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CULTURAL UNDERSTANDINGS OF HEALTH:
WHY DO LANGUAGE AND ETHNICITY MATTER?

By

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ABSTRACT OF THE DISSERTATION

Cultural understandings of health: Why do language and ethnicity matter?

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The literature on the well-established “immigrant health paradox” shows that recent immigrants have lower morbidity and mortality than their U.S.-born counterparts, including non-Hispanic whites, despite their socioeconomic disadvantage and exposure to racism. However, there is also evidence that the immigrant health paradox only holds when using symptom- and diagnosis-based measures of health, but does not hold when using subjective, self-rated measures of health. In particular, Latino immigrants tend to rate their overall health worse than U.S.-born Latinos and non-Hispanic whites controlling for chronic conditions. Previous research also shows that being interviewed in Spanish rather than English is associated with worse self-rated health, controlling for chronic conditions, among Latinos. Altogether, being a recent immigrant and/or being interviewed in one’s native language seem to lead to worse self-rated health, but the mechanism is poorly understood. Using survey data from nationally representative samples of Mexican American adults, Chinese American adults, and children and their mothers, this dissertation expands the literature on the immigrant health paradox and self-rated health. In particular, this work directly investigates discrepancies between diagnostic criteria and self-rated health in the particular realm of mental health as it pertains to Mexican American and Chinese American adults, who have not been studied

as widely as Latinos. This work also examines whether the tendency of negative self-rated health among Latino adults is passed on to their children. The results show that Mexican American adults have a general tendency of rating their mental health worse if interviewed in Spanish despite not meeting criteria for psychiatric disorders, which aligns with patterns found in the literature of self-rated overall health. Similar patterns are found among Chinese American adults, with interviews in Chinese leading to worse self-rated mental health without psychiatric conditions. Another important finding from this dissertation shows that Mexican-origin children tend to rate their own overall health worse than their white counterparts, controlling for a variety of conditions. Although Mexican-origin children seem to mimic their Mexican mothers' tendency for negative self-ratings of health, the children's self-rated health ratings were not as negative as their Mexican mothers' ratings of the children's health when mothers were interviewed in Spanish. Altogether, these findings indicate that language of interview may represent cultural understandings of health in which English triggers understandings of health that align to the presence or absence of symptoms as it is understood in the United States, while native languages of Mexicans and Chinese lead to more holistic concepts of health where symptoms do not fully define their experiences of health or illness.

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CHAPTER 1

Introduction

Racial/ethnic inequalities in health continue to persist in the United States, with people from different racial/ethnic backgrounds exposed to different environments and experiences that affect their health outcomes. For example, life expectancy is higher for whites than for blacks, and this difference has narrowed but persisted over time (National Center for Health Statistics 2016). Non-Hispanic whites' socioeconomic advantage and access to better healthcare have been associated with better health outcomes compared to racial minorities like blacks. Poor socioeconomic conditions and racism against blacks have been associated with higher mortality, higher morbidity and lower life expectancy compared to non-Hispanic whites (See Williams 2012). Other racial/ethnic minorities, who also face social and economic discrimination, would be expected to have worse health outcomes than whites. However, racial minorities like Hispanics and Asians have been found empirically to have *better* health outcomes than whites, despite facing more socioeconomic disadvantage and racism.

Hispanics and Asians have lower mortality rates and higher life expectancy at birth than non-Hispanic whites (National Center for Health Statistics 2016). In particular, Hispanic and Asian *immigrants* have lower morbidity (physical and mental disorders) and mortality than their U.S.-born counterparts and non-Hispanic whites (Alegría et al. 2008; Breslau et al. 2009; Takeuchi et al. 1998; Vega et al. 1998). These well-documented patterns in the literature are part of what is known as the “immigrant health paradox.”

Findings from the immigrant health paradox literature mostly focus on symptom- and diagnosis-based measures of health. Many social surveys and clinical studies,

however, rely on subjective, self-rated health as one of their primary (or only) measures of health. These studies are based on the empirically-validated and widely cited finding that self-rated health is a robust predictor of morbidity and mortality in the general population (Desalvo et al. 2005; Idler and Benyamini 1997). This link is much weaker among immigrants, however, who tend to rate their overall health as worse, despite having lower rates of lower morbidity/mortality than their U.S.-born counterparts (Bzostek, Goldman, and Pebley 2007; Finch et al. 2002; Kim et al. 2012). In other words, immigrants' subjective assessments of their own health (self-rated health) are often worse than other groups' own self-assessments, although immigrants' "objective" (symptom-or diagnosis-based) health is often better than other groups. This indicates that immigrants' self-rated health is more in line with what one would expect, given the ties between SES and health. This also means the immigrant health paradox only holds when using symptom- and diagnosis-based measures of health, and not when using self-rated health. Understanding the dissonance between symptom-based and self-rated health can expand our knowledge about the way society and cultural norms affect our conceptualizations of health.

How can we better understand the discrepancy between symptom-based health and self-rated health for immigrants in the United States? Scholars have argued that self-rated health may capture factors relevant to people's health that are missed by clinicians and surveys focused on symptoms. It is possible, for example, that immigrants may partially assess their health based on other non-medical factors such as their socioeconomic status and perceived discrimination. In the U.S., health and illness are understood and defined based on the absence or presence of physical or psychiatric

symptoms. This is called the “medical model” (Smith 2014). In societies like Mexico and China, however, understandings of health/illness may follow a more holistic model, in which health is defined not just by medical symptoms, but also by other social and cultural factors (Angel and Guarnaccia 1989; Guarnaccia and Pincay 2008; Lee, Kleinman, and Kleinman 2007).

These cultural differences in understandings and expressions of health and illness become especially relevant and important in the process of immigrants’ acculturation to the United States. Acculturation, as used in this dissertation, refers to one aspect of the adaptation process whereby immigrants adopt American values and norms with greater exposure to American culture (Gans 1997). One of the aspects of American culture that immigrants and their children may adopt is conceptualizing health based on symptoms established by Western medical institutions.

Although many scholars would identify this process as “assimilation” (Alba and Nee 2003; Portes and Zhou 1993; Waters and Pineau 2015), Gans’ definition of “acculturation” fits the purpose of this dissertation better than “assimilation” given my interest on *cultural* changes. Acculturation allows me to conceptually separate the social from the cultural, while assimilation does not. The latter involves a decline in ethnic distinction which requires that members from the host society accept the newcomers as part of their ethnic group fully, which implies that the social identity and position of both groups reach some uniformity—the social. For racial/ethnic minorities like Latinos and Asians, this may never happen given the phenotypical differences that make them visibly “less American” and the implications for their social position as being perceived as different. In this sense, assimilation does not paint a realistic picture of the rigid ethnic

distinctions that prevail in the United States. Acculturation, on the other hand, recognizes that Latinos and Asians, regardless of whether or not they are fully assimilated, may still be able to acquire cultural norms from American society that allow them to navigate American institutions more easily—the cultural. For a more in-depth review of the concept of acculturation, see the discussion by Guarnaccia and Hausmann-Stabile (2016).

In addition to these differences in defining what acculturation is, it is important to clarify that the process of acculturation should not be understood as a unidirectional phenomenon. Some scholars have argued that immigrants do not only adopt norms from the host society, but also incorporate norms of their native/ancestry group to their lives in their new place of residence and retain their ethnic identity (Dohrenwend and Smith 1962; Guarnaccia et al. 2007; Kim and Omizo 2006). Immigrants' acculturation to the United States, then, may involve adopting aspects of American culture while preserving some aspects of their ancestral/native culture. In this dissertation, I focus on the particular aspect of acculturation where immigrants and their children adopt American cultural norms mainly because of methodological limitations such as lacking appropriate measures of retention of native culture. I also use the term “acculturation” as it is most often used in the literature of the immigrant health paradox and self-rated health.

Based on these conceptual and methodological limitations, I use “acculturation” and define it as the “adoption of American cultural values, norms and behaviors” as it is more appropriate based on the measures I have available for this dissertation and the scope of this work. Using a similar definition of acculturation, there is empirical evidence to support the idea that different levels of acculturation affect the way people assess their health. Previous empirical research documents that less acculturated Latinos (based on

nativity and English proficiency) tend to have worse self-rated than more acculturated Latinos and Asians (See Lommel & Chen, 2016). These worse self-ratings among less acculturated Latinos may be related to different cultural understandings of what defines “health.”

Given that language is a powerful tool to communicate cultural norms, it is important to investigate the role it plays in the acquisition of cultural understandings of health and illness, and how this may relate to differences in self-rated versus symptoms-based health for immigrants. Conceptions of health in the United States that are based on Western-defined symptoms are likely conveyed through the English words and phrases used to understand and communicate about health in the U.S. Language of interview is a commonly-used measure of acculturation in social science surveys and research, based on the idea that immigrant respondents who choose to be interviewed in English rather than their language of origin must be proficient in English, and consequently more acculturated to the United States (Alegría et al. 2007; Guarnaccia et al. 2007; Jiménez et al. 2007; Kandula, Lauderdale, and Baker 2007). We also know that those interviewed in their ancestors’ or native language (e.g., Spanish or Chinese) rate their health worse than do those who are interviewed in English (Kimbrow, Gorman, & Schachter, 2012). Altogether, these findings suggest that interviews in respondents’ native language (vs. English) may lead to worse self-rated health due to their lower acculturation.

Despite the widespread use and conceptual strength of language of interview as an acculturation measure, some scholars have found that language of interview may have an independent effect on self-rated health that goes beyond acculturation. These studies, which have focused on Latinos, consistently find that the relationship between Spanish

interviews and worse self-rated health remains even after controlling for other measures of acculturation such as nativity, time in the U.S. or age at immigration (Jiménez et al. 2007) and even language use in various domains of life (Bzostek et al. 2007; Viruell-Fuentes et al. 2011). One proposed explanation is that the translation of the self-rated health categories from English to Spanish may convey different meanings, potentially leading respondents to choose different answers based on language of interview. Specifically, “‘fair’ health” in English is meant to be equivalent to “salud ‘regular’” in Spanish, yet these two words likely have different interpretations. Viruell-Fuentes et al. (2011) found that Latinos were more likely to rate their overall health as “fair” than any other category, especially if they were interviewed in Spanish. The authors suggest that “regular” may have a more positive connotation than “fair.” They also indicate that controlling for language of interview substantially reduced but did not entirely account for the self-rated health gap between whites and Latinos, even when controlling for other acculturation measures such as nativity, age at migration and language use. This indicates that the translational problem is only a partial explanation of the effect of language of interview on self-rated health.

Another possibility may involve a sociolinguistic mechanism that could be present even with perfect translations of survey items. Some experiences may be more easily recalled in the language in which the experience was formed (Aragno and Schlachet 1996), and such experiences may affect respondents’ understandings of their health, and their self-assessments of mental health in particular. For example, 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. Some

experiences may even be language-specific (Lee et al. 2007), which could prevent the person from properly understanding the experience in a different language. Indeed, research on bilinguals has shown that feelings and identities shift depending on the language used to report them (Chen, Benet-Martínez, and Ng 2014; Koven 1998). For example, Dewaele & Nakano (2012) found that multilinguals consistently reported feeling less logical, less serious, less emotional and even fake when using languages learned later on in life. In other words, being interviewed in one language produces narratives of one's self and personal experiences that are different from narratives told in a different language.

DISSERTATION OVERVIEW

To move this body of knowledge forward, in my dissertation I investigate three previously-neglected aspects of understanding immigrants' self-rated health. First, previous literature has not sufficiently explored whether the dissonance between morbidity (based on symptoms) and self-rated health exists in the specific realm of *mental* health among adult immigrants. Second, existing research about the immigrant health paradox and dissonance in measures of (mental) health has mostly focused on Latinos, while neglecting some other groups, such as Asian Americans. Finally, there is scarce research about the effects of interview language and acculturation on self-rated health among immigrants' children.

In broad terms, my dissertation seeks to determine the *extent to which acculturation to the United States can explain the effect of interview language on the way immigrants assess their (mental) health*. Unlike prior work that has largely focused

on physical health outcomes, I explore the relationship between interview language and measures of *mental health* (self-rated mental health and psychiatric symptoms). I do so by considering not only Mexican-American adults, but also Chinese American adults. This expansion to other ethnic groups can shed light on experiences that all immigrants may share, or may point at differences based on country of origin. I will also test whether measures of acculturation commonly used in the literature can explain any relationships found between interview language and measures of mental health. If acculturation does explain the language-of-interview effect, this would indicate that choosing one language over the other reflects the respondent's acculturation level. Then, I will investigate whether the patterns in self-rated health among Mexican American adults is also present among Latino children, which would indicate that understandings of health and illness may be passed on from generation to generation.

Outline of Chapters

Chapter 2

In chapter 2, I expand the immigrant health paradox among Mexican Americans by investigating the specific realm of mental health. In particular, I explore the conditions under which Mexican American adults follow the medical model (consonance between self-rated mental health and psychiatric conditions) or the holistic model (dissonance between self-rated mental health and psychiatric conditions). To do this, I create a four-category outcome variable for mental health that combines self-rated mental health and diagnostic criteria for the most common psychiatric disorders in the U.S.: (1) better self-rated mental health–no psychiatric condition, (2) worse self-rated mental health –with psychiatric condition(s), (3) better self-rated mental health –with psychiatric condition(s)

and (4) worse self-rated mental health –no psychiatric condition. Outcomes 1 and 2 correspond to the medical model, since they are consonant, and outcomes 3 and 4 correspond to the holistic model given their discrepancy.

To test whether the effect of language of interview on self-rated mental health is similar to its effect of self-rated overall health, I use language of interview as my main independent variable, while controlling for socioeconomic conditions and health insurance. Based on the evidence that respondents interviewed in Spanish tend to have worse self-rated health than those interviewed in English (Angel and Guarnaccia 1989; Bzostek et al. 2007; Jiménez et al. 2007; Viruell-Fuentes et al. 2011), one would expect that Spanish interviews may also lead to worse self-rated mental health, despite not meeting criteria for psychiatric conditions.

To further understand the role of language of interview, I explore the extent to which acculturation measures can explain any relationship between language of interview and mental health outcomes. If Spanish interviews are in fact only a proxy for lower acculturation to the U.S., then lower levels of acculturation among Spanish-language interviewees should explain why they rate their mental health in dissonance with their criteria for psychiatric conditions. On the other hand, if the instruments to measure mental health convey different things in the Spanish vs. English versions, then acculturation measures may not explain the language-of-interview effect. This second potential outcome would provide some support for the literature that suggests that translation biases may be present in measures of overall health (Bzostek et al. 2007; Viruell-Fuentes et al. 2011). In addition to the mistranslation hypothesis, the language-of-

interview effect being unexplained by other acculturation measures could also be suggestive of different language-linked cultural understandings and expressions of health.

Chapter 3

In chapter 3, I investigate whether the effects of language of interview and acculturation on Mexican Americans' mental health documented in Chapter 2 also apply to the case of Chinese Americans. My analyses in this chapter apply the same analytic methods used in Chapter 2 to a sample of Chinese Americans adults in the United States. As mentioned above, the associations between interview language and self-rated overall health have been widely-studied among Latinos, but there is scarce knowledge about Asian Americans, especially in the area of mental health. We know that Asians living in the United States who are interviewed in a non-English language tend to report worse self-rated overall health, more diabetes, and more high blood pressure, but less drinking and lower lifetime asthma (Lee, Nguyen, and Tsui 2011), but we do not yet have information about the role of language of interview in Asian Americans' mental health outcomes.

Learning whether interview language affects psychiatric symptoms and self-rated mental health among immigrant groups (e.g., Chinese Americans) other than Latinos can expand our knowledge of the language effect on reports of health. In particular, it can tell us whether the language effect is particular to Spanish-English translations, and whether it has to do with being immigrants or racial/ethnic minority and conceptualizations of health.

There are some reasons to expect that Mexican and Chinese Americans would have similar ways of assessing their mental health. Both groups are immigrant, racial

minorities in the United States. And the two groups have similar rates of using non-English languages at home and English proficiency. About 85% of self-identified Chinese in the United States do not speak English at home (Reeves and Bennett 2004), compared with 79% of Mexicans who do not speak English at home (Ramirez 2004). Yet not speaking English at home does not necessarily indicate a lack of proficiency in English—50% of Chinese and 43% of Mexicans report speaking English “very well.” If non-English language is an indicator of low levels of acculturation, then the high number of Mexican and Chinese who do not speak English at home would indicate that both groups may be more likely to choose to be interviewed in their languages of origin (even if proficient in English), and subsequently have high rates of worse self-rated mental health.

On the other hand, there are also reasons to expect that Mexican and Chinese immigrants may have different relationships between acculturation/language of interview and self-rated health/mental health. Mexicans and Chinese differ in their specific cultural backgrounds and social context in the U.S., and these factors may accordingly shape their understanding and reporting of mental health differently. For example, Latinos tend to have lower socioeconomic status and lower education than Asians (Alegría et al. 2004; Molina et al. 2012), which can affect their perceived and actual risks for illness. Mexican and Chinese immigrants’ conceptions of health may also be rooted in different cultural understandings and traditions. For example, *ataque de nervios* is more commonly found in Caribbean Latinos (Guarnaccia et al. 2005), while neurasthenia is a common diagnosis among Chinese (Kleinman 2004; Takeuchi et al. 2002). Soto, Levenson, and Ebling (2005) found that although Chinese and Mexican Americans had similar physiological

reactions to a series of startle stimuli (i.e., sudden loud noises), the Chinese-origin subjects reported less emotion than the Mexican-origin subjects. The authors suggest that this difference may be due to Mexicans' cultural tendency to embrace emotions, whereas Chinese culture emphasizes trying to maintain moderate emotions. Language of interview may trigger these different cultural frameworks, with important implications for my analyses. If American culture involves moderate emotions that are more consistent with the Chinese cultural tendency than the Mexican cultural tendency to express greater emotion, for example, then the difference between Chinese and English interviews may not be as evident as the difference between Spanish and English.

Chapter 4

In Chapter 4, I move from studying adult immigrants' understandings and expressions of health to an exploration of whether the tendency among less-acculturated Latinos to report self-rated health is also found among the next generation of Latinos in the United States. To date, no one has explored whether Latino children's *own* self-rated health (net of physical and mental conditions and socioeconomic conditions) is worse than their non-Latino counterparts' self-rated health, as has been observed among adults. Even less is known about whether Latino children's self-rated health is influenced by their Latina mothers' interview language and acculturation to the United States. This chapter aims to inform the literature about the way understandings and reporting styles of health are transmitted from one generation to the next.

There is some evidence that children can learn understandings and expressions of distress from their families. Guarnaccia et al. (2005), for example, found that a family history of *ataque de nervios*—a culture-bound syndrome that is more common in

Caribbean countries—was predictive of *ataque de nervios* among children. What is interesting is that family history of other mental illnesses did *not* predict *ataque de nervios* in children. This indicates that expressions of distress are culturally-shaped and defined, and can be passed on from one generation to the next. Similarly, conceptions of health and reporting styles may also be passed on from generation to generation within families. Latina mothers who have migrated recently to the U.S. will likely have relatively low levels of acculturation, and may perceive their health according to the holistic model that considers more than just symptoms. Mothers may also transmit their culturally-influenced perceptions and ways of describing their health to their Latino children. Studying whether children's self-rated health is also affected by their mothers' interview language and acculturation may help us understand intergenerational transmissions of cultural experiences related to health.

To investigate children's self-rated health, I test whether Mexican-origin children tend to rate their overall health worse than non-Hispanic white children, reflecting the patterns observed among adults. I then test whether their mothers' nativity and language of interview affect the way children rate their own health. To be able to investigate the role of maternal acculturation on children's self-rated health, I include acculturation measures for mothers and test whether any of those measures can explain the relationship between mother's nativity/language of interview and children's self-rated health. Based on the evidence presented above, it is expected that Mexican children will be more likely to rate their own health worse than whites, imitating their mothers' reporting styles.

DATA AND METHODS

Data

In this dissertation, I use three nationally-representative samples of different racial and ethnic groups residing in the United States: Mexican American adults in chapter 2; Chinese American adults in chapter 3; and U.S.-born children and their mothers (by race/ethnicity) in chapter 4. The samples of Mexican and Chinese American adults are drawn from the 2002-2003 National Latino and Asian Americans Study (NLAAS). This is a community-based household survey composed of a nationally-representative sample of non-institutionalized adults (18 or older) of Latino and Asian descent living in the United States. The NLAAS is particularly useful for my analyses because of the large sample of Mexican Americans (N=868) and Chinese Americans (N=600), the diagnostic instruments for psychiatric disorders based on guidelines from the American Psychiatric Association, and the variety of immigration-related variables available for health researchers. Most importantly, the NLAAS respondents were able to choose the language of interview they preferred. In the case of Mexican Americans, they chose between English and Spanish, while Chinese Americans chose among English, Cantonese and Mandarin.

In chapter 4, I use survey data from the Fragile Families and Child Wellbeing Study (FFCWS), a longitudinal study that follows a cohort of children born in large urban U.S. cities between 1998 and 2000, and their families (N=4898). This is an especially useful dataset for this study for two reasons: First, children in the study were asked to rate their own health at the 9-year interview, whereas other datasets typically have not asked school-age children to rate their own health. Second, the FFCWS contains a large number of Latinos, allowing me to investigate racial and ethnic differences in children's self-

rated health. Mothers were also asked to rate their children's health in each survey wave. For this chapter, I compare mothers' ratings of their children's health from the year-9 interview with their children's own ratings from the same survey wave.

Analytic Methods

For chapters 2 and 3, I use multinomial logistic regression models to examine the relationship between language of interview and mental health outcomes. For these analyses, I use national weights to adjust for the oversampling of Mexican and Chinese Americans, and include imputed values for variables with missing data. In chapter 4, I use ordered logistic regression models to explore racial/ethnic differences in children's self-rated health, and multinomial logistic regression models to test the relationship between race/ethnicity and mother-child agreement in rating the child's health. These analyses are unweighted and include imputed values for variables with missing data.

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CHAPTER 2

How do Mexican Americans understand their mental health?: The role of language

Some studies on the immigrant paradox in relation to physical health have found that immigrants rate their own overall health worse than the U.S.-born, despite having lower morbidity and mortality (Finch, Hummer, Reindl, & Vega, 2002; Kandula, Lauderdale, & Baker, 2007). These authors indicate that acculturation may be involved in these patterns. 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. There is evidence, however, that language of interview may have an independent effect on self-rated health that does not disappear when other acculturation measures are considered (Bzostek, Goldman, & Pebley, 2007; Jiménez, You, Padilla, & Powers, 2007). This indicates that language of interview may capture something beyond acculturation.

In this paper, I explore whether these patterns of worse self-rated health despite lower morbidity are also present in the specific realm of *mental* health. In particular, I 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. 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

The immigrant health paradox contends that Mexican immigrants have better physical health than U.S.-born despite having lower socioeconomic status (Burnam et al. 1987; Palloni and Arias 2004). Yet, despite their health advantage, Mexican immigrants rate their overall health worse than U.S.-born (Bzostek et al. 2007; Finch et al. 2002). 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 more diseases like obesity and diabetes (Kimbrow, 2009; Lopez-Gonzalez, Aravena, & Hummer, 2005). Although there is evidence that at least some of this physical health advantage is from undiagnosed conditions, the physical health advantage persists (Barcellos, Goldman, & Smith, 2012). On the other hand, better socioeconomic conditions and higher English proficiency with more time in the U.S. 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. Research shows that the immigrant health paradox also applies to mental health, with immigrants having lower rates of psychiatric disorders than the U.S.-born (Alegría et al. 2004; Alegría et al. 2008; Vega et al. 1998). However, relatively little research to date has focused on *discrepancies* between SRMH and psychiatric symptoms. There are at least two studies about this discrepancy between various racial and ethnic minority

groups. Compared to non-Hispanic whites, blacks, Latinos (including Mexican Americans) 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.

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. In fact, Dewaele and Nakano (2013) 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 & Kleinman 2007). These concepts of health may not be available in English. Something similar may happen for Spanish speakers.

In terms of psychiatric conditions, there is only one study that I know of that has investigated the role of language of interview. Shrout et al. (2008) found that, among Latino bilinguals in the NLAAS, there are no differences in psychiatric diagnoses by

language of interview. This indicates that the English-Spanish translation of the diagnostic instruments used in the NLAAS is reliable among people who are equally proficient in both languages. However, these authors did not test whether language of interview would have an effect on endorsing psychiatric symptoms including respondents who are not fully bilingual. If psychiatric symptoms were to vary based on language of interview when including both bilinguals and monolinguals, I could conclude that those differences due to factors other than translation problems.

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 chose 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., 2007; 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 American traditions and participate in them.

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). There is evidence that the association between language of interview and self-rated overall health remains even after controlling for other acculturation measures (Angel & Guarnaccia, 1989; Bzostek et al., 2007; Jiménez

et al., 2007). 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.

It is also important to examine how particular aspects of acculturation may affect Mexican Americans’ mental health. Previous research shows that higher acculturation is associated with higher risk for mental illnesses among Latinos in general (Alegría et al. 2004; Campbell et al. 2012) and Mexican Americans in particular (Burnam et al. 1987). I suspect that some aspects of acculturation may further explain Mexican Americans’ mental health outcomes. For instance, ethnic identity has been found to be protective against psycho-emotional distress caused by racism and discrimination (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). 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. Mexican Americans who are proficient in English may have a better chance to find jobs and go to school, which could benefit their mental health. However, Mexican Americans with low

English proficiency may benefit from their proficiency in Spanish. Spanish may also be protective by maintaining access to social support from other Mexican Americans and developing ethnic pride against racism (Phinney and Devich-Navarro 1997). In other words, Spanish proficiency may be more beneficial for those who are not proficient in English.

Research Aims

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, at least 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

I use data from the 2002-2003 National Latino and Asian American Study (NLAAS) because of the large sample of Mexican Americans and the immigration-related variables included in the survey. 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. 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. All results include 15 multiple imputations.

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 ($\alpha=.67$). 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* ($\alpha=.74$), 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 ($\alpha=.97$) 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 ($\alpha=.96$) 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 and Eschbach 2013), is an important acculturation measure because cultural norms are passed on as part of family values and through a common language.

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.

RESULTS

Sample characteristics

Table 2.1 shows the descriptive characteristics for my sample of Mexican Americans (N=865). Mental health outcomes significantly differ by language of interview. About 57.9% of English-interviewees have optimal mental health (better SRMH-no disorder), compared to 39.6% of Spanish-interviewees. The largest language differences lie in the groups with dissonant mental health outcomes. For instance, 49.1% of Spanish-interviewees have worse SRMH and no disorders, compared to 21.2% 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 2.2 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 2.2 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.

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 2.2 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 2.2), 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 2.1 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 2.2 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.

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 overall 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.

Many scholars have found that expressions of distress are learned from one's culture. In the United States, compared to other societies, psycho-emotional distress is highly medicalized—conceptualized and treated as a medical condition (Conrad, 1992). For example, Americans may understand intense distress as a sign of a psychiatric/medical problem, while Mexicans may understand it as a normal reaction to hardships in 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 understood in American culture. With higher acculturation, Mexican Americans may start to rate their mental health based on the presence or absence of symptoms.

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 and 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 and Richman 2009). 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. 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. This may provide Mexican Americans a sense of integration in the U.S. that may boost their self-esteem and perceived well-being. English proficiency may also provide a sense of higher status in the U.S., where Spanish is associated with low socioeconomic status held by racial/ethnic minorities.

In addition to Mexican identity and English proficiency, Spanish proficiency also has protective effects on SRMH among Mexican Americans without disorders. However, being proficient in Spanish is beneficial only for those who are not proficient in English. Mexican Americans who lack the protective benefits of English proficiency can still rely on Spanish to access sources of social support. Spanish can maintain communication, traditions and values among co-ethnics (Guarnaccia et al., 2007), which provides 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 and 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.

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. Investment in longitudinal studies is also necessary to understand how immigrant groups experience and express psycho-emotional distress overtime.

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 (Ramirez, Engel and Tang 2008).

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Table 2.1. Descriptive statistics for Mexican American sample: Percentages/means (N=865).

	<u>Total</u>	<u>Spanish</u>	<u>English</u>	<u>Test of significance</u>	<u>% Imputed values</u>
	865 (100%)	481 (57.1%)	384 (42.9%)		
<i>Mental health outcomes</i>					0
Better SRMH-no disorder	47.4%	39.6%	57.9%	***	
Worse SRMH-with disorder	8.6%	7.0%	10.8%		
Better SRMH-with disorder	6.8%	4.3%	10.1%		
Worse SRMH-no disorder	37.2%	49.1%	21.2%		
<i>Age at immigration</i>				***	0.6%
U.S.-born	42.9%	11.6%	84.7%		
Child	10.8%	10.3%	11.3%		
Teen	13.6%	21.6%	2.9%		
Adult	32.6%	56.3%	1.0%		
<i>Ethnic identity</i>	10.05 (.05)	10.12 (.07)	9.96 (.08)	n.s.	0.8%
<i>Proficient in English</i>	6.99 (.27)	4.44 (.10)	10.38 (.15)	***	0.0%
<i>Proficient in Spanish</i>	8.02 (.16)	8.77 (.15)	7.02 (.20)	***	9.2%
<i>Language use home</i>				**	9.2%
Mostly/only English	21.9%	2.5%	47.8%		
Mostly/only Spanish	60.8%	91.6%	19.6%		
Spanish/English	17.3%	5.8%	32.6%		
<i>U.S. citizen</i>	54.7%	25.6%	93.4%	***	0.7%
<i>Control variables</i>					0.0%
Age	36.56 (.63)	36.72 (.77)	36.34 (1.42)	n.s.	
Female	46.0%	44.9%	47.5%	n.s.	
Poverty	2.72 (.15)	2.04 (.12)	3.63 (.30)	***	
<i>Education</i>				***	
Less than high school	52.6%	72.0%	26.6%		
High School	24.4%	18.5%	32.2%		
Some college	16.0%	7.0%	27.9%		
College or more	7.1%	2.5%	13.2%		
<i>Marital status</i>				**	
Never married	19.1%	14.2%	25.6%		
Married	69.9%	76.1%	61.5%		
Separ, divorc, widow	11.1%	9.7%	12.9%		
Have health insurance	56.9%	43.9%	56.1%	***	

Estimates are weighted and include imputed values

Tests of difference by language of interview; * p <.05; ** p <.01; *** p < .001.

Table 2.2. Relative risk ratios (RRR) for predictors of mental health outcomes in the Mexican American sample.

	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	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 (N=865).

Figure 2.1. Interaction effects between age at immigration and ethnic identity on mental health

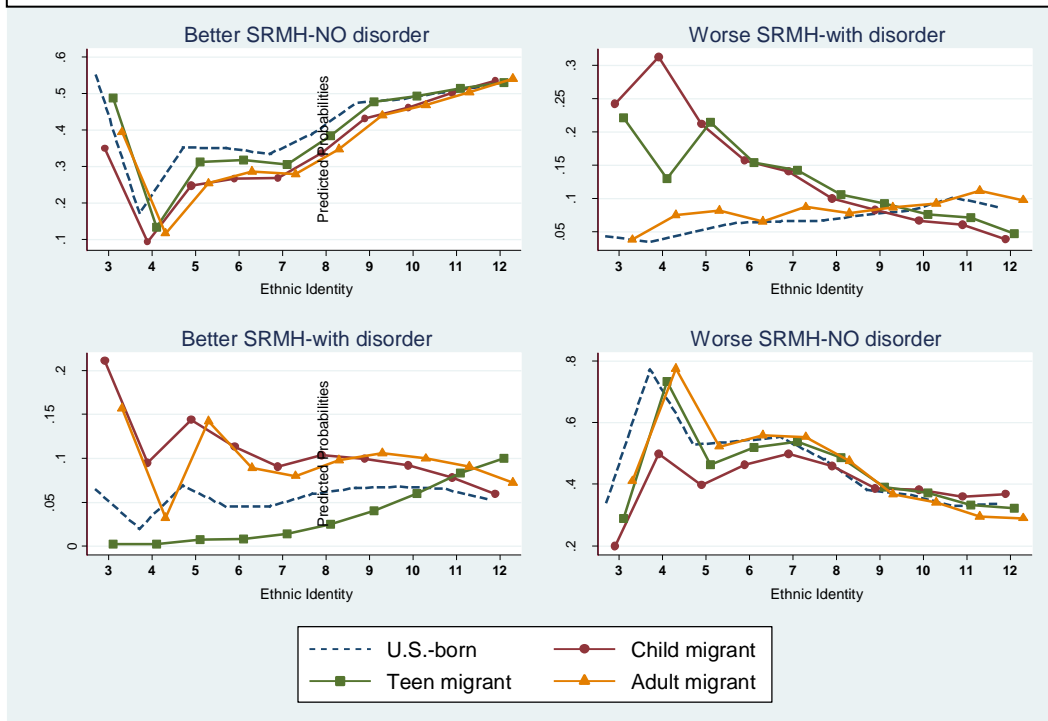
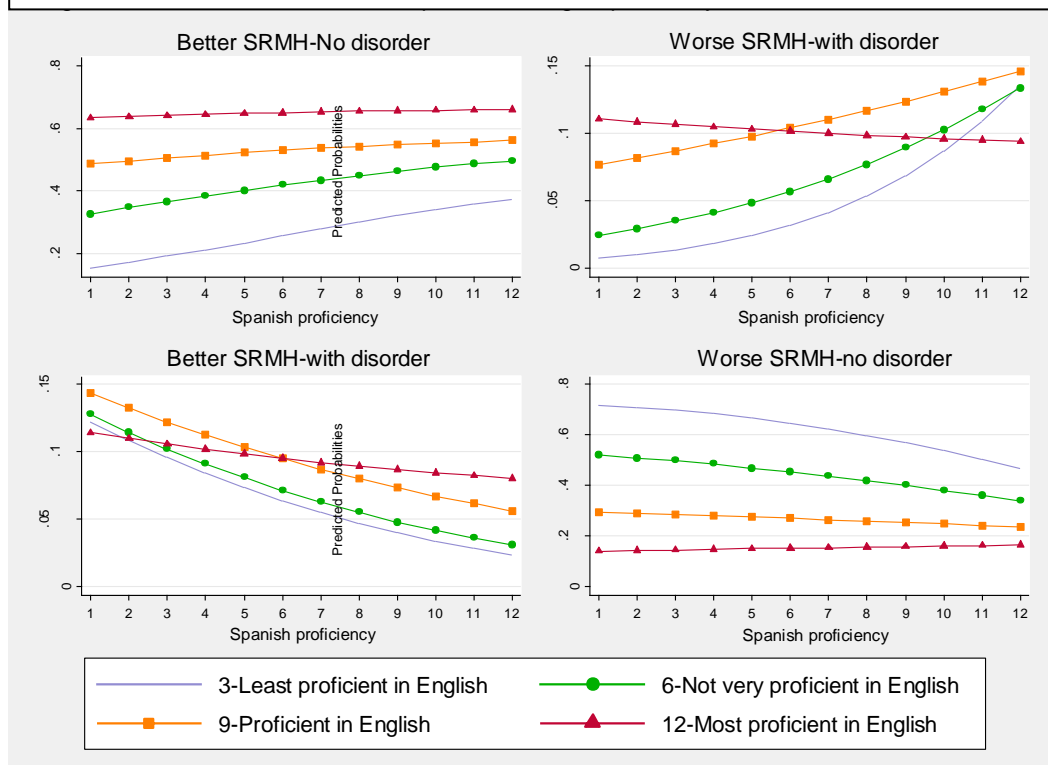


Figure 2.2. Interaction effects between Spanish and English proficiency on mental health



CHAPTER 3

Chinese Americans' Mental Health: Lost in Translation?

How do people understand and assess their mental health? This has been one of the dominant substantive and methodological questions in social science research on mental health. While there is general agreement that mental health and illness are socially constructed (Conrad and Barker 2010; Horwitz 2011; Rosenberg 2006), the precise processes and factors that shape whether people see themselves as sick or well is not fully understood. The lack of precision is especially true when comparisons are made across societies and cultures. In the contemporary United States, the medical model, driven by psychiatry and clinical psychology, is the prevailing source for defining mental illness. In this model, mental illness typically depends on the absence or presence of psychiatric symptoms which are understood as being biologically or genetically triggered and can be treated with medications (Smith 2014).

In societies like China, however, the understanding of mental health/illness may follow a more holistic model. Chinese conceptualizations of mental health may not solely depend on having specific psychiatric symptoms as measured in the West. Various aspects of social life such as family relations and status may also be considered relevant as part of their well-being. In addition, the mind is not necessarily understood in separation from the body (Angel and Guarnaccia 1989; Guarnaccia and Pincay 2008; Lee, Kleinman, and Kleinman 2007), which may also affect expressions of distress (symptoms) and assessments of their mental health (self-rated mental health). There is also evidence that the concordance between psychiatric symptoms and self-rated mental

health (SRMH) is greater for U.S.-born Asians (John et al. 2012) and whites (Kim et al. 2011) than Asian immigrants, suggesting that immigration status and related factors may have an important influence on how Asian Americans conceptualize and understand their mental health status.

Few studies have considered social and cultural factors that may help explain differences in mental health measures and how they may operate among Asian Americans. In this study, I focus on language of interview as a potential predictor of mental health outcomes. Language may operate as a cultural framework within which some experiences are perceived as pathological (or not). For example, Dewaele & Nakano (2012) found that feelings consistently changed between languages among a sample of multilinguals residing in London. For example, respondents reported feeling less logical, less emotional and less serious in their non-native languages. Thus, perceptions of severity and experienced distress may shift from one language (or cultural framework) to another, affecting endorsement of certain symptoms and assessments of overall mental health.

Language of interview is also very commonly used as a measure of acculturation to the United States. Acculturation refers to the process in which immigrants adopt norms, values and behaviors from the host society with greater exposure to that society (Gans 1997). With greater acculturation to the United States, Chinese Americans may be more comfortable with English and choose it as their language of interview. To the extent that choosing to be interviewed in English is an indicator of greater acculturation, it could imply that the respondent may have internalized the Western, medical model of understanding health, leading him or her to assess his/her mental health status based on

psychiatric symptoms rather than more holistic factors. In other words, acculturation could explain the effect of language of interview on mental health outcomes, but only if language of interview is in fact a proper measure of acculturation. Language of interview could also carry translation problems that have nothing to do with acculturation. No one has tested whether the language of interview association with mental health outcomes can be explained by acculturation among Chinese Americans.

In this paper, I explore the extent to which Chinese Americans follow the medical or holistic model in relation to their mental health. I also examine whether adherence to the medical or holistic models of mental health vary by language of interview. Given the relevance of acculturation in the way immigrants and their children report their mental health, I investigate the role of acculturation measures such as proficiency in English and Chinese.

BACKGROUND

Scholars have documented an “immigrant health paradox” among Asian Americans (as well as Latinos), in which immigrants have lower morbidity than their U.S.-born counterparts (John et al. 2012) and whites (Sue et al. 1995; Takeuchi et al. 1998), despite their overall socioeconomic disadvantage. Yet, there is evidence that the well-established association between worse self-rated health and higher morbidity in the general population (Chandola and Jenkinson 2000; Desalvo et al. 2005; Idler and Benyamini 1997) does not seem to apply to recent Latino immigrants (Bzostek, Goldman, and Pebley 2007; Finch et al. 2002). Less is known about the specific realm of mental health among Chinese Americans. There is only one study that found that the link

between SRMH and psychiatric disorders is weaker for Chinese Americans than for any other Asian group Kim et al. (2012). These patterns suggest that the two measures of mental health capture different things for Chinese Americans.

The differences between self-rated mental health and psychiatric disorders that exist between Chinese immigrants and U.S.-born Chinese may be explained by cultural differences in understandings of mental health. People from different cultures may experience, interpret, express and/or cope with psycho-emotional distress according to culturally learned ways. The sociocultural nature of mental illnesses implies that the criteria to define them depend on certain social norms and can greatly vary from culture to culture. In Western societies like the United States, psycho-emotional experiences such as depression and anxiety have been constructed as medical conditions (Horwitz 2002; Rosenberg 2006). The process of medicalization (defining something in medical terms) emerged as a result of the rise of psychiatry as a medical specialty in the early nineteenth century and the expansion of the pharmaceutical industry (Conrad 1992; Zola 1972). Understanding psycho-emotional distress in this fashion follows the “medical model” of psychological distress (Smith 2014).

In contrast, Chinese Americans may conceptualize psycho-emotional experiences differently from dominant racial/ethnic groups in the U.S. (Substance Abuse and Mental Health Services Administration 2001; Sue et al. 2012). There is evidence that Chinese experiences of distress in China involve both physiological and emotional distress (Kleinman 2004; Lee et al. 2007). Their conceptualizations of mental health may not be limited to the presence of psychiatric symptoms as established in the West. Instead, they focus on physical symptoms such as discomfort, sensation of inner pressure and pain. In

addition, they may consider other non-psychiatric factors such as family life and social support as relevant to assess their mental health.

Furthermore, some Chinese Americans may consider some stressful experiences to be normal parts of life, without medicalizing them. In fact, Kwong et al. (2012) found that among a sample of depressed Chinese Americans, the perception that their condition is not serious was among the top three reasons why people in this sample did not seek help for their psycho-emotional distress. If they do not perceive their distress as indicative of a medical problem, then medical help is unnecessary. In addition, Lee, Kleinman, and Kleinman (2007) argue that Chinese individuals often do not see a need to articulate their feelings of depression, in contrast with individuals in the West. Thus, some Chinese Americans may follow a holistic model of distress, where understandings of mental health are not limited to psychiatric symptoms and are not articulated as a psychiatric/psychological problem.

The language in which people are interviewed about their mental health is an understudied factor that may help explain any concordance and discordance between SRMH and psychiatric conditions. Language of interview may serve as a cultural frame that may trigger memories of experiences relevant to mental health. For instance, Chinese language may be a reminder of the respondent's lower social standing in the U.S. and may evoke feelings of low self-worth, which can lead to worse SRMH. Previous research shows strong associations between being interviewed in native languages such as Spanish, Chinese, Vietnamese or Tagalog (vs. English) and worse self-rated health (Kimbrow, Gorman, and Schachter 2012; Viruell-Fuentes et al. 2011). In particular, most research on language of interview and self-rated health has focused on Latinos. These

studies show a paradoxical pattern in which Latinos rate their overall health worse than whites, especially when interviewed in Spanish, even when controlling for physical and/or mental conditions (Bzostek et al. 2007; Jiménez et al. 2007).

I expect that the language-of-interview effect may also be present among Chinese Americans. Although Chinese Americans may differ from Latinos in their historical experience, culture and language (Substance Abuse and Mental Health Services Administration 2001), they may share some similar experiences that may lead to similar patterns in mental health. For instance, like Latinos, Chinese Americans are ethnic minorities in the United States, and have migrated from a country where English is not the primary language. Also, the medical model may not be as dominant in China and Latin America as it is in the United States. Therefore, I suspect that language of interview may have a similar effect among Chinese Americans as it does among Latinos, with those interviewed in Chinese (vs. English) having discordant measures of mental health.

Cultural differences in reporting health have been studied through the process of acculturation to the United States. Acculturation refers to the adaptation process in which newcomers (i.e., Chinese immigrants) adopt the culture of the host society (i.e., American society) (Gans 2007). One aspect of American society that Chinese Americans acquire with greater acculturation could be the medical model of mental health. With more time in the United States and greater exposure to American culture, Chinese Americans may start to understand their mental health based on the presence or absence of psychiatric symptoms. In fact, there is evidence that greater acculturation, often measured by time in the U.S., nativity and language use, are associated with increased propensity of being diagnosed with a psychiatric disorder such as depression or substance abuse disorder

(Abe and Zane, 1990) and worse self-rated mental health (John et al. 2012) among Asian Americans. In other words, greater acculturation seems to be associated with higher concordance between psychiatric conditions and self-rated mental health.

When language of interview is used as an indicator of acculturation, English implies proficiency in English and consequently greater acculturation (Alegría et al. 2007; Guarnaccia et al. 2007; Jiménez et al. 2007; Kandula, Lauderdale, and Baker 2007). In fact, Zane and Mak (2003) found that the aspect of acculturation that is most commonly measured is language use/preference, even more so than measures of tradition and cultural values. Yet, some researchers recommend caution when using language of interview as a measure of acculturation, because of potential translation biases (Angel and Guarnaccia 1989; Bzostek et al. 2007). For example, Viruell-Fuentes et al. (2011) found that Latinos interviewed in Spanish were more likely to rate their health as *regular* (Spanish translation of the “fair” category) than Latinos interviewed in English. This indicates that “regular” and “fair” may not convey the same thing in the two languages, yet the translated survey questions assume that they have identical meanings. Adjusting for this response tendency reduced the Latino-white differences in self-rated overall health. Thus, language of interview may not be a good measure of acculturation, since it could capture response biases related to translational issues. Something similar may also happen with the English-Chinese translations.

It is also possible that the effect of language of interview on mental health outcomes may particularly depend on respondents’ English proficiency, another common acculturation measure. Being proficient in English can facilitate the acquisition of American values and norms, including assessing mental health based on the presence or

absence of psychiatric symptoms. Furthermore, the lexicon available in English to describe psycho-emotional distress may exclude experiences that link parts of the body with emotions that are present in the Chinese language (see Lee, Kleinman & Kleinman 2007). Those who are interviewed in English may be better able to understand the questions about mental health in the American context if their proficiency in English is high.

In this paper, I test the association between language of interview and mental health outcomes (psychiatric symptoms and SRMH) among Chinese Americans to address two research questions. First, I aim to answer: *Is language of interview associated with Chinese Americans' mental health outcomes?* I expect that Chinese Americans who are interviewed in Chinese will be more likely to have dissonant mental health outcome, specifically worse self-rated mental health without psychiatric conditions. Second, I investigate: *Can acculturation to the United States explain the relationship between language of interview and mental health outcomes?* Even though acculturation has been found to affect SRMH and psychiatric conditions, it is unclear whether it can explain the effects of language of interview on the dissonance or consonance in mental health.

DATA AND METHODS

I use data from the National Latino and Asian Americans Study (NLAAS), a nationally representative sample of 4,649 non-institutionalized adults living in the United States during 2002-2003. The NLAAS is particularly useful for my study given its oversampling of Chinese Americans and the variety of immigration and acculturation

measures and instruments to measure mental health. The NLAAS sample consists of 2,554 Latinos and 2,095 Asian Americans.

The original sample of self-identified Chinese or Chinese Americans consisted of 600 respondents, who can be Chinese immigrants (foreign-born) or U.S.-born Chinese. I include imputed values for missing data, which consisted of 13% missing on one or more variables from the 600 Chinese Americans. I performed 15 imputations which exceeds the percentage of missing data (13%), as recommended in the multiple imputation literature (Bodner 2008; White, Royston, and Wood 2011). One case was dropped after imputation due to missing information on the dependent variable, which led to a final analytic sample of N=599. Results from complete case analyses (not shown here) show patterns similar to the ones presented here.

Mental health outcomes (medical vs. holistic model): To assess whether Chinese Americans follow the medical or the holistic model in mental health, I use two common measures of mental health: diagnostic criteria for any of the most common psychiatric disorders in the United States and self-rated mental health. *Psychiatric conditions* are measured with a binary variable, where 1-meets criteria for at least one psychiatric disorder and 0-does not meet criteria for any of the most common psychiatric disorders. This measure includes diagnostic criteria for the following: 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. The diagnostic criteria for this variable rely on the DSM-IV, which uses the interview instrument of the World Mental Health Survey Initiative version of the World Health Organization. This measure does

not capture whether respondents have received a psychiatric diagnosis, but whether or not they would meet criteria for diagnoses using the DSM-IV. The *self-rated mental health* (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 two categories: good/fair/poor (worse SRMH) and very good/excellent (better SRMH). I distinguish those in very good and excellent health, as these self-reports likely capture individuals who perceive an optimal level of mental health.

Chinese Americans with self-ratings of their mental health that concur with the presence or absence of criteria for psychiatric disorders would be considered to follow the medical model. Those who present discordance between their psychiatric conditions and their self-rated mental health would be considered to follow the holistic model. I create four Chinese American subgroups by combining self-rated mental health and psychiatric conditions: (1) Better self-rated mental health with no psychiatric conditions; (2) worse self-rated mental health with psychiatric conditions; (3) better self-rated mental health with psychiatric conditions; and (4) worse self-rated mental health with no psychiatric conditions. In my analyses, I use group 1 (better SRMH - no psychiatric conditions) as the reference group. The first two categories correspond to the medical model, in which respondents’ SRMH concurs with the presence or absence of psychiatric symptoms, and the last two categories represent the non-medical, holistic model which respondents’ SRMH is based on other factors, and does not concord with the presence or absence of psychiatric symptoms).

Interview language: Chinese American participants in the NLAAS chose their language of interview (English, Cantonese or Mandarin). I recoded language of interview

into a binary variable where 1-Chinese (Cantonese or Mandarin). Interviews were conducted face-to-face by fully bilingual interviewers.

Acculturation: I incorporate a number of measures of acculturation, which do not present any multicollinearity problems (based on sensitivity analysis) despite measuring the same concept (at least, theoretically). *Age at immigration* is measured as a series of dummy variables for U.S.-born, immigrated as a child (under 18), immigrated as a young adult (18-34) and immigrated as an adult (35 years or older). I also construct a binary variable to measure whether respondents are *U.S. citizens*. *Ethnic identity* is a composite variable that combines 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 from their same ethnic group, where 1-a lot of time, 2-some time, 3-a little time and 4-not at all. I reverse-code and then sum these three items for each participant. In the resulting measure (which ranges from 3-12), higher scores indicate stronger ethnic identity.

I include language proficiency and usage measures given that culture is greatly passed on and reproduced via a common language. *English proficiency* and *Chinese proficiency* (Mandarin or Cantonese) ask respondents to rate their reading, writing and speaking abilities in each language: 1-poor, 2-fair, 3-good or 4-excellent. For each language, I calculate the sum score of proficiency in reading, writing and speaking, with a range of 3 (least proficient) to 12 (most proficient). I also measure language mostly spoken with family (*family language*) and friends (*friends language*), which are 5-

category variables where 1-Chinese all of the time, 2-Chinese most of the time, 3-Chinese and English about equally, 4-English most of the time and 5-English all of the time. I recode each variable into 3 categories: 1-Chinese most/all the time; 2-Chinese and English equally; and 3-English most/all the time (used as the reference category).

Control variables: I control for socio-demographic characteristics found to be related to mental health outcomes in prior works (Finch, Kolody, and Vega 2000; Meyer, Castro-Schilo, and Aguilar-Gaxiola 2014; Seedat et al. 2009; Sullivan and Rehm 2005; Thoits 2011): Income-to-needs ratio, educational attainment, age at interview, sex, marital status, health insurance coverage and perceived social status in the United States. I also control for family cohesion and family conflict, which have been found to affect mental health among Asian Americans (Walton and Takeuchi 2009).

Analytic plan

I use multinomial logistic regression to first examine the relationship between language of interview and mental health outcomes (model 1), adjusted for the control variables. I then add the acculturation measures (model 2) to see whether acculturation can help explain any associations found in model 1. Finally, I add an interaction term between language of interview and English proficiency (model 3) to see whether the relationship between language of interview and mental health outcomes varies across levels of English proficiency. All analyses are conducted in Stata 14 and include national weights and imputed values for variables with missing data.

RESULTS

Sample characteristics

Table 3.1 shows the characteristics of my sample of Chinese Americans. About half of the sample have optimal mental health in both measures, following the medical model: better SRMH and no psychiatric conditions (medical model). Only 6.7% fall in the medical model with suboptimal mental health outcomes: worse SRMH with psychiatric condition(s). Following the holistic model, 3.5% have better SRMH with psychiatric condition(s) and 39.4% present worse SRMH and no psychiatric condition(s).

Table 3.1 also shows sample characteristics that differ by language of interview, my main independent variable. The majority of Chinese Americans who were interviewed in English fall in the medical models of mental health (that is, have self-rated mental health that is concordant with their symptoms of mental health conditions). For example, among English-interviewees, 68.7% report better SRMH and no condition(s), compared to only 30.8% with the same mental health outcomes. Also, 16.7% of English-interviewees have worse SRMH but no psychiatric conditions (holistic model) compared to 63.7% of Chinese-interviewees. The overall differences in mental health outcomes by language of interview are statistically significant ($p < .001$). This indicates that my hypothesis that those interviewed in Chinese report worse SRMH despite lack of psychiatric conditions may be supported.

Looking at the various measures of acculturation, I find, not surprisingly, that in general, English-interviewees seem to be significantly more acculturated than Chinese-interviewees. Compared to Chinese-interviewees, for example, English-interviewees are more likely to be U.S.-born and to be U.S. citizens. English-interviewees also score lower in Chinese identity and Chinese proficiency, and higher in English proficiency. English-interviewees tend to use English solely/mostly or both English and Chinese equally with

their relatives and friends, whereas Chinese-interviewees tend to use mostly/solely Chinese. It is important to note that English-interviewees also report significantly higher (tangible and perceived) socioeconomic status and are more likely to have health insurance, but also report lower family cohesion and more family conflict. This is potentially important for my analyses because of the documented effects of these factors on mental health outcomes in this population (Walton and Takeuchi 2009; Williams 2012).

Multinomial logistic regressions

Table 3.2 shows the relative risk ratios for three groups based on their mental health outcomes: Worse SRMH-with psychiatric condition(s) (medical model with suboptimal outcomes), better SRMH-with psychiatric condition(s) (holistic model), and worse SRMH-no psychiatric conditions (holistic model). The results for each of these groups are relative to respondents with better SRMH and no psychiatric conditions (medical model with optimal outcomes). I control for socioeconomic and demographic factors, health insurance and family dynamics in all models. Given that most of the significant results that are central to my research questions are related to worse SRMH without disorder, I focus most of the discussion on these results (columns on the right of Table 3.2).

In model 1, I test the relationship between language of interview and mental health outcomes. I find that Chinese interviewees have more than 7 times the risk of worse SRMH with no psychiatric conditions (holistic model), compared to English interviewees ($p < .001$). This relationship remains even after controlling for a host of other acculturation measures in model 2. The relative risk of worse SRMH without psychiatric

conditions decreases from 7.39 in model 1 to 5.35 in model 2 (largely due to English proficiency), but the statistical significance remains strong at the $p < .001$ level.

These findings suggest that English proficiency, controlling for other acculturation measures, plays a role in the relationship between language of interview and mental health outcomes. However, it does not fully explain it given that the association between language of interview and mental health outcomes remains statistically significant at $p < .001$. Accounting for the interactions between language of interview and English proficiency in model 3 makes the association between language of interview and mental health outcomes disappear. This means that the relationship between language of interview and mental health outcomes depends on respondents' levels of English proficiency.

To aid in the interpretation of these interaction effects, Figure 3.1 illustrates the effects between language of interview and English proficiency for mental health outcomes. I find that the predicted probabilities of following the medical or holistic model of mental health vary depending on levels of English proficiency. The top quadrant on the left of Figure 3.1 shows that the predicted probabilities of better SRMH-no psychiatric conditions (medical model with optimal mental health) increase with higher English proficiency, but mostly for English interviewees (blue line is steeper than red line). These patterns indicate that English interviews trigger medical conceptualizations of mental health—where psychiatric symptoms lead to worse SRMH—but only as English proficiency improves. Conversely, the quadrant on the bottom right of Figure 3.1 shows that, as English proficiency increases, the predicted probabilities of worse SRMH-no psychiatric conditions (holistic model) decrease sharply,

but only for those interviewed in English (blue line). English proficiency likely facilitates access to Westerner understanding of health and being interviewed in English trigger these understandings. For the other two mental health outcomes (worse SRMH-with disorder and better SRMH-with disorder), there are no statistically significant interactions between language of interview and English proficiency.

DISCUSSION

Investigating the discordance between SRMH and psychiatric conditions is important because of the use of these measures in a variety of settings. First, given the robust association between self-rated overall/physical health and mortality (Idler and Benyamini 1997), many researchers and clinicians use SMRH to assess mental health status. At least one study has validated SRMH as a strong predictor of mental illnesses and psychological distress (Mawani and Gilmour 2010). Nevertheless, other scholars have found rather weak or moderate correlations between SRMH and various psychiatric diagnostic instruments (Ahmad et al. 2014). This association weakens especially among non-white respondents (Kim et al. 2011; Zuvekas and Fleishman 2008). SRMH, however, has been associated with health service utilization and service satisfaction (Ahmad et al. 2014), and with functioning limitations due to emotional problems (Fleishman and Zuvekas 2007). These authors argue that SRMH may be part of a psychological frame, but may not necessarily measure psychiatric status per se.

Using data from the NLAAS, I test whether language of interview can explain some of the discrepancies between SRMH and psychiatric conditions among people who identify as Chinese or Chinese Americans living in the United States. In particular, I

answer two research questions: (1) Is language of interview associated with Chinese Americans' mental health outcomes (medical vs. holistic model)? and (2) Can acculturation to the United States explain the association between language of interview and mental health outcomes? My results emphasize the relevance of language in reports of mental health as it may serve as a cultural reference to normative understandings of health and illness.

Cultural differences in mental health

In answering the first research question, I find that being interviewed in Chinese (instead of English) is associated with higher risk of fitting the holistic model of mental health. Specifically, Chinese interviewees have higher risk of worse SRMH without meeting criteria for any of the most common psychiatric disorders, relative to better SRMH and no disorders. In other words, among those without psychiatric conditions, Chinese interviews lead to worse SRMH. These findings align with previous research on Latinos focused on physical health that finds an association between native/ancestry language and worse self-rated overall health, compared to English interviews, despite low morbidity and mortality risk (Bzostek, Goldman & Pebley, 2007; Finch, Hummer, Reindl & Vega, 2002; Jiménez, You, Padilla & Powers, 2007).

Imperfect translation of the SRMH item has been proposed as a potential partial explanation for the language-of-interview effect on health outcomes (Angel and Guarnaccia 1989; Bzostek et al. 2007; Viruell-Fuentes et al. 2011). Translation bias may not fully explain the language effect for my sample either. There is some evidence that the self-rated (mental) health item in the NLAAS has been properly translated from English to Spanish, Vietnamese, Mandarin, Cantonese and Tagalog. Kimbro et al. (2012)

indicated that, among bilingual immigrants from the NLAAS, self-rated health did not vary by language of interview (2012: 357). Any language differences, then, must be mostly driven by other differences between English- and Chinese-interviewees, such as acculturation levels and linguistic proficiency.

In terms of psychiatric disorders, Shrout et al. (2008) found that, among bilingual Latinos in the NLAAS, there was no language difference in rates of psychiatric conditions. Testing whether the English-Mandarin and English-Cantonese translations of diagnostic instruments in the NLAAS are appropriate has not been conducted. This study, together with Kimbro's et al. (2012), suggests that bilingualism involves understanding the meanings of survey questions within their corresponding cultural frameworks. Bilinguals and monolinguals could also be different in others aspects. Bilinguals, for example, may have a more diverse social network and more access to a wider variety of social and cultural resources that can affect their mental health outcomes. Identifying differences between bilinguals and monolinguals in future research would further contribute to the literature on effects of language on mental health outcomes.

Even if translations were equivalent, my findings still question whether diagnostic instruments for psychiatric disorders capture mental health status among Chinese Americans as it is experienced for the respondents. In other words, diagnostic instruments in the NLAAS are successful at capturing psychiatric symptoms, regardless of language of interview, but they do not capture psycho-emotional distress as it is *understood* and *experienced* by some Chinese Americans. For instance, if Chinese Americans do not recognize their psychiatric symptoms as part of a psychopathology, then the presence or absence of these symptoms does not necessarily affect the way they assess their mental

health. As Kwong et al. (2012) indicate, Chinese Americans do not perceive some types of distress as medical problems. There is also evidence that black and Latina women are less likely to seek mental health help than white women because of different perceptions of the causes of mental health (Alvidrez 1999). This would explain why psychiatric symptoms are less relevant for assessing mental health among some ethnic minorities than among whites in the United States.

Chinese Americans, like other ethnic minority groups, do not only conceptualize their psycho-emotional distress differently, but also express it differently. There is empirical evidence, for example, that Chinese Americans express distress in culturally-specific ways (Takeuchi et al. 2002) which differ from the ways in which white Americans typically express distress. *Shenjing shuairuo* or neurasthenia, for example, is recognized in China as “weakness of nerves” disorder. Neurasthenia involves emotional symptoms, but focuses on physical symptoms like fatigue, pain and sleep disturbances. Schwartz briefly explains that neurasthenia was described as a decrease in vital energy, which could be caused by external or internal factors including malfunctioning of vital organs (2002: 258). Whereas Western medicine locates the core of depression mainly in the mind or the brain, Chinese medicine conceptualizes depression in a bodily form (Kleinman 1982, 2004). Future research should investigate whether somatization can explain why Chinese Americans assess their mental health as worse when interviewed in Chinese rather than English.

Language proficiency

In testing the role of acculturation, my findings show that acculturation measures leave the relationship between language of interview and mental health outcomes almost

unexplained until I account for the moderating effect of English proficiency. Chinese Americans who are interviewed in Chinese (vs. English) tend to have higher risk of worse SRMH without disorder (holistic model), because of their lower English proficiency. Conversely, English-interviewees are more likely to assess their mental health based on the presence or absence of symptoms, especially at higher levels of English proficiency. Language of interview triggers understandings of health that were developed in that particular language, with proficiency in that language facilitating greater access to those understandings of health.

My findings suggest that a sociolinguistic mechanism is involved in the relationship between language of interview and mental health outcomes. Sociolinguistic scholars contend that language elicits culture-specific thoughts, memories, beliefs and even identities and personalities. Some experiences are more easily recalled in the language in which the experience was formed (Aragno and Schlachet 1996), which may affect assessments of mental health. Perhaps, for example, for bilingual speakers, experiences in English are instrumental (i.e., work and school) while Chinese is used in more intimate and personal situations. Research on bilinguals shows that feelings and identities shift depending on the language used to report them (Chen, Benet-Martínez, and Ng 2014; Koven 1998). Some experiences may even be language-specific (Lee et al. 2007), which would prevent the person from properly understanding the experience in a different language. Based on this, interviews in Chinese would mostly elicit memories formed in Chinese as well as Chinese cultural norms to understand mental health. This may be why Chinese-interviewees are more likely to follow the holistic model of mental health than English-interviewees.

Potential sociolinguistic mechanisms among Chinese Americans in the way they understand their mental health need further exploration. For example, neighborhood co-ethnic density may be deeply involved in this phenomenon. Neighborhoods with higher ethnic density provide an environment where language is closely attached to cultural experiences. If Chinese values involve using a holistic model to understand health, then Chinese Americans living in areas of high ethnic density could be more likely to use a holistic model to assess their health. There is some evidence of this potential mechanism. High ethnic density has been found to be associated with better self-rated health (Walton 2015) among Asian Americans and lower level of depressive symptoms among Hispanics (Gerst et al. 2011; Ostir et al. 2003; Shell, Peek, and Eschbach 2013). Future research exploring the effects of neighborhood co-ethnic composition on the relationship between language and mental health outcomes will also need to disentangle the sociolinguistic aspect of it from the protective effect of social support from co-ethnics.

Furthermore, the language effect on self-rated health does not only pertain to language of interview between Chinese and English. Language proficiency has a similar relationship with self-rated health. Across Latinos and various Asian ethnicities (including Chinese), those with limited English proficiency have worse self-rated health despite having fewer physical problems (Kandula et al. 2007; Kimbro et al. 2012). Okafor, Carter-Pokras, Picot, & Zhan (2013) found a similar pattern in a sample of African immigrants. This suggests that the effect may be particular to the English language, which seems to lead to better ratings of health regardless of chronic diseases.

It is important to note that language of interview, language proficiency and their interaction were not significantly associated with worse SMRH with disorder (medical

model) or better SRMH with disorder (holistic model). This could be due to the fact that Chinese Americans, compared to other racial and ethnic groups in the U.S., are less likely to meet criteria for psychiatric disorders. Asian Americans in general tend to have the lowest prevalence rates of mental illnesses, compared to other racial/ethnic groups in the United States (Substance Abuse and Mental Health Services Administration 2015: 22). The small number of respondents in these groups (N=40 with worse SMRH-with disorder and N=21 with better SRMH-with disorder) might have limited statistical power to observe any existing patterns. The literature of mental health can greatly benefit from future research exploring how immigrant groups with psychiatric conditions understand and assess their mental health and what factors contribute to it.

CONCLUSIONS

Language of interview is associated with mental health outcomes among Chinese Americans living in the United States. Relative to those interviewed in English, respondents who are interviewed in Chinese are more likely to report worse SRMH despite not meeting criteria for the most common psychiatric conditions (vs. better SRMH and no disorder). The interdependence between language of interview and English proficiency seems to be at least one explanatory mechanism. My results suggest that understandings of mental health get lost in translation because English and Chinese languages carry different cultural norms to define mental health. English interviews trigger medical understandings of mental health especially when English proficiency is high enough to allow these cultural norms to be acquired. Conversely, Chinese interviews lead to follow the holistic model because low English proficiency prevent talking about

mental health in medical terms. Future studies can advance the literature on immigrants' mental health by exploring sociolinguistic mechanisms involved in the acquisition and reproduction of concepts and expressions of health and illness among immigrant populations.

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Table 3.1. Sample characteristics by interview language.

	<u>Interview language</u>			<u>Total</u>
	<u>Total</u>	<u>Chinese</u>	<u>English</u>	<u>Imputed</u>
<i>N</i> (% of total sample)	599 (100%)	289 (48%)	310 (52%)	13.0%
<i>Mental health outcomes</i>				0
Better SRMH-no disorder	50.4%	30.8%	68.7% ***	
Worse SRMH-with disorder	6.7%	4.8%	8.4%	
Better SRMH-with disorder	3.5%	0.7%	6.1%	
Worse SRMH-no disorder	39.4%	63.7%	16.8%	
<i>Acculturation</i>				0
Age at immigration				
U.S.-born	21.2%	1.4%	39.7% **	
Child (less than 18yr)	18.2%	11.4%	24.5%	
Young (18-34)	43.9%	56.1%	32.6%	
Adult (35yr or older)	16.7%	31.1%	3.2%	
U.S. citizen	68.1%	57.4%	78.1% ***	0
Chinese identity	9.48 (.07)	9.68 (.10)	9.28 (.10) *	1.3
English proficiency	7.83 (.13)	5.68 (.14)	9.84 (.12) ***	0.3
Chinese proficiency	8.46 (.13)	9.44 (.14)	7.54 (.21) ***	10.9
Family language				11.4
Chinese mostly/only	71.1%	94.4%	49.3% **	
Chinese/English equally	11.2%	4.5%	17.4%	
English mostly/only	17.8%	1.0%	33.4%	
Friends language				11.2
Chinese mostly/only	46.1%	77.0%	17.2% ***	
Chinese/English equally	20.2%	17.2%	22.9%	
English mostly/only	33.7%	5.8%	59.8%	
<i>Demographic & other controls</i>				
Age at interview	41.61 (.57)	45.63 (.77)	37.86 (.78) **	0
Income-to-needs ratio	6.24 (.22)	5.14 (.29)	7.26 (.32) **	0
Female	52.8%	56.4%	49.4% *	0
Education				0
High School or less	30.2%	48.1%	13.5% ***	
Some college	19.5%	17.0%	21.9%	
College or more	50.3%	34.9%	64.5%	
Marital status				0
Married/cohabiting	69.1%	80.6%	58.4% ***	
Separated/divorced/widowed	10.2%	10.7%	9.7%	
Never married	20.7%	8.7%	31.9%	
Insured	85.0%	78.5%	91.0% **	0
Family cohesion	10.7 (.07)	11.11 (.08)	10.39 (.11) ***	0.5
Family conflict	3.99 (.05)	3.69 (.06)	4.27 (.07) ***	0.8
Perceived social position	5.76 (.08)	4.96 (.11)	6.50 (.09) ***	1.67

Test of difference by language of interview: * $p < .05$, ** $p < .01$, *** $p < .001$

Source: National Latino and Asian American Study (NLAAS), Chinese American sample (N=599).

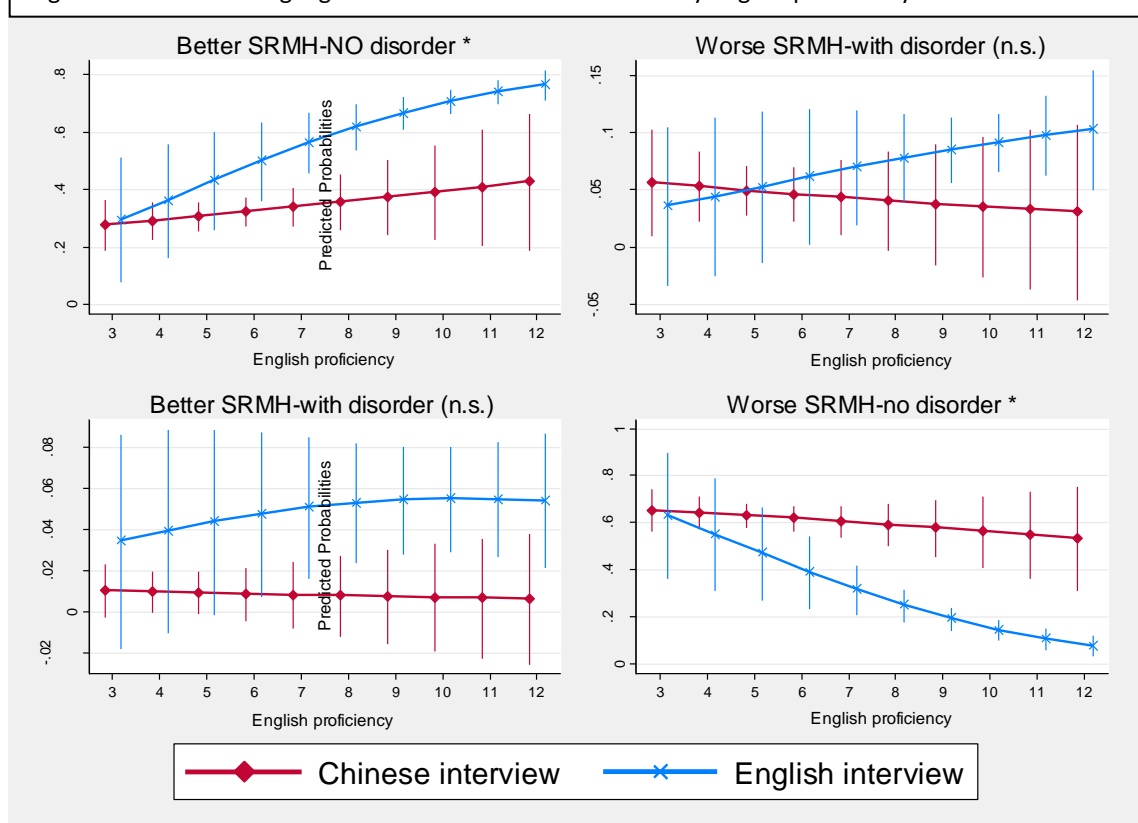
Table 3.2. Weighted relative risk ratios (RRR) of mental health outcomes among Chinese Americans by language of interview

	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
<i>Language of interview</i>									
Chinese	.94 (.59)	1.22 (.89)	4.05 (8.07)	.53 (.41)	.29 (.35)	.34 (.82)	7.39 (1.82)***	5.35 (1.86)***	.49 (.54)
<i>Acculturation</i>									
Age at immigration (U.S.-born)									
Child (less than 18yr)		1.47 (.99)	1.72 (1.12)		.07 (.09)*	.07 (.10)		.50 (.26)	.41 (.23)
Young (18-34)		.46 (.38)	.52 (.42)		.03 (.04)*	.03 (.05)*		1.44 (.60)	1.33 (.60)
Adult (35yr or older)		2.44 (2.08)	2.26 (1.95)		.49 (.79)	.47 (.74)		1.64 (1.14)	1.73 (1.24)
U.S. citizen		.61 (.45)	.58 (.40)		.06 (.06)**	.06 (.06)**		1.42 (.45)	1.47 (.46)
Chinese identity		1.46 (.20)**	1.45 (.20)*		1.24 (.17)	1.24 (.18)		1.03 (.07)	1.02 (.07)
English proficiency		.97 (.13)	1.00 (.17)		.95 (.11)	.94 (.12)		.82 (.05)**	.68 (.07)***
Chinese proficiency		.96 (.11)	.96 (.11)		1.19 (.22)	1.19 (.22)		.96 (.06)	.95 (.06)
<i>Family language</i>									
Chinese mostly/only		.75 (.53)	.79 (.56)		.17 (.15)	.17 (.16)*		.82 (.44)	.72 (.40)
Chinese/English equally (English mostly/only)		1.33 (.90)	1.53 (1.05)		.52 (.51)	.53 (.51)		1.57 (.93)	1.45 (.87)
<i>Friends language</i>									
Chinese mostly/only		.58 (.58)	.46 (.47)		1.10 (1.45)	1.04 (1.42)		1.21 (.70)	1.39 (.79)
Chinese/English equally (English mostly/only)		.24 (.21)	.24 (.21)		1.01 (1.54)	.99 (1.49)		1.13 (.50)	1.09 (.50)
Interview language*English proficiency			.83 (.20)			.95 (.36)			1.35 (.17)*

Notes: (1) The reference category for each mental health outcome is better SRMH-no disorder; (2) *p<.05, **p<.01, ***p<.001; (3) Wald tests for variables added in models 2 and 3 are statistically significant at p<.05, indicating improvement in model fitness. Standard errors are in parentheses.

Source: National Latino and Asian American Study (NLAAS), Chinese American sample (N=599).

Figure 3.1. Effect of language of interview on mental health by English proficiency



Note: Interactions for outcomes with an asterisk (*) indicate statistical significance at $p < .05$, while outcomes with "n.s." indicate non-significance.

CHAPTER 4

Like mother, like child: Is self-rated health passed on from generation to generation?

Evidence of a “Hispanic health paradox,” in which Hispanic adults in the United States have better health outcomes than expected given low average socioeconomic status, has been widely documented (Elo et al. 2004; Hummer et al. 2007; Markides and Coreil 1986). There is also evidence that, despite their health advantages, Hispanic adults tend to assess their own health as worse than their white counterparts (Bzostek et al. 2007, Finch et al. 2002). Understanding the factors involved in self-rated health is important because of its wide use in social surveys and clinical settings, and its strong predictive power for subsequent mortality and morbidity outcomes (Desalvo et al. 2005; Idler and Benyamini 1997; Jylhä 2009). Self-rated health (SRH) is also a very convenient measure as it consists of a single-item that asks people to rate their own overall health using a 5-category scale from excellent to poor health. Many social science surveys use proxy (most often maternal) ratings of children’s health to document children’s health status and social disparities in child health. Yet little research to date has focused on children’s own SRH, and the extent to which documented differences across social groups of adults (like the differences between whites and Latinos adults) also extend to children.

There is evidence that expressions of illness are shaped by cultural norms and may be learned in the family context. For example, Guarnaccia et al. (2005) found that children present *ataque de nervios*—an established cultural syndrome of emotional distress which is more common in Caribbean cultures— if they have observed it at home.

This suggests that children learn from home that *ataque de nervios* is a culturally appropriate way of expressing distress. These cultural differences may also lead to or reflect differences in conceptions of health, with parents passing on their understandings and reporting styles to their children.

In terms of SRH, children may internalize and mirror their parents' ways of assessing and reporting their own health, resulting in a similar pattern of ethnic differences in SRH among children and their parents. We know that Latino/a adults tend to rate their health worse than U.S.-born Latinos and non-Hispanic whites. These differences in SRH have been at least partially attributed to lower levels of acculturation to American society among Latino immigrants (Shetterly et al. 1996). Children of less acculturated Latinos may learn to assess their own health in a similar manner, leading to worse SRH among Latino children than among white children.

In this paper, we examine whether Latino children's SRH is also worse than non-Hispanic white children's SRH, and whether there are racial/ethnic differences in the concordance between children's and mothers' ratings of the children's health. Given the evidence from previous research about the relationship between acculturation and SRH, we also investigate the potential role of mothers' acculturation in explaining any relationships found between children's SRH and race/ethnicity.

BACKGROUND

Ethnic differences in self-rated health

The link between self-rated health (SRH) and mortality has been well-established. In two seminal review studies (Desalvo et al. 2005; Idler and Benyamini 1997), for

example, the authors found strong connections between worse global SRH and a higher risk of subsequent mortality. Despite this generally robust link between SRH and morbidity/mortality, researchers have also identified cases in which this association is weaker. For instance, worse SRH is less predictive of higher morbidity among less-accultured Latinos compared to U.S.-born and more acculturated Latinos (Finch et al. 2002; Kandula, Lauderdale, and Baker 2007).

Differences between self-rated and other measures of health for some population subgroups suggest that self-rated measures capture something distinct from (or in addition to) other measures. Scholars argue that the self-rated health measure encompasses various aspects of people's lives that affect their risk for disease and mortality, such as the respondent's cultural context and capacity to evaluate physiological signs of disease and mortality (Angel and Guarnaccia 1989; Jylhä 2009). It is also possible that Latinos understand health and illness in a more holistic way, in which social and cultural factors such as cultural ties and norms about health may even more relevant than some symptoms (Guarnaccia et al. 2012; Guarnaccia and Pincay 2008; Yang et al. 2007).

Latino children may learn to assess their own health following their parents' concepts of health and reporting styles. The literature on this is very limited because children are not usually asked to assess their own health. Most medical and clinical studies have relied on parents' reports as proxies, largely because children are usually not surveyed about their own health. Recent research, however, calls for inclusion of children's own accounts of health given their proven capacity to assess their health

meaningfully when measures are appropriate to their age (Creemens et al. 2006; Riley 2004; Varni, Limbers, and Burwinkle 2007).

Although they do not report results by race/ethnicity or acculturation, findings by Varni et al. (2007) suggest that children as young as 5 years old of various racial and ethnic backgrounds are capable of rating their own health. We know of only one existing study that investigates ethnic differences of mother's self-rated health and ratings of their children's health. Jiménez et al. (2007) found that Latino mothers rated both their own health and their children's health as worse than their non-Hispanic white counterparts. However, children's *own* self-rated health was not investigated in this study. In our study, not only mothers were asked to rate their children's health. Children themselves were asked to rate their own health with the following question: "How do you rate your health? Excellent, very good, good, fair or poor?" The inclusion of this question, administered to a large sample of racial/ethnic minorities including Latinos, allows us to compare their assessments of health, and test for racial/ethnic differences and the role of acculturation. We also expand this literature by testing the extent to which conceptions of health and reporting styles seem to be passed on from generation to generation.

Acculturation: Contextualizing children's self-rated health

Acculturation to the United States seems to play a central role in how immigrant groups assess their health. Gans (2007) explains that newcomers (i.e., Latino immigrants) tend to adopt the norms and behaviors of the host society (i.e., United States) with greater exposure to it. Understandings of health and reporting styles, as reflected in self-rated health, may be a cultural aspect that changes with acculturation. Less acculturated Latinos may consider their social standing and context as important for their health, and

may rate it poorly given their disadvantaged status in American society. With more acculturation, they may learn to rely on their symptoms more heavily to assess their health. In fact, Shetterly et al. (1996) found that more acculturated Latinos had better self-rated health than less-acculturated Latinos, resembling non-Hispanic whites' better self-rated health. This suggests that the Latino-white difference in self-rated health may be due to different acculturation levels.

Given that mothers are usually their children's primary caregivers, their influence is substantial in the socialization process and health outcomes of their children. Case and Paxson (2002) argue that there are various parental behaviors (e.g., smoking and alcohol consumption) and contextual factors (e.g., socioeconomic conditions) that affect children's health outcomes. We argue that cultural background is one important contextual factor that affects children's health outcomes. In particular, cultural context, practices, and behaviors of mothers can affect the way children understand and assess their own health.

A good example of how family and cultural context may affect children's health is illustrated in the culture-bound syndrome literature. For example, *Ataque de Nervios* (AdN) literally translates into "nervous breakdown," and it has been mostly found among Caribbeans. Given its cultural specificity, it is now considered an idiom of distress and was included in the DSM-IV as a culture-bound syndrome (Alegría et al. 2004; USDHHS 2001). Guarnaccia et al. (2005) found that family history of *Ataque de Nervios* (AdN) was associated with AdN in children. Family history of other mental illness in general, however, was not predictive of AdN in children. This suggests that Puerto Rican children must learn that AdN is a culturally appropriate way of expressing distress. If expressions

of distress can be transmitted from parents to their children, ideas about health and ways to report health status can also be influenced by the cultural surroundings of the child's family.

Some researchers have found that higher parental acculturation to the U.S. is associated with parents rating their children's health as better. Jimenez et al. (2007) provide useful information about potential predictors of mothers' ratings of their children's health. Using data from the Fragile Families and Child Well-being Study (FFCWS), they find that Hispanic mothers interviewed in Spanish rated their own health and their children's health worse than mothers interviewed in English. They also find that U.S.-born Hispanic mothers have better ratings of their children's health than immigrant mothers. These findings indicate that being interviewed in Spanish and being foreign-born has negative effects on how Latina mothers' rate their children's health. In addition, Donato et al. (2003) find that parents with more exposure to the U.S., whether they live in Mexico or the U.S., rate their children's health better than parents with less exposure the U.S. This suggests that higher exposure to the U.S. (i.e., higher acculturation for those who live in the U.S.) may improve parents' ratings of children's health. Exploring the effects of mothers' acculturation on ratings of children's health provides an opportunity to investigate how exposure to the U.S. affects ratings of children's health.

It is also important to study parent-child agreement in ratings of child's health because the degree of this agreement is poorly understood. Some scholars have found that children rate their health better than their parents for healthy children and children diagnosed with a chronic illness (Dey, Landolt, and Mohler-Kuo 2013; Levi and Drotar 1999; Parsons et al. 2012). Others find that parents have better ratings than their food-

allergic children (van der Velde et al. 2011) and their asthmatic children (Petsios et al. 2011). Using a multi-item instrument to measure health-related quality of life, these studies highlight the importance of including both children's self-rated health and mother's reports to better understand child health. However, none of these studies consider the potential role of race/ethnicity that may affect the level and direction of disagreement between parental and child reports of children's health. These studies also ignore the relevance of nativity and acculturation in generational differences.

Acculturation may help to explain some of the generational differences in health outcomes (both self-rated and symptom-based). The second-generation (i.e., children of immigrants) differ from the first, third and higher generations in their levels of acculturation to American culture and institutions (Rumbaut and Portes 2001). For example, Mexican immigrants are less likely than their U.S.-born children to be fluent in English and to have conflicting ethnic identities (Lopez and Stanton-Salazar 2001). These differences in socialization processes may affect the way these groups understand and assess their health. This could help to explain why Mexican immigrants (less acculturated) have worse self-rated health, on average, than their U.S.-born counterparts (Bzostek, Goldman, and Pebley 2007; Campbell et al. 2012; Finch et al. 2002).

Study aims

In this paper, we test the role of maternal (as a proxy for familial) acculturation in children's self-rated health, and whether it is related to child-mother agreement in ratings of the child's health. We aim to answer the following research questions: (1) *Are there racial or ethnic differences in children's self-rated health?* (2) *Does mother-child concordance on ratings of the child's health vary by race/ethnicity?* and (3) *What is the*

role of mother's nativity and acculturation to the U.S. in explaining the relationships identified in research questions 1 and 2?

Based on evidence from the literature presented above, we expect Latino children to have worse self-rated health than their non-Hispanic white counterparts, following adults' patterns (hypothesis 1). We also expect that mother-child agreement is lower among Latino children and their mothers due to their difference in acculturation levels, compared to white children and mothers (hypothesis 2). In testing the role of acculturation (hypothesis 3), we expect that having a mother with relatively low acculturation to the U.S. will worsen Latino children's self-rated health compared to their non-Hispanic white peers. We also suspect that Latina mothers are likely to have worse ratings of the child's health than the child her/himself, due to differences in their acculturation levels. However, it is possible that different aspects of acculturation may affect ratings of children's health at different magnitudes and even different directions.

DATA AND ANALYTIC PLAN

We use data from the Fragile Families and Child Well-being Study, which is a longitudinal study of a birth cohort of just under 5,000 children born in large U.S. cities between 1998 and 2000. Data were collected in the hospital at the time of the child's birth, and follow-up interviews occurred when the children were approximately one, three, five, and nine-years old. See Reichman et al. (2001) for details about the study. We use data from both the baseline interviews with mothers at the time of the child's birth and the interviews with both mothers and their children when the children were approximately nine years old.

We limit our analytic sample to cases where the biological mother is the primary caregiver of the child as reported in the year-9 survey and to cases with no missing values on any of our outcome variables. Our final analytic sample consists of N=3058, and includes a total of 20 imputations for cases with missing data in any independent or control variable (17.63% missing values). The largest number of missing/imputed values comes from our measures of attachment to racial/ethnic heritage (7.59%) and participation in cultural practices of one's own group (6.59%).

Outcome variables

Child's self-rated health: The original survey question asked children at the 9-year interview the following question: "In general, how is your health? Would you say it is... Excellent, very good, good, fair, or poor?" We use this variable to create a 4-category measure of child's self-rated health, where 1=excellent and 4=fair/poor. We combine "fair" and "poor" because there are few children in each of these categories, especially in "poor."

Concordance in mother's and child's ratings of child's health: Mothers were asked to rate their child's health during the year-9 interview with the following question: "In general, would you say child's health is: Excellent, very good, good, fair, or poor?" As we did with the children's self-ratings, we recode fair/poor into one category. To measure concordance between child's self-rated health and mother's rating of the child's health, we combine these two measures to create a 3-category variable: (1) child's self-rated health and mother's rating of child's health *match*; (2) child's self-rated health is *worse* than mother's rating of child's health; and (3) child's self-rated health is *better* than mother's rating of the child's health.

Predictor variables

Race, ethnicity and acculturation to the U.S.: To measure race and ethnicity, we combine three variables: Mother's self-reported race and country of origin/ancestry for those who reported being Hispanic from the baseline wave, and mother's language of interview from the year-9 interview. We use mothers' reports because all of the children in the study were interviewed in English and the survey did not ask children to report their own race/ethnicity or ethnic origin. We create a 7-category nominal variable based on the mothers' information: (1) Non-Hispanic white; (2) non-Hispanic black; (3) Mexican-origin, interviewed in Spanish; (4) Mexican-origin, interviewed in English; (5) other Hispanic interviewed in Spanish; (6) other Hispanic interviewed in English; and (7) other race. Because the sample sizes of "other Hispanic" and "other race" were small, we are unable to distinguish by country of origin/ancestry.

We include several measures of acculturation in our models. First, we combine information about mothers' immigrant status and year of immigration to create a three-category variable: (1) U.S.-born; (2) less acculturated immigrant (15 years or less in the U.S.); and (3) more acculturated immigrant (more than 15 years in the U.S.). We also include two measures from the year-1 interview that ask mothers about closeness to their cultural heritage and cultural practices they follow. The former is measured with the following question: "I feel an attachment toward my own racial or ethnic heritage. Do you strongly agree, somewhat agree, somewhat disagree, or strongly disagree?" The latter item is measured as follows: "I participate in cultural practices of my own group, such as special food, music, or customs. Do you strongly agree, somewhat agree, somewhat

disagree, or strongly disagree?” Each of these variables is coded as (1) strongly agree, (2) agree, (3) disagree, and (4) strongly disagree.

Control variables: Control variables are taken from the baseline and year-9 waves.

We control for mother’s socioeconomic status at year-9, as measured by her educational attainment, receiving public assistance in the previous year, having worked during the year prior to the child’s birth, and having unmet medical needs in the past year due to financial problems at home. We also control for child’s low birth weight, body mass index percentile (normal, overweight-not obese, obese), diagnosed disabilities, whether the child is insured, frequency of well-child visits (past year), and having a regular place for health care. Maternal characteristics include symptoms of depression, which is based on the Composite International Diagnostic Interview Short-Form (Kessler et al. 1998). We also control for mother’s health insurance coverage, mother’s age at birth, whether the focal child was her firstborn, and mother’s marital status at the time of the child’s birth. We account for family structure at the nine-year interview with a variable indicating whether the mother was: married/cohabiting with the child’s biological father; married/cohabiting with a partner who is not the child’s biological father (a “social father”); or lived without a romantic partner (a “single” mother).

Sample characteristics

Appendix A summarizes the proportions and means for all variables in our regression models (N=3058). Close to half of the children in our sample (44%) rate their health as excellent, while only 6% rate it as poor/fair. In terms of mother-child agreement in ratings of the child’s health, about 40% agree perfectly, 38% of children have worse ratings than their mothers, and the remaining 22% of children rate their health better than

their mothers do. Our sample is racially and ethnically diverse, with 15% being Mexican-origin Hispanic (6% interviewed in Spanish), 10% other Hispanic (3% interviewed in Spanish), 51% non-Hispanic black, 4% some other race/ethnicity, and 20% white non-Hispanic. In terms of mother's nativity and time in the U.S., most of the mothers in the sample are U.S.-born (85%); of those who are foreign-born, 6% had been in the U.S. 15 years or less while 9% had been in the U.S. more than 15 years. Nearly half of the mothers in the sample report strong attachment towards their own racial/ethnic heritage, and 11% report no attachment. A third of the mothers report strong participation in cultural practices of their own group, while 16% report no participation. All children in the FFCWS were born in the U.S. and were interviewed in English.

Analytic plan: We use ordered logistic regression models to test whether there are racial/ethnic differences in children's ratings of their own health. We expect to find that Mexican children rate their own health worse than their white peers, following their mothers' patterns (hypothesis 1). Next, we use multinomial logistic regression models to predict agreement between the child and mother's ratings of the child's health, using the three previously-described categories of agreement (perfect agreement [reference category]; child's rating is better; and mother's rating is better). We expect that there will be more disagreement among Mexican children and their mothers compared to whites (hypothesis 2). Finally, we add the acculturation measures to each of the previous models to test for the role of mother's acculturation to the United States. In these models, we expect to find that adding maternal acculturation will explain at least some of the associations found in hypotheses 1 and 2 (hypothesis 3).

We include all control variables in all regression models. Our results are based on unweighted analyses with imputed data. In separate analyses (not shown), we conducted complete case analysis with national weights, and those results were similar to the results from the imputed, unweighted model presented in this paper.

RESULTS

Racial/ethnic differences in children's self-rated health

Table 4.1 shows the sample characteristics by race/ethnicity (our key independent variable). On average, Mexican children tend to have lower ratings of their own health compared to their non-Hispanic white counterparts ($p < .05$). This provides preliminary support for hypothesis 1 that Mexican children may mimic Mexican adults by reporting worse self-rated health. This table also shows racial/ethnic differences in mother-child agreement in ratings of the child's health. Overall, there is more mother-child disagreement among Mexicans, other Hispanics and blacks than among whites ($p < .05$). For example, the proportion of Mexican, other Hispanic and black children reporting better self-rated health than their mothers rate their children's health is higher than the proportion of whites in this category ($p < .05$). This pattern serves as an initial indication that hypothesis 2 (more mother-child disagreement among Latinos than whites) may be supported.

Table 4.2 shows the results from ordered logistic regressions testing the relationship between race/ethnicity and children's self-rated health. Model 1 includes only race/ethnicity and control variables, and Model 2 adds in the maternal immigration/acclimation measures. Across models, Mexican-origin children (regardless

of mother's language of interview) have worse self-rated health than non-Hispanic white children. The magnitude of these differences was *larger* after including maternal immigration and acculturation measures. The odds of worse self-rated health increases to 1.95 in model 2 (from 1.58 in model 1) for Mexican children with mothers interviewed in Spanish, and to 1.57 (from 1.44) for Mexican children with mothers interviewed in English (both at $p \leq .01$). This means that maternal acculturation may have a suppression effect on the relationship between being ethnically Mexican and self-rated health among children.

As previously-noted, it is possible that different aspects of maternal acculturation will relate differently to children's SRH. In these results, one measure of acculturation (participation in cultural practices) seems to be the main driver of this pattern, with the only significant difference lying between strong participation and no participation at all. We consider such maternal participation in cultural practices to be an indicator of low acculturation, which (in this case) seems to be protective for children's SRH. In other words, the negative effect of being Mexican on children's self-rated health is accentuated once the protective effects of maternal low acculturation on children's self-rated health is accounted for. Children of mothers who do not participate in cultural practices of their own race/ethnicity have 33% (OR=1.33) higher odds of rating their own health worse ($p \leq .05$) than children of mothers with the highest level of participation.

To test whether this particular phenomenon among Mexican-origin subsample, we conducted this same analysis for Mexican-origin children only (not shown here) and found similar patterns: Having mothers with no participation in cultural practices of their own racial/ethnic group seems to worsen children's self-rated health, but at a marginal

level of significance ($OR=2.00$, $p=.05$). Although this marginal significance may be due to limited statistical power given the smaller sample, this may mean that the relationship may be weaker for Mexican Americans than for the sample in general. These analyses may also suggest that participation in cultural practices of own race/ethnicity may capture access to social networks and support more than cultural engagement or even level of acculturation.

In terms of the other measures of acculturation we consider, neither mother's time in the U.S. nor maternal attachment to ethnic heritage is statistically (or substantively) significant predictors of children's SRH. Consistent with previous findings about the role of language of interview in SRH, however, we do find that mothers being interviewed in Spanish sometimes predicts worse SRH among children. Post-hoc comparisons also show that Mexican children whose mothers were interviewed in Spanish have significantly worse SRH than black children, non-Mexican Hispanic children with mothers interviewed in English and children in the "other race" category. This indicates that children of Mexican origin whose mothers chose to be interviewed in Spanish (considered here to be less acculturated mothers) tend to have worse SRH, even when compared to other racial/ethnic minorities. Mexican children with mother interviewed in English and other-Hispanic children with mothers interviewed in Spanish were not different from Mexican children with mothers interviewed in Spanish. This underscores the relevance of both ethnicity and language in children's SRH.

In summary, in testing racial/ethnic differences in children's self-rated health, we find that Mexican-origin children have worse SRH than children of other racial/ethnic groups. This finding supports hypothesis 1. We also find that mothers' participation in

cultural practices may attenuate the negative effects of being an ethnically Mexican child on SRH. Aligned with research on the effects of language of interview on SRH, children with mothers who choose Spanish as their language of interview tend to have worse SRH than their peers. Putting these findings together, it is important to highlight that Spanish language of interview and participation in cultural practices—assuming they are both aspects of acculturation—seem to operate in opposite directions. Stronger participation in cultural practices (low acculturation) seem to improve children’s SRH, opposite to our expectations, while Spanish interviews (low acculturation) seem to worsen children’s SRH, as expected.

Mother-child (dis)agreement in ratings of the child’s health

Table 4.3 displays results from multinomial logistic regressions testing whether mother-child agreement on ratings of the child’s health vary by race/ethnicity (model 1), and whether maternal acculturation plays a role in this relationship (model 2). Relative to white children, Mexican children with mothers interviewed in Spanish and black children have higher relative risk of rating their health better than their mothers rate them, vs. perfect agreement ($p < .01$). Mexican children with mothers interviewed in Spanish have 151% greater risk ($RRR = 2.51$) of rating their own health better than their mothers (vs. perfect agreement), relative to white children ($p < .01$). When acculturation measures are added to the model, this relationship becomes statistically non-significant, although at a marginal level ($.05 < p < .10$). In other words, acculturation helps to explain why Mexican children with mothers interviewed in Spanish rate their health better than their mothers. For black children, the relative risk of rating their own health better than their mothers (rather than agreeing) are approximately 60 percent higher than for whites ($p < .01$) in

model 1, and acculturation does not affect this relationship (i.e., the magnitude does not change when acculturation measures are added in model 2).

In addition, children with mothers who do not participate in cultural practices have higher odds of rating their health worse than their mothers (OR=1.45, $p<.05$) rather than agreeing, compared to children with mother who strongly participate in cultural practices. Taken together with the previous finding (Table 4.2) that children whose mothers do not participate in cultural practices rate their own health worse, these findings indicate that having a mother who does not participate in cultural practices such as food, music or customs worsens children's perceptions of their health.

In sum, we find that Mexican children have worse self-rated health than their white counterparts and other minority children. However, Mexican children's self-rated health is still better, on average, than their mothers' ratings of the child's health. This is especially true for mothers interviewed in Spanish. This pattern is partially explained by measures of maternal acculturation. Even though none of the acculturation measures were directly associated with child rating their health better than their mother, adding acculturation the model (model 2) reduces the relative risk of being Mexican with a mother interviewed in Spanish and the child having better rating of their health compared to their mothers.

DISCUSSION

Why do Mexican children rate their health worse?

In this paper, we investigate racial/ethnic differences in nine-year-old children's self-rated health, and how these ratings differ from their mothers' ratings of the children's

health. Since our main focus is on Latino children and their mothers, we also investigate the role of mother's nativity and acculturation on ratings of the child's health. Our results support our expectations that children from different racial/ethnic backgrounds rate their health differently, controlling for socioeconomic and health conditions. In particular, Mexican children have higher odds of reporting worse health than non-Hispanic white children do (hypothesis 1), regardless of whether their mothers were interviewed in Spanish or English.

These findings align with research that shows Mexican adults' tendency to rate their own health worse than non-Hispanic whites, controlling for chronic conditions and socioeconomic status (Bzostek et al. 2007; Jiménez et al. 2007; Viruell-Fuentes et al. 2011). Children may learn how to assess and report their health from their mothers, and expressions of health such as pain are known to have a significant cultural component (Peacock and Patel 2008) and can be passed on from generation to generation (Guarnaccia et al. 2005). Our results add to this literature by demonstrating that there are particular aspects of the family's context such as language and cultural practices that affect the way children learn to assess and report their own health.

Results from testing the role of mother's acculturation to the U.S. (hypothesis 3) show that different aspects of the acculturation process may operate differently. Mother's participation in cultural practices plays an important role for children's self-rated health, although in the opposite direction we had anticipated. Mother's disengagement from cultural practices of her own group (used in our analyses as an indication of greater acculturation) is linked to children reporting worse SRH, controlling for time in the U.S. and attachment to racial/ethnic heritage. It is worthwhile to think through the

mechanisms through which maternal participation in cultural practices may be protective for children's SRH. Participation in cultural practices also involves reinforcement of social identity and celebrations of cultural values. These aspects involved in cultural practices may be protective of children's health (perceived and otherwise) as they navigate a world in which social support and ethnic pride can shield them from hardships they may face as minorities. It is also possible that lack of participation in cultural practices of one's own ethnic group may signal limited access to social support and isolation, instead of/in addition to indicating a higher level of acculturation.

Like mother, like child?

Analyses testing child-mother (dis)agreement in ratings of the child's health show that compared with white children, Mexican children tend to have better ratings than their mothers rather than being in perfect agreement, especially if the mothers were interviewed in Spanish (supporting Hypothesis 2). This is consistent with previous research finding that Latina mothers with lower acculturation have a particularly strong tendency toward negative ratings of their own health and their children's health (Angel and Worobey 1988; Donato et al. 2003; Jiménez et al. 2007). Our findings also fit within the general pattern that parents with negative self-rated health—Mexican mothers, in this case—are more likely to rate their children's health more negatively than parents with better self-rated health (Barreto, Giatti, and Martinez Hernaez 2011).

We find that differences in self-rated health between Mexican children and their mothers can be partially explained by mothers' acculturation levels. The magnitude and statistical significance of this relationship are both attenuated when acculturation measures (particularly maternal language of interview) are included in the model.

Importantly, although Black children also tend to rate their health better than their mothers do, we do not find that this relationship changes after we account for maternal acculturation. This makes sense, since most black mothers were born in the U.S., meaning that “acculturation” is not a particularly meaningful measure for this group in our sample. Taken together, these findings provide important insights about the relevance of maternal influence on Mexican-origin children’s SRH, especially when it comes to language and participation in cultural practices.

All children in our sample are U.S.-born and, consequently, more likely to be acculturated to the U.S. than their (in some cases) immigrant mothers. This difference in acculturation levels may expose them to different experiences. U.S.-born Mexican children are exposed to American norms and values starting from birth, and children may accordingly assess their health based on American conceptualizations of health, in which the absence of pathological symptoms such as pain or dysfunction indicates good health (Smith 2014). Their immigrant mothers, on the other hand, may rely less on symptoms and more on social factors in understanding their and their children’s health. In fact, language of interview, a commonly used measure of acculturation, affects mother-child agreement, with mothers rating their children’s health worse than the children themselves if mothers were interviewed in Spanish.

In addition to indicating the role of mother’s acculturation in child SRH, the effect of language of interview may also be partially due to previously-documented translation problems with the self-rated health item. Previous research shows that respondents are more likely to choose the “fair” category rather than any other when interviewed in Spanish instead of English (Viruell-Fuentes et al. 2011). *Regular* may have a more

positive connotation than “fair” even though they should have the same meaning. These (and other) authors (Angel and Guarnaccia 1989; Bzostek et al. 2007), suggest that this imperfect translation is at least part of the explanation for why Latinos tend to have poorer assessments of their health when interviewed in Spanish.

The disagreement between mothers and children may also have to do with differences in what they consider important for their health. Mothers may focus on factors that may not be as relevant for children when rating the child’s health. In particular, Mexican mothers may perceive certain factors as bad for their children’s health, which may push their ratings to more negative categories. For example, Guarnaccia et al. (2012) found that Oaxacan immigrants living in New Jersey had concerns about their children’s diets at New Jersey schools because they could not supervise them as well as in Oaxaca (Mexico). In their study, the authors also found that Oaxacan immigrants perceived foods in the U.S. as less fresh and of lower quality than in Oaxaca, which may also affect their assessments of health. These types of concerns may contribute to mothers rating their children’s health worse than the children themselves, if the latter do not see their diets as unhealthy.

It is also important to discuss the circumstances under which children’s self-rated health is worse than their mothers’ ratings. We find that the only factor with a significant association with this type of mother-child disagreement is mother’s lack of participation in cultural practices of their own group. Children with mothers who do not participate in cultural practices of their own racial/ethnic group have higher risk of rating their own health worse than their mothers. It is possible that the benefits of cultural practices on health are perceived differently by mothers and their children. For example, Latina

mothers may not think about the effects of being disengaged from cultural practices on their children's health, while children may perceive it as a source of isolation and lack of social support which could worsen their own SRH.

Limitations

Despite the useful new information these analyses offer for the literature about child health, self-rated health and the Latino Health Paradox, our study also has some limitations. First, most variables that pertain to children are based on mothers' reports (except for children's self-rated health) because children were not asked about them. For instance, we use mother's race/ethnicity as a proxy for children's race/ethnicity because children were not asked to report their own race/ethnicity in the survey. Yet child-mother discrepancies about children's race/ethnicity may exist, especially among mixed-race children (Brunsma 2005). The FFCWS also focuses exclusively on children born in the U.S., which limited our capacity to investigate the effects of children's own nativity on their self-rated health. In addition, children were not given the option of being interviewed in Spanish, preventing us from investigating whether being interviewed in Spanish versus English leads children to report worse self-rated health.

Our measures of acculturation were limited by what was included in the FFCWS. Yet acculturation is an extremely complex concept, and scholars continue to debate about the appropriate use of the concept of acculturation in contrast to other concepts such as "assimilation," "enculturation," "pluralism" or "biculturalism" (Gans 1997; Hunt, Schneider, and Comer 2004; Kim and Omizo 2006; Portes and Zhou 1993; Unger et al. 2007). Future research needs to test existing measures and develop new ones that can capture different aspects of immigrants' adaptation process, including cultural adaptation

(i.e., acculturation) vs. social integration (i.e., assimilation). Our findings also call for testing the extent to which participation in cultural practices is a valid measure of acculturation. These processes may also look different depending on the region of residence. The FFCWS sample is only representative of large urban areas, which raises the question of whether the issues investigated in this paper would look different for people from rural or small urban areas.

Implications

Our results need to be interpreted in the context of the larger literature on children's self-rated health and proxy's reports of child's health. First, we know that children can assess their own health in meaningful ways as young as 5-7 years of age (Creemens et al. 2006; Riley 2004; Varni, Limbers, and Burwinkle 2007). We also know that reports of children's health vary between mothers and fathers, between parents and children with problems such as asthma (Petsios et al. 2011) or mental health (Dey et al. 2013). Altogether, it seems that children's self-rated health, their mothers' and fathers' ratings of the child's health may not always measure the same thing. They may measure different aspects of children's health, given that each of these players may consider different factors to be relevant for these assessments. For this reason, it is important to include child's self-rated health in addition to their parents' and clinicians' when possible.

Our findings may be relevant for children's help-seeking behaviors, especially in relation to the roles of race/ethnicity and acculturation in assessments of the child's health. There is evidence that racial and ethnic differences in understandings of symptoms affect health behaviors. For example, if pain is not culturally understood as a

medical problem, sufferers tend not to seek medical help or even report their pain (see review by Peacock and Patel 2008). However, pain may be an important indicator of pathology that could be missed if expressions of pain are culturally sanctioned.

Exaggerating pain or other health problems may also lead to medication overuse. For instance, Spanish-speaking Mexican and black mothers' worse ratings of the children's health may result in unnecessary treatments.

The effects of mothers' behaviors and ideas of health are also relevant for children's outcomes, including their self-rated health. Parental behavior such as smoking, having their children wear seat belts, and a regular bedtime affect children's risk for health problems (Case and Paxson 2002). Changes in parental behaviors and in understandings of health through the acculturation process will also affect children's risk for disease and self-rated health. Children's health cannot be fully understood unless the social and family contexts surrounding them are taken into account.

CONCLUSIONS

In this paper, we investigate racial/ethnic differences in children's self-rated health as well as in mother-child concordance on ratings of children's health. We also test the role of mother's acculturation to the U.S. in explaining the former relationships. Altogether, our findings highlight the importance of maternal language and ethnicity on children's self-reports of health. Mexican-origin children whose mothers were interviewed in Spanish or English have worse self-rated health than white children. While being a Mexican-origin child and having a mother interviewed in Spanish seem to worsen children's SRH, maternal participation in cultural practices seems to be protective of

children's SRH. Future research should consider exploring children's self-rated health in greater depth to evaluate whether this is a strong predictor of mortality and morbidity as it has been found in some studies on adults (Desalvo et al. 2005, Idler and Benyamini 1997, Jylhä 2009) while also accounting for family cultural and social context.

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Table 4.1. Sample characteristics in proportions by children's race/ethnicity (N= 3058).

	<u>Total</u>	<u>White</u>	<u>Mexican-Spanish</u>	<u>Mexican-English</u>	<u>Other Hispanic-Spanish</u>	<u>Other Hispanic-English</u>	<u>Black</u>	<u>Other</u>
Child's self-rated health								
Excellent	0.44 (.01)	.43 (.02)	.32 (.04) ^a	.40 (.03) ^a	.45 (.06)	.46 (.03)	.46 (.01)	.43 (.05)
Very good	0.29 (.01)	.36 (.02)	.30 (.03)	.24 (.03)	.25 (.05)	.30 (.03)	.26 (.01)	.37 (.05)
Good	0.22 (.01)	.19 (.02)	.31 (.03)	.29 (.03)	.27 (.05)	.19 (.03)	.21 (.01)	.12 (.03)
Fair/poor	0.06 (.00)	.03 (.01)	.07 (.02)	.08 (.02)	.04 (.02)	.05 (.01)	.06 (.01)	.08 (.03)
Mother-child (dis)agreement								
Perfect agreement	0.40 (.01)	.45 (.02)	.31 (.04)	.37 (.03)	.46 (.06)	.37 (.03)	.39 (.01)	.46 (.05)
Child's rating is worse than mother's	0.38 (.01)	.40 (.02)	.42 (.04) ^b	.43 (.03)	.27 (.05)	.41 (.03)	.36 (.01)	.35 (.05)
Child's rating is better than mother's	0.22 (.01)	.14 (.01)	.27 (.03) ^b	.19 (.02) ^b	.27 (.05) ^b	.22 (.03) ^b	.25 (.01) ^b	.19 (.04)
Mother's time in the U.S.								
U.S.-born	0.85 (.01)	.96 (.01)	.04 (.01)	.86 (.02)	.07 (.03)	.77 (.03)	.97 (.00)	.45 (.05)
15yrs or less	0.06 (.00)	.01 (.00)	.52 (.04) ^c	.02 (.01)	.51 (.06) ^c	.04 (.01) ^c	.01 (.00)	.13 (.03) ^c
16 yrs or more	0.09 (.01)	.02 (.01)	.45 (.04) ^c	.11 (.02) ^c	.42 (.06) ^c	.19 (.03) ^c	.02 (.00)	.42 (.05) ^c
Mother's attachment to racial/ethnic heritage								
Strong attachment	0.46 (.01)	.31 (.02)	.61 (.04) ^d	.45 (.03) ^d	.65 (.06) ^d	.42 (.03)	.50 (.01) ^d	.51 (.05) ^d
Some attachment	0.33 (.01)	.48 (.02)	.22 (.03)	.35 (.03)	.16 (.05)	.34 (.03)	.28 (.01)	.32 (.05)
Weak attachment	0.09 (.01)	.11 (.01)	.06 (.02)	.11 (.02)	.04 (.03)	.11 (.02)	.09 (.01)	.10 (.03)
No attachment	0.12 (.01)	.10 (.01)	.11 (.03)	.09 (.02)	.14 (.04)	.13 (.02)	.13 (.01)	.06 (.03)
Mother's cultural practices of own group								
Strong participation	0.33 (.01)	.15 (.01)	.61 (.04) ^e	.40 (.03) ^e	.66 (.06) ^e	.47 (.04) ^e	.31 (.01) ^e	.37 (.05) ^e
Some participation	0.34 (.01)	.35 (.02)	.26 (.03)	.35 (.03)	.22 (.05)	.32 (.03)	.35 (.01)	.40 (.05)
Weak participation	0.17 (.01)	.25 (.02)	.06 (.02)	.13 (.02)	.05 (.02)	.10 (.02)	.18 (.01)	.12 (.03)
No participation	0.16 (.01)	.24 (.02)	.06 (.02)	.12 (.02)	.07 (.03)	.10 (.02)	.16 (.01)	.11 (.03)

Estimates are unweighted and include imputed values (m=20).

^aOverall distribution of child's self-rated health is significantly different from non-Hispanic white children's self-rated health.

^bSignificantly different from non-Hispanic whites in comparison to mother-child perfect concordance.

^cSignificantly different from non-Hispanic whites in comparison to U.S.-born mothers.

^dOverall distribution of attachment to racial/ethnic heritage is significantly different from non-Hispanic whites.

^eOverall distribution of engagement in cultural practices of own group is significantly different from non-Hispanic whites.

Table 4.2. Odds ratios (OR) of children's worse self-rated health (N=3058).

	<u>Model 1</u>	<u>Model 2</u>
	OR	OR
Race/ethnicity		
(White non-Hispanic)		
Mexican - Spanish	1.58 (.28)*	1.95 (.45)**
Mexican - English	1.44 (.20)**	1.57 (.23)**
Other Hispanic- Spanish	1.04 (.24)	1.28 (.35)
Other Hispanic- English	.92 (.14)	1.01 (.16)
Black	1.03 (.10)	1.10 (.11)
Other race/ethnicity	1.01 (.19)	1.11 (.23)
Mother's time in the U.S.		
(U.S.-born)		
15 years or less		.86 (.18)
More than 15 years		.94 (.14)
Mother's attachment to one's racial/ethnic heritage		
(Strong attachment)		
Some attachment		1.07 (.09)
Weak attachment		1.06 (.14)
No attachment		.91 (.11)
Mother's cultural practices of one's own group		
(Strong participation)		
Some participation		1.02 (.09)
Weak participation		1.10 (.13)
No participation		1.33 (.16)*

* p<.05; ** p<.01; *** p<.001 (two-tailed tests)

Note: All models include the following control variables: Family income to federal poverty threshold ratio, mother's education, public assistance (past year), unmet medical needs due to financial limitations, mother worked year prior to birth, child's low birth weight, child's BMI percentile, child's diagnosed disability, child is insured, well-child visit (past year), usual place of care for child, mother's depression, mother is insured, child was first birth, mother was married at child's birth, family structure at year-9. Standard errors in parentheses. Imputations are included (m=20).

Table 4.3. Relative risk ratios (RRR) of concordance in mothers' and children's ratings of child's health (N=3058).

	<u>Child's rating is worse than mother's rating</u>		<u>Child's rating is better than mother's rating</u>	
	<u>Model 1</u>	<u>Model 2</u>	<u>Model 1</u>	<u>Model 2</u>
	RRR	RRR	RRR	RRR
Race/ethnicity				
(White)				
Mexican - Spanish	1.32 (.30)	1.58 (.46)	2.51 (.68)**	1.90 (.66)^
Mexican - English	1.31 (.22)	1.40 (.24)^	1.43 (.31)	1.40 (.31)
Other Hispanic-Spanish	.62 (.19)	.73 (.26)	1.46 (.47)	1.11 (.43)
Other Hispanic-English	1.19 (.22)	1.28 (.25)	1.44 (.33)	1.37 (.33)
Black	1.09 (.13)	1.15 (.14)	1.60 (.25)**	1.59 (.26)**
Other race/ethnicity	.85 (.20)	.89 (.23)	1.37 (.40)	1.16 (.37)
Mother's time in U.S.				
(U.S.-born)				
15yrs or less		.79 (.20)		1.43 (.42)
16yrs or more		1.08 (.21)		1.38 (.31)
Mother's attachment to racial/ethnic heritage				
(Strong attachment)				
Some attachment		.97 (.10)		.93 (.12)
Weak attachment		1.11 (.18)		1.10 (.21)
No attachment		1.14 (.18)		1.10 (.20)
Mother's cultural practices of own group				
(Strong participation)				
Some participation		1.02 (.11)		1.15 (.15)
Weak participation		1.05 (.15)		.92 (.16)
No participation		1.45 (.21)*		1.25 (.22)

^p<.10; *p<.05; **p<.01; ***p<.001 (two-tailed tests).

Notes: (1)These results are relative to mother-child perfect matching in ratings of child's health. (2)All models include the following control variables: Family income to federal poverty threshold ratio, mother's education, public assistance (past year), unmet medical needs due to financial limitations, mother worked year prior to birth, child's low birth weight, child's BMI percentile, child's diagnosed disability, child is insured, well-child visit (past year), usual place of care for child, mother's depression, mother is insured, child was first birth, mother was married at child's birth, family structure at year-9. Standard errors in parentheses. Imputations are included (m=20).

Appendix A

Descriptive statistics for all variables, N=3058

	Proportion/mean	S.E.	% Imputed
<i>Assessments of child's health</i>			
Child's self-rated health			0
Excellent	0.44	0.01	
V. good	0.29	0.01	
Good	0.22	0.01	
Fair/poor	0.06	0.00	
Mother-child (dis)agreement			0.52
Perfect agreement	0.40	0.01	
Child's rating is worse than mother's	0.38	0.01	
Child's rating is better than mother's	0.22	0.01	
<i>Race/ethnicity</i>			
			1.7
White	0.20	0.01	
Black	0.51	0.01	
Mexican - interviewed in Spanish	0.06	0.00	
Mexican - interviewed in English	0.09	0.01	
Other Hispanic-interviewed in Spanish	0.03	0.00	
Other Hispanic-interviewed in English	0.07	0.00	
Other race/ethnicity	0.04	0.00	
<i>Mother's acculturation</i>			
Time in the U.S.			1.01
U.S.-born	0.85	0.01	
15yrs or less	0.06	0.00	
16yrs or more	0.09	0.01	
Attachment to racial/ethnic heritage			7.59
Strong attachment	0.46	0.01	
Some attachment	0.33	0.01	
Weak attachment	0.09	0.01	
No attachment	0.11	0.01	
Cultural practices of own group			6.57
Strong participation	0.33	0.01	
Some participation	0.34	0.01	
Weak participation	0.17	0.01	
No participation	0.16	0.01	

Socioeconomic status

Family income to U.S. poverty threshold ratio			1.45
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0-49%	0.17	0.01
50-99%	0.20	0.01
100-199%	0.29	0.01
200-299%	0.14	0.01
300+ %	0.20	0.01

Mother's education			0.88
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Less than High School	0.21	0.01
High School or equivalent	0.21	0.01
Some college or technical degree	0.42	0.01
College or graduate	0.16	0.01

Received public assistance (past year)	0.51	0.01	0.01
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Unmet medical needs due to financial limitations	0.07	0.00	0.92
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Mother worked the year prior to birth	0.78	0.01	0.03
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Child's biomarkers of health

Low birth weight	0.09	0.01	2.58
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Child's BMI percentile			1.21
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Normal	0.58	0.01
Overweight, not obese	0.17	0.01
Obese	0.25	0.01

Child's diagnosed disability	0.38	0.01	1.05
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Child's access to care

Child is insured	0.95	0.00	0.59
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Well-child visit (past year)			0.62
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Never	0.08	0.01
1-3 times	0.83	0.01
4 or more times	0.09	0.01

Place of care			0.56
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MD office/private clinic/HMO	0.78	0.01
Hospital outpatient clinic	0.13	0.01
Other (incl. emergency)	0.08	0.00

<i>Mother's health and health insurance</i>			
Mother's depression	0.16	0.01	1.24
Mother is insured	0.79	0.01	0.92
<i>Conditions at child's birth</i>			
Child is mother's first birth	0.61	0.01	0.29
Mother was married	0.24	0.01	0.52
Mother's age	25.13	0.11	0.07
<i>Family structure when child is 9yrs.</i>			2.22
Married/cohabiting with <i>biological</i> father	0.40	0.01	
Married/cohabiting with <i>social</i> father	0.20	0.01	
Single mother	0.39	0.01	

CHAPTER 5

Conclusion

BACKGROUND AND MOTIVATION

Hispanics and Asian Americans, the two fastest growing groups in the U.S., comprise 23% of the U.S. population (U.S. Census 2012). Mexicans and Chinese are the largest Hispanic and Asian subgroups, respectively. Their presence in the United States has a great impact on the healthcare system and on demand for resources and medical services. However, due to cultural conceptualizations of health that I discuss in this dissertation, the instruments we have to assess the health status of Latinos and Asians living in the United States may not always be accurate, especially when it comes to self-rated health.

Previous literature has identified an “immigrant health paradox,” where recent immigrants have lower morbidity and mortality than their U.S.-born counterparts and even non-Hispanic whites despite having lower socioeconomic status (Alegría et al. 2008; Breslau et al. 2009; Takeuchi et al. 1998; Vega et al. 1998). Existing literature about the immigrant health paradox has relied primarily on measures of health that are based on symptoms established in Western medicine, which may often neglect the subjective experiences of immigrants and their descendants. Moreover, most of the literature on the immigrant health paradox has focused on Mexican Americans’ lower-than-expected mortality and morbidity rates.

In this dissertation, I expand previous research in this area by investigating the extent to which well-documented discrepancies between adult Mexican Americans’ self-rated and symptom-based health extend to the realm of mental health (Chapter 2), and

whether patterns of self-rated versus symptom-based mental health among Chinese American adults are similar to those observed for Mexican Americans (Chapter 3). In the final empirical chapter (Chapter 4), I investigate whether previously-observed racial/ethnic differences in self-rated health among adults are also present in children's self-rated health. Focusing specifically on Latina mothers and their children, I explore possible intergenerational transmission of culturally-influenced rating styles and understandings of health. For each of these three topics, I focus on the role of language and acculturation in self-assessments of health. My analyses use two large national datasets: The National Latino and Asian American Study and the Fragile Families and Child Well-being Study. Below, I summarize the main findings of this dissertation and then discuss the contributions and broader implications of my research.

KEY EMPIRICAL FINDINGS

Chapter 2: Mexican American adults' mental health

Using a nationally representative sample of non-institutionalized Mexican American adults from the National Latino and Asian American Study (NLAAS), Chapter 2 investigated whether discrepancies exist between symptom/diagnosis-based and self-rated overall mental health among Mexican American adults. I focused specifically on the role of language of interview in the association between self-rated mental health and psychiatric conditions, based on previous literature finding that being interviewed in Spanish is associated with worse self-rated health among Latino adults, controlling for chronic conditions (Bzostek, Goldman, & Pebley, 2007; Kandula, Lauderdale, & Baker, 2007). Consistent with prior work on physical health, I found that Mexican Americans

tend to have sub-optimal self-rated mental health despite their apparent resilience against psychiatric disorders, especially if interviewed in Spanish. However, in testing the potential role of acculturation in explaining these patterns, I discovered that the tendency of Spanish-interviewees without psychiatric conditions to rate their mental health worse can be largely explained by lower levels of acculturation among Spanish-interviewees. This does not fully align with findings from the literature on overall/physical self-rated health, where the effect of language of interview on self-assessments of health is not fully explained—although it is reduced—when other acculturation measures are controlled for (Angel and Guarnaccia 1989; Bzostek et al. 2007; Viruell-Fuentes et al. 2011). I argue that conceptualizations of mental health may have a heavier cultural load than physical health, which leads to acculturation measures explaining some of the dissonance between self-rated mental health and psychiatric conditions. 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 influenced by cultural norms.

Although acculturation measures were helpful to explain the language-of-interview effect on mental health outcomes, not all acculturation measures were equally relevant. Proficiency in English and Spanish and ethnic identity were the main drivers of the effects of language of interview, and also had direct associations with mental health outcomes. In general, being proficient in at least one language (English or Spanish) and having a strong Mexican identity were protective against suboptimal self-rated mental health among respondents without psychiatric conditions.

Chapter 3: Chinese American adults' mental health

In the second substantive chapter of this dissertation, I used data from the National Latino and Asian American Study to explore whether the language-of-interview effect on mental health outcomes observed among Mexican American adults (chapter 2) also applies to Chinese Americans. To my knowledge, my study is the first to investigate the role of language and acculturation in the dissonance between self-rated mental health and psychiatric conditions among Chinese Americans. For Chinese Americans, the effect of language of interview on mental health outcomes depends on English proficiency. Similar to findings from chapter 2 (using the Mexican American sample), I found that respondents interviewed in Chinese have lower rates of meeting diagnostic criteria for psychiatric conditions, yet they tend to report worse self-rated mental health, compared to those interviewed in English. Unlike findings from Mexican Americans, however, the association between language of interview and mental health outcomes does not disappear when acculturation measures are added to the analysis. It only disappears when the interaction between language of interview and English proficiency is taken into account. Chinese Americans who are interviewed in Chinese (vs. English) tend to have higher risk of worse SRMH without disorder (dissonant outcomes), because of their lower English proficiency.

I suggest that lower levels of English proficiency likely make it difficult for Chinese Americans to acquire understandings of mental health based on Western medicine norms that depend on the presence or absence of psychiatric symptoms. Conversely, English-interviewees are more likely to assess their mental health based on the presence or absence of symptoms, especially at higher levels of English proficiency. Language of interview may trigger understandings of health that were developed in that

particular language, with proficiency in that language facilitating greater access to those understandings of health.

Chapter 4: Mexican children's self-rated health and mother-child discordance

Although the tendency of Latinos to rate their own health worse than non-Hispanic whites has been well documented (Bzostek et al., 2007; Finch, Hummer, Reindl, & Vega, 2002), very little is known about how Latino children assess their own health. In general, children are not often asked to rate their own health. Instead, parents' reports (mostly maternal reports) are used to document children's health status. In chapter 4, I investigated whether the ethnic disparities that are observed in self-rated health between Latinos and white adults also exist among children. Given the relevance of acculturation in health outcomes including self-rated health (Shetterly, Baxter, Mason, & Hamman, 1996), I also tested the extent to which maternal acculturation to the United States could explain ethnic disparities in self-rated health among children. We know that Latina mothers who are less acculturated and interviewed in Spanish have worse ratings of their children's health than non-Hispanic mothers (Jiménez, You, Padilla, & Powers, 2003), but no study to date has explored racial/ethnic differences in children's own self-rated health.

Using data from the Fragile Families and Child Well-being Study (FFCWS), I found that Mexican-origin children have higher odds of reporting worse health than their non-Hispanic white counterparts, regardless of whether their mothers were interviewed in Spanish or English. This aligns with the literature showing ethnic differences among Latinos and white adults (Bzostek et al., 2007; Jiménez et al., 2003; Viruell-Fuentes, Morenoff, Williams, & House, 2011). Children may acquire understandings of health

from their family context, learning how to assess and report their health from their mothers, whose own assessments of health may be influenced by cultural norms.

Some of these cultural norms to report health may be (re)produced through cultural practices. Based on this logic, I expected that mother's higher engagement in cultural practices of their own group would be detrimental for children's self-rated health among Mexican children, given Mexican American adults' tendency to have worse self-rated mental health (as found in chapter 2). My finding, however, contradicted this initial expectation. I found that mother's disengagement from cultural practices of her own group (used in our analyses as an indication of greater acculturation) was linked to children's worse self-rated health. Thus, maternal participation in cultural practices appears protective for children's self-rated health, perhaps because Mexican children perceive their mother's participation in cultural practices as a source of social support and ethnic pride which may protect them from hardships they face as minorities.

In exploring whether mother-child (dis)agreement about the child's health varied by ethnicity, I found that both ethnicity and language affected the way Latina mothers rated their children's health. Compared to whites, Latina mothers interviewed in Spanish had a higher risk of reporting their child's health worse than the child her/himself. Language thus appears to affect self-rated health in a negative way not only for adults' own health, but also for ratings of their children's health, as previous research suggested (Jiménez et al., 2003). Maternal acculturation helped to explain, in part, why Mexican mothers rated their children's health worse than their children rated their own health. This is consistent with previous research findings that less acculturated Latina mothers have a

particularly strong tendency toward negative ratings of their own health and their children's health (Angel & Worobey, 1988; Donato et al. 2003).

CONTRIBUTIONS TO LITERATURE AND IMPLICATIONS

Despite the robust link between worse self-rated health and higher mortality and morbidity in the general population (Desalvo, Bloser, Reynolds, He, & Muntner, 2005; Idler & Benyamini, 1997), previous research documents that this link is weaker for recent immigrants. In other words, often there are discrepancies between immigrants' (particularly Mexicans') self-rated and symptoms/diagnosis-based health (Bzostek et al., 2007; Finch et al., 2002; Kim et al., 2012). I examine the discrepancy between self-rated mental health and psychiatric conditions among Mexican and Chinese American adults, making several contributions. First, my findings demonstrate that the pattern found in overall health also applies to the particular realm of mental health. Second, I broaden the usual focus on Latinos to include immigrants of Asian descent. My results indicate that there is considerable discordance between measures of self-rated mental health and psychiatric conditions among Mexican and Chinese American adults living in the United States, especially for those interviewed in their native languages (Spanish or Chinese instead of English). Third, I examined racial/ethnic differences in conceptions of health among children, and compared mother-child ratings of the children's health. My findings suggest that Mexican children learn to rate their health worse than whites from their mothers. This means that understandings of health may be learned in the family context, in which cultural norms and reporting styles are cultivated.

The analyses reveal that the pattern in discordance between self-rated mental or overall health and medical conditions is consistent across all three groups studied. Namely, respondents interviewed in their native language (Spanish or Chinese) had higher tendency to have worse self-rated overall or mental health. However, the explanatory mechanism operated somewhat differently. Language proficiency was found to be very relevant for the mental health of Mexican American adults as well as for Chinese Americans. However, English proficiency seemed particularly important for the latter. For instance, for Mexican American adults, ethnic identity and proficiency in Spanish were significantly associated with their tendency of worse self-rated mental health without psychiatric conditions. For Chinese Americans, on the other hand, no other acculturation factors seemed as relevant as English proficiency for their tendency to have worse self-rated mental health without psychiatric conditions.

Accounting for the role of acculturation helped to explain the relationship between language of interview and mental health outcomes for Mexican and Chinese American adults, but not for Mexican American children. Mexican American children's tendency of having worse self-rated health than their non-Hispanic white peers persisted even after including measures of their mothers' acculturation. This means that children's tendency to have suboptimal ratings of health depends on the way their mothers assess health regardless of level of their mothers' acculturation. However, I was not able to test the effects of the child's own acculturation level and language of interview on their own self-rated health because all children in the FFCWS were U.S.-born and, consequently, more likely to be acculturated to the U.S., and all children were interviewed in English. It

is likely that lower acculturation and/or interview in Spanish among children could lead to even worse self-rated, as it is observed among adults.

Second, some acculturation measures were relevant for the (mental) health outcomes of some groups but not others. For instance, although ethnic identity seemed to be protective of Mexican American adults and children's self-rated (mental) health, ethnic identity was not related to Chinese Americans' tendency to have worse self-rated mental health despite lack of disorder. Language proficiency, on the other hand, was found to be key to understand dissonance between SRMH and psychiatric conditions among both Chinese- and Mexican-origin adults. The ethnic value of Mexicans may be more frequently threatened in the U.S. than it is threatened for Chinese. Preserving a strong sense of pride as an ethnic minority, then, may seem more imperative and important to Mexicans than to Chinese.

It is important to acknowledge some of the main conceptual and methodological limitation in measuring acculturation in this dissertation and in social science research more generally. In the literature on the immigrant health paradox and self-rated health, acculturation is usually described as the process of acquiring cultural norms from the host society and is often measured by variables such as nativity, time in the U.S., U.S. citizenship, language proficiency among others (Alegría et al. 2007; Campbell et al. 2012; Finch and Vega 2003). However, there are scholars who describe acculturation as a process in which immigrants do not only adopt norms from the host society, but immigrants also preserve elements of their native country (Kim and Omizo 2006; Guarnaccia et al. 2007) and affect the host society (see Guarnaccia and Hausmann-Stabile 2016). Although the latter definition of acculturation is a much better description

of the complex process immigrants go through when adapting to American society, social surveys (including the ones I use in this dissertation) tend to lack measures of preservation of native culture and impact of immigrants on their host society.

Future work can benefit from developing more comprehensive measures of acculturation including measures of preservation of native culture and impact on the culture of the host society. Measuring the impact of immigrants on the host society's culture is a more difficult task for survey research since this may only be measured at society-level rather than at an individual-level. In fact, Guarnaccia and Hausman-Stabile (2016) argue that acculturation should be measured at the level of cultural systems instead of at the individual level as most of the literature on the immigrant health paradox and self-rated health do. These different aspects of acculturation can also affect the way immigrants and their children understand, experience and report their health.

Taken together, my findings shed further light on the ways that our understandings of health and illness are socially constructed and shaped by cultural values (Conrad & Barker, 2010; Horwitz, 2011; Rosenberg, 2006). The differences between English-speakers and foreign-language speakers (Chinese and Spanish, in this dissertation) may have to do with the cultural context the languages themselves provide. Experiences of health and illness may be deeply personal and may only be fully understood and expressed in their own native languages. For example, there is evidence that multilinguals report feeling less logical, less emotional and less serious in their non-native languages (Dewaele & Nakano, 2012). In other words, native languages may amplify the severity of experiences more than a language learned later on in life can.

These results underscore the centrality of sociolinguistic mechanisms in understanding ethnic differences in self-rated health (in addition to other factors like differences in socioeconomic conditions and levels of acculturation).

Future research needs to expand our understandings of these sociolinguistic mechanisms by contextualizing the reproduction of linguistic networks. In other words, it is crucial to understand the social contexts in which English, and Chinese or Spanish are used. One way of addressing this may involve looking at neighborhood-level factors such as co-ethnic composition, work- and education-related networks and availability of culturally appropriate language services among healthcare providers in immigrant communities. Social networks with high co-ethnic density provide environments where language can be closely related to cultural experiences. For example, Ying, Han, and Wong (2008) found that Chinese American adolescents exhibit stronger Chinese orientation and weaker American orientation if they live in areas with high concentration of other Chinese Americans. If Chinese values involve using understanding health beyond the presence or absence of symptoms, then one could expect that immigrants living in areas of high ethnic density will assess their health based on their cultural norms.

It is also important for future research to investigate the links between ethnicity, language and reports of health in a more holistic manner, and to incorporate issues like somatization and culturally-influenced conceptions of health. Although most studies on somatization pertain to ethnic minorities in the United States (Angel & Guarnaccia, 1989; Kleinman, 1982), somatization may be informative to the literature on health more generally. So (2008), for instance, argues that the low prevalence rates of somatization in

western societies may be due to the limited scope of diagnostic criteria in clinical psychology and psychiatry. Western medicine continues to conceptualize and treat the mind and the body as separate from each other. This notion may need to be revisited.

Much more research is needed to develop more accurate tools to measure health and illness in the way ethnic minorities experience them. My dissertation contributes to this literature by emphasizing particular mechanisms in which concepts of health and reporting styles can be identified. The effects of language and ethnicity seem central, especially in the midst of imminent demographic changes in the United States, where ethnic minorities continue to grow and medical standards of health may fail to assess their health needs. In particular, my dissertation points at language as a promising pathway to unveil conceptualizations of health that are often missed in standard diagnostic instruments used in the West.

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