivariate analyses of all variables by language of interview, N=865

	Total Sample (N=865)			Spanish Interviews (N=481)		English Interviews (N=384)	
	%	Mean (SE)	# Imputed	%	Mean (SE)	%	Mean (SE)
Mental health outcomes***			0				
Better SRMH-no disorder	47.44			47.65		52.35	
Worse SRMH-with disorder	8.62			46.29		53.71	
Better SRMH-with disorder	6.79			36.35		63.65	
Worse SRMH-no disorder	37.15			75.53		24.47	
Age at immigration***			5				
U.S.-born	42.93			15.43		84.57	
Child	10.77			54.83		45.17	
Teen	13.59			90.72		9.28	
Adult	32.61			98.65		1.35	
Ethnic identity		10.05 (.05)	7		10.12 (.07)		9.96 (.08)
Proficient in English***		6.99 (.27)	0		4.44 (.10)		10.38 (.15)
Proficient in Spanish***		8.02 (.16)	80		8.77 (.15)		7.02 (.20)
Language use home**			80				
Mostly/only English	21.92			8.38		91.62	
Mostly/only Spanish	60.76			86.17		13.83	
Spanish/English	17.32			19.21		80.79	
U.S. citizen***	54.67		6	26.75		73.25	
Age		36.56 (.63)	0		36.72 (.77)		36.34 (1.42)
Female	46.03		0	55.76		44.24	
Poverty***		2.72 (.15)	0		2.04 (.12)		3.63 (.30)
Education***			0				
Less than high school	52.55			78.28		21.72	
High School	24.40			43.36		56.63	
Some college	15.97			25.01		74.99	
College or more	7.07			19.96		80.04	
Marital status**			0				
Never married	19.07			42.52		57.48	
Married	69.87			62.23		37.77	
Previously married	11.06			50.06		49.93	
Have health insurance***	56.87		0	43.87		56.13	

Estimates are weighted and imputed. * p <.05; ** p <.01; *** p < .001. Source: National Latino and Asian American Study, 2002-2003.

The explanatory role of acculturation

When acculturation is included in the model, the magnitude of the association decreases (from RRR=2.12 in model 1 to RRR=1.42 in model 2) and the statistical significance (at p<.01 level) disappears. This suggests that the tendency of Spanish-interviewees to rate their mental health worse with no psychiatric disorders can be explained, at least in part, by lower levels of acculturation. These patterns remain under a variety of different model specifications (not shown here), including treating SRMH and psychiatric disorders separately and recoding SRMH with the "good" category together with excellent/very good (vs. fair/poor).

In addition, some particular aspects of acculturation seem more relevant for Mexican Americans' mental health than others. Stronger Mexican identity decreases the risk of worse SRMH-no disorder (RRR=0.82, p<.01). Spanish proficiency also decreases the risk of worse SMRH-no disorder, at a marginal level (p<.10). In other words, lower acculturation seems protective for SMRH for respondents without psychiatric disorders, contrary to my expectations that lower acculturation (as indicated by strong ethnic identity and higher Spanish proficiency) would *increase* the risk of worse SRMH without disorder. Proficiency in English, on the other hand, affects mental health outcomes as expected: higher English proficiency decreases the risk of worse SRMH-no disorders (RRR=0.79, p<.001).

Table 2 also shows that language of interview and acculturation measures were not significantly associated with the other two categories of the outcome variable (better SRMH-with disorder, and worse SRMH-with disorder). It is possible that this lack of statistical significance is due to small sample sizes for these two other (non-referent) groups.

Interaction effects: Unveiling how acculturation works

To unpack findings from models 1 and 2 even further, I explore interactions between age at immigration and ethnic identity, and English and Spanish proficiency. When these interaction term are included in the model 3 (Table 2), Spanish proficiency becomes statistically significant at p<.05 level (from marginal level at p<.10 in model 2). This means that the association between Spanish proficiency and worse SRMH-no disorder is only significant at particular levels of English proficiency.

Figure 1 shows that stronger ethnic identity seems protective of SRMH and psychiatric symptoms in most cases. The probability of better SRMH-no disorder increases with stronger ethnic identity for all age-at-immigration groups. Although U.S.-born have higher probability of better SRMH-no disorder (vs. immigrants) at weaker levels of ethnic identity, all respondents converge at higher probability of optimal concordant mental health (above .5) at the strongest levels of ethnic identity. I also find that those who migrated as children have the lowest probability of worse SRMH-no disorder when ethnic identity is weaker. However, when ethnic identity is strongest, their probability of worse SRMH-no disorder is the highest. This suggests that having a strong ethnic identity may be less beneficial for Mexican immigrants who migrated as children. On the other hand, Mexicans who migrated as adults have the lowest probabilities of worse SRMH-no disorder at the strongest level of ethnic identity.

Figure 2 shows the interactions between English and Spanish proficiency: English proficiency is beneficial for mental health only when Spanish proficiency is low, and vice versa. The X-axis shows Spanish proficiency, and the lines represent different levels of English proficiency. Mexican Americans who are most proficient in English have probabilities higher than 0.6 of having better SRMH-no disorder (concordant) across levels of Spanish proficiency (see the relatively flat slope of the red line). For those with lower English proficiency, the probability of better SRMH-no disorder increases with higher Spanish proficiency. The steepness of this increase is particularly large for those with the lowest English proficiency.

I also find that Mexican Americans with the lowest proficiency in English are the most likely to have worse SRMH-no disorder (discordant) across all levels of Spanish proficiency, although this probability decreases with higher proficiency in Spanish. The most proficient in English have the lowest probability of worse SRMH-no disorder regardless of their Spanish proficiency. In other words, Spanish proficiency protects against worse SRMH (among those without disorder) only if proficiency in English is low. For the most proficient in English, who have the lowest probability of worse SRMH-no disorder, Spanish proficiency does not matter.

Table 2.

Relative risk ratios (RRR) for predictors of mental health outcomes, N=865.

	Worse SRMH - with Disorder			Better SRMH - with Disorder			Worse SRMH - No Disorder		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Spanish interview	0.74 (.22)	0.99 (.60)	0.98 (.63)	0.58 (.21)	0.49 (.39)	0.50 (.39)	2.12 (.46)**	1.42 (.36)	1.39 (.34)
Age at immigration (U.S.-born)									
Child		0.85 (.41)	24.95 (68.27)		1.50 (.55)	9.06 (29.64)		1.19 (.28)	0.85 (1.79)
Teen		1.00 (.66)	13.27 (27.72)		0.95 (1.01)	0.01 (.05)		1.03 (.42)	0.92 (1.31)
Adult		1.27 (.79)	1.21 (3.01)		1.29 (.93)	4.74 (8.78)		0.88 (.28)	2.16 (2.74)
Ethnic identity		0.94 (.06)	1.02 (.09)		0.98 (.08)	1.00 (.12)		0.82 (.05)**	0.84 (.07)*
English proficient		0.94 (.06)	1.05 (.14)		0.91 (.10)	0.74 (.19)		0.79 (.04)***	0.71 (.06)***
Spanish proficient		1.02 (.07)	1.14 (.17)		0.87 (.07)	0.69 (.11)*		0.93 (.04)^	0.84 (.06)*
Language use home (Mostly/only English)									
Mostly/only Spanish		0.91 (.71)	0.92 (.74)		0.66 (.32)	0.58 (.31)		0.69 (.24)	0.64 (.21)
Spanish/English		1.56 (.76)	1.58 (.85)		1.19 (.55)	1.03 (.48)		0.92 (.27)	0.84 (.24)
U.S. citizen		2.46 (1.18)	2.54 (1.24)		0.68 (.47)	0.62 (.45)		1.34 (.42)	1.29 (.39)
Interactions									
Child*ethnic identity			0.71 (.17)			0.83 (.27)			1.03 (.23)
Teen*ethnic identity			0.76 (.17)			1.52 (.51)			1.01 (.14)
Adult*ethnic identity			1.00 (.19)			0.89 (.14)			0.92 (.11)
English*Spanish proficiencies			0.99 (.02)			1.03 (.02)			1.01 (.01)

Standard errors are in parentheses. Estimates are weighted and include imputed values. ^p<.10; * p <.05; ** p <.01; *** p < .001 (two-tailed tests).
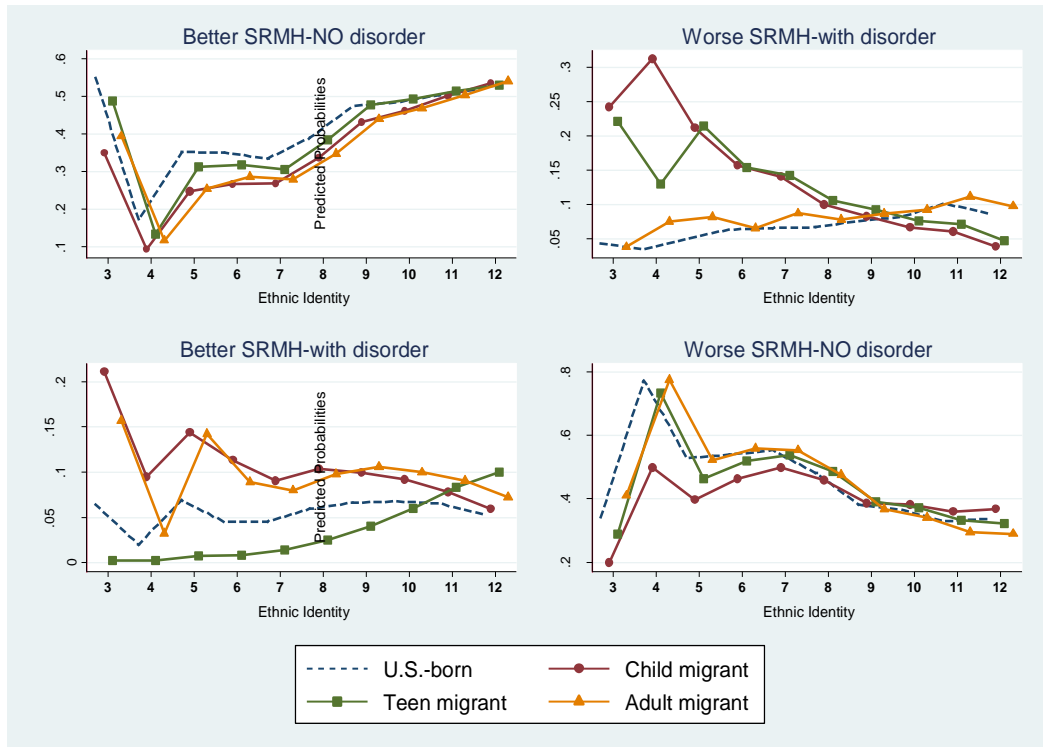Source: National Latino and Asian American Study, 2002-2003.

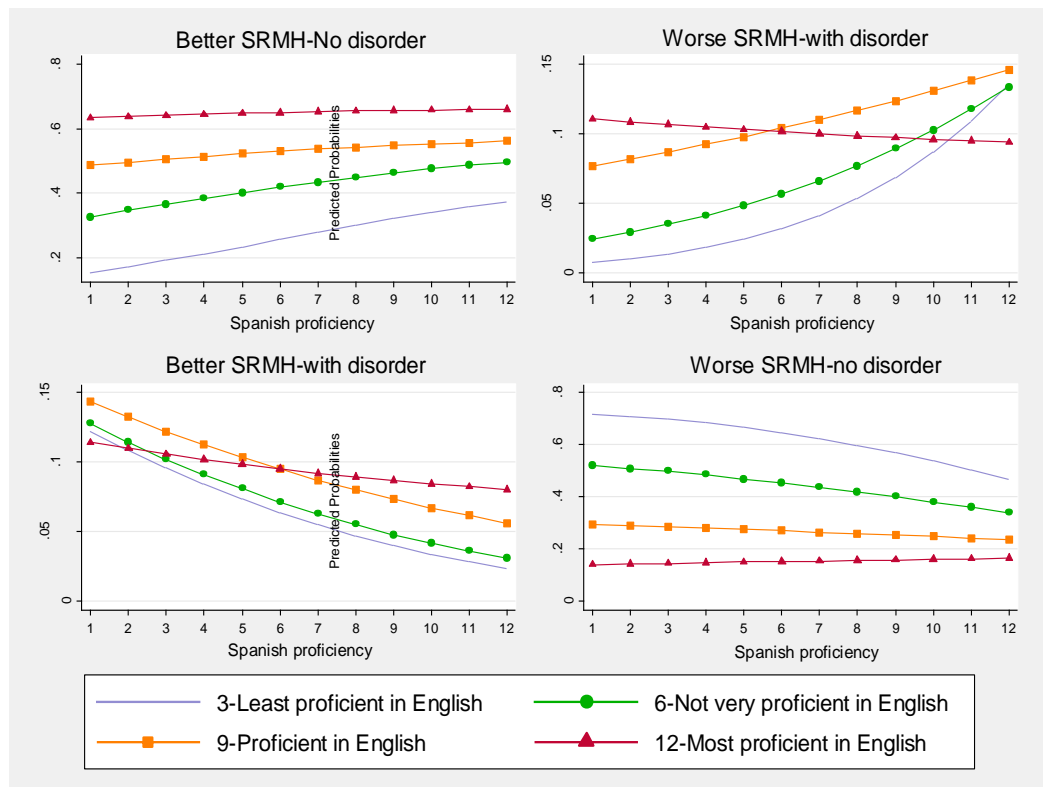*Figure 1*. Interaction effects between age at immigration and ethnic identity on mental health

Figure 2. Interaction effects between Spanish and English proficiency on mental health

Discussion
Discordance in mental health outcomes

In this paper, I investigate whether Mexican Americans' mental health outcomes (self-rated and psychiatric disorders) vary by language of interview. Most Mexican Americans in my sample do not meet criteria for any of the most common psychiatric disorders. This aligns with other national estimates showing that Mexican Americans have lower rates of psychiatric disorders than other Latino groups and non-Hispanic whites (Alegría et al., 2008). Despite their apparent resilience against psychiatric disorders, Mexican Americans tend to have sub-optimal SRMH. This resembles patterns found in physical and overall health (Bzostek et al., 2007; Kandula et al., 2007), where Mexican Americans rate their health worse than expected. In investigating the association between language of interview and mental health outcomes, I find that Spanish-interviewees have twice the risk of worse SRMH without disorder than English-interviewees. Furthermore, this association disappears once I control for acculturation, meaning that language of interview measures acculturation, at least in my sample. In other words, Spanish-interviewees have worse SRMH without disorder (discordant outcomes) because they are less acculturated to the U.S. Mexican Americans who choose to be interviewed in Spanish also tend to score lower in acculturation measures, on average.

Among the various measures of acculturation, I find that stronger Mexican identity, higher proficiency in English and higher proficiency in Spanish are all directly associated with lower risk of worse SRMH-no disorder. Respondents in my sample have very strong Mexican identities, at different ages of immigration. However, a strong Mexican identity seems more beneficial for some groups than others in terms of mental health. Mexican immigrants with strong Mexican identities have higher odds of having better SRMH without disorder (the optimal outcome) than immigrants or U.S.-born Mexicans with weaker Mexican identities. A very strong ethnic identity may improve Mexican Americans' SRMH through access to community-based social support and coping, and a sense of ethnic pride that buffers the negative impact of discrimination (Phinney & Devich-Navarro, 1997). In a similar way, ethnic identity may also protect individuals against psychiatric disorders (Hughes et al., 2015; Ida & Christie-Mizell, 2012). For these reasons, maintaining a strong ethnic identity may be somewhat more important for immigrants than for U.S.-born individuals, given immigrants' more disadvantaged position in the U.S.

Some scholars have found mixed evidence about the beneficial effects of ethnic identity on health outcomes (Brondolo et al., 2009; Pascoe & Richman, 2009; Suliman, Shah, Ullah, & Jamal, 2016). These reviews show that ethnic identity (or particular aspects of it) can be protective, neutral or even detrimental for health outcomes depending on other factors such as amount of exposure to discrimination and whether the outcome is mental or physical health. There is also evidence of the association between ethnic nationalities and health behaviors that may ultimately lead to ethnic differences in health outcomes (Halawa, Ai, & Ma, 2017). My results show that higher levels of ethnic identity are associated with better SRMH, at least among Mexican Americans without psychiatric disorders. Some scholars argue that ethnic identity can protect minorities in general against mental illnesses by providing a sense of belonging and purpose in life (Haslam et al., 2009). Ida and Christie-Mizell (2012) found that, among African Americans, support was most protective for those who were close to other blacks. This is what may happen with Mexican Americans.

English proficiency seems beneficial to mental health outcomes. The most proficient in English have the highest probability of better SRMH-no disorder. Along the same lines, the most proficient in English have the lowest probability of worse SRMH (among those without disorders). Proficiency in English may be protective in various ways. For example, it may serve as a medium to adopt American culture (Alegría et al., 2007; Guarnaccia et al., 2007) through greater access to American institutions and communication with English-speaking Americans. In fact, Li and Tsai (2015) found that social media usage in English (vs. Spanish) oriented Latinos towards mainstream American culture rather than reinforcing their Latino identity. English proficiency may also provide Mexican Americans a sense of integration to the U.S. that may boost their self-esteem and perceived well-being. English proficiency may also be associated with higher status in the U.S., where Spanish is related to destitute positions held by racial/ethnic minorities.

In addition to Mexican identity and English proficiency, Spanish proficiency has protective effects on SRMH among Mexican Americans without disorders. Being proficient in Spanish is beneficial but mostly for those who are not proficient in English. In other words, Mexican Americans who lack the protective advantages of English proficiency can still rely on Spanish to access sources of social support. The necessity to learn a second language to navigate a foreign country can cause anxiety for many (Garcia de Blakeley, Ford, & Casey, 2017), which may place one's native language as an essential tool to cope with that anxiety. For Mexican Americans, Spanish can help to maintain communication, traditions and values among co-

ethnics (Guarnaccia et al., 2007) and to find social support—found to be protective of mental health (Crockett et al., 2007).

These patterns empirically corroborate the conceptual strength of language of interview as a measure of acculturation, at least when measuring mental health outcomes among Mexican Americans. My findings, however, do not align with previous studies (Angel & Guarnaccia, 1989; Bzostek et al., 2007; Viruell-Fuentes et al., 2011) that suggest potential translational issues with the self-rated health item—which is identical to the SRMH item. In these studies, the language-of-interview effect was not explained by acculturation measures or demographic factors, indicating an independent effect on self-rated overall health. Understandings of mental health may have a more culturally-shaped load than physical health. Symptoms of physical illness are generally more tangible than mental illnesses. The latter depend on the sufferer's interpretation of symptoms, which may be more easily subjected to cultural norms.

Future directions

Future research can benefit from studying SRMH and specific psychiatric disorders among various racial/ethnic populations. The cultural values, language and political environment of non-Mexican Latinos may affect their mental health differently (Alegría et al., 2008). For example, Puerto Ricans, despite having U.S. citizenship, have higher rates of mood disorders than Mexican Americans. This may happen because Mexican Americans tend to preserve a very strong ethnic identity which seems to protect them against mental illnesses as shown in this paper. Puerto Ricans, on the other hand, have experienced a push to "Americanize" imposed by the U.S. government, which may have threatened the value of their ethnicity. See review by Guarnaccia, Martinez, and Acosta's (2005). Moreover, strength of American identity could have been another relevant measure of acculturation to the United States, but the NLAAS does not have such measure. Future research may benefit from taking this into account. It is possible that having a strong American identity presents higher risk, since the way immigrants see themselves and the way other Americans see them might be in conflict.

Although my findings add to the literature on cultural and ethnic studies, it is important to expand this investigation by investing in longitudinal work. This paper draws conclusions from data collected in 2002-2003 and, although its findings reveal contemporary issues of language and ethnicity, longitudinal studies are essential to follow up on immigrants' adaptation process to the United States. It is important to take social media into account given the global impact that networking tools may have in the exchange of cultural values and norms. For example, there is some evidence that traditional media of communication such as TV can help to bridge cultural differences between different societies, although historical conflicts might be harder to erode (Palaiologou & Gialamas, 2015). The literature on the impact of social media in re-imagining and/or connecting with other cultures is increasing given the global connectivity that the internet allows (Jin, 2018).

The NLAAS is unique in its richness of measures relevant to the study of immigrants and their health. For instance, compared to other datasets, the NLAAS provides more comprehensive instruments to capture mental health and a wider range of measures of acculturation. However, it is important to note that some scholars have raised questions about the validity of using acculturation in health research (Hunt, Schneider, & Comer, 2004). It is indeed very difficult to measure something like acculturation given the theoretical, empirical and political complexities of the process of adaptation immigrants go through in their host society. Future research should develop more accurate acculturation measures and improve the existing ones.

Implications

My findings are relevant for Mexican Americans' help-seeking behaviors and services utilization. The discrepancy between SRMH and psychiatric disorders presented in this paper suggests that Mexican Americans may not assess their mental health needs based on psychiatric symptoms. Kessler et al., (2001) found that most people who did not seek for mental health services also reported that their emotional problems did not need treatment. If Mexican Americans do not understand their mental health based on symptoms that require medical treatment, they are unlikely to seek professional help even if they need it. In fact, Vega et al., (1999) found that, among Mexican Americans with psychiatric disorders, immigrants have much lower service utilization rates than U.S.-born. One way of improving access to mental health care is to incorporate cultural literacy into the training of clinicians and reducing language barriers in care. My findings highlight the importance of language of interview and language proficiency in mental health outcomes. There is evidence that language also affects services utilization and quality of healthcare. For example, emergency

patients who are more proficient in English are more satisfied with medical services, are more likely to receive explanations about their care and to be offered follow-up appointments (Ramirez, Engel, & Tang, 2008). These authors also found that many healthcare providers do not always use professional interpreters, even when available, despite evidence of the benefits for patients with low English proficiency.

The implications of my study go beyond the U.S. context and beyond health. The projected increase in international migration makes my findings relevant for migrant communities and host countries around the globe. Language and ethnic identity are essential parts of community formation and cooperation, especially for minority groups. Countries that receive large amounts of immigrants may consider supporting the practice of minority languages and safe spaces for minority cultural practices. Since language of the host country seems to be of great benefit for immigrant groups, investing in programs that encourage language acquisition should also be considered. Migration is not limited to crossing national borders, but also happens within nations. With increasing urbanization trends, rural residents have to adapt to new values and cultural practices that dominate the urban life, which can cause distress in some migrants (Wang, 2015). Altogether, my findings related to Mexican Americans resembles complex experiences that different types of migrants may face everyday and all around the world.

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