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Cross-border ties and self-rated health status for 1.5 and 2nd generation Latinos in Southern California. ¹

Abstract:

At the same time that health researchers have mostly ignored the potential for immigrant social networks to include cross-border ties, scholars of immigrant “transnationalism” have left health, as either cause or consequence of cross-border connections, largely unexamined. In this paper I take a step towards addressing this gap by first exploring the potential mechanisms linking cross-border ties to health outcomes for immigrants and their children in the 1.5 and 2nd generations. I then perform an analysis using the 2004 study of Immigration and Intergenerational Mobility in Metropolitan Los Angeles (IIMMLA), which includes data for 1273 young Latino adults from the 1.5 and 2nd immigrant generations. In ordered logistic regression models using a four-category measure of self-rated general health status, I find that those in the 1.5 generation who report simply having a close relative living in one’s country of origin are 76% more likely to have better health overall health status compared with those with no potential cross-border connection, all else equal. On the other hand, those reporting a period of parental cross-border separation during childhood are 40% less likely to report optimal health in a multivariate model; similar findings of a negative relationship between health and parental cross-border separation are observed for the 2nd generation. Also among the 2nd generation, those who indicate that their parents ever remitted money to their country of origin are 43% more likely to report better health status, even when considering a number of statistical controls. Given the findings of a significant relationship between several indicators of cross-border ties and self-rated general health status, albeit in varying directions, I discuss the implications for future research as relates to the social determinants of immigrant health outcomes.

Introduction

Recent research on Latino immigrant health has focused on the role of social ties as a mostly protective determinant of health outcomes (Finch and Vega 2003; Mulvaney-Day, Alegría, and Sribney 2007). In the vast majority of this research social ties are

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explicitly or implicitly limited to geographically proximate family, friends and neighbors, with little indication of relationships with those living in immigrant places of origin. Conversely, research on cross-border social ties, often included under the broadly defined concept of ‘transnationalism’, has largely ignored the role of health—either in producing and maintaining social ties, or in the influence of hometown relationships on mental and physical health outcomes. This paper begins to address this gap in the literature by examining the relationship between cross-border ties and general health status for a sample of 1.5 and second-generation Latino adults in Southern California.

Background

From a quantitative point of view, there is reason to believe that cross-border social relationships in particular are quite common. Analyses of nationally representative data from the Pew Hispanic Center’s Survey of Latinos show that over half first and second-generation respondents remit money to their countries of origin, 40% made weekly phone calls and 20% traveled back to their countries of origin in the past year (n=2000) (Soehl and Waldinger 2010). While scholars have been interested in the health influences of cross-border ties, including remittances, on those who remain in countries of origin (Creighton et al. 2011; Frank 2005), there has been little attention to how these relationships factor into the health of immigrants themselves.

This oversight has happened both from the side of immigrant health research, which has largely analyzed immigrant social networks in terms of geographically proximate family, friends and neighborhoods, as well as within scholarship on transnationalism overall. Indeed, both a 2003 issue of *International Migration Review* dedicated to an interdisciplinary discussion of transnationalism (Levitt, DeWind, and

Vertovec 2003) and an updated review of transnational migration (Levitt and Jaworsky 2007) have left out any mention of health despite their comprehensive intentions. Finally a recent anthropological review dedicated to “transnational migration” and global health makes no reference to role of cross-border social ties and separation in immigrant health, but simply rehearses the health risks related to immigration in general (e.g. communicable disease transmission) (Sargent and Larchanché 2011).

Despite the relative absence of health from transnational scholarship, and the general lack of attention to cross-border social networks in the immigrant health literature, a small number of studies have documented the potential importance of integrating research on immigrant health and cross-border ties. These studies have been primarily qualitative, focusing on the psycho-social implications of maintaining cross-border ties with close family members (Viruell-Fuentes and Schulz 2009; Viruell-Fuentes 2006) as well as on the mental health consequences of cross-border separation, and the rupturing of family networks indicated by international migration (C. Suárez-Orozco, Hee Jin Bang, and Ha Yeon Kim 2011; Falcón, Todorova, and Tucker 2009; Muñoz-Laboy, Hirsch, and Quispe-Lazaro 2009)

For example, in a qualitative study with first and second-generation Mexican and Mexican-American women in Detroit, Viruell-Fuentes and Schulz ((Viruell-Fuentes and Schulz 2009; Viruell-Fuentes 2006)) focus on the emotional benefits of staying connected to close family members, primarily through phone contact and remittance sending. First-generation women often continued to fulfill familial obligations, including parenting and caring for aging parents, by remitting money and providing emotional support through daily or weekly phone calls (Hondagneu-Sotelo and Avila 1997). Even

in the absence of frequent visits, maintaining contact with close friends and family living in one's country of origin provided a sense of belonging, either in a family network amidst a context of isolation and discrimination.

Another set of studies have focused on health as a motivating factor for cross-border activity. For example, visits home might be motivated by a lack of access to healthcare in the US (Wallace, Mendez-Luck, and X. Castañeda 2009). Even if immigrants are not able to cross the border to receive health care, they might call upon family ties in their countries of origin for medical advice or to send for pharmaceuticals, as has been observed amongst undocumented Guatemalan women in Los Angeles (Menjívar, 2002) and Mexican immigrants in El Paso, Texas (Heyman, Núñez, and Talavera 2009). These connections may be particularly important for undocumented immigrants, who are both limited in their ability to engage in “transnational” activity given the risks of border crossing, but are also systematically excluded from the US healthcare system. Finally, remittances themselves may be motivated by the health needs of family members who remain in countries of origin either, paying for acute medical treatments or supplementing household nutritional needs, for example (Frank et al, 2009; Frank, 2005).

Given the potentially important linkages between cross-border ties and health, the present study extends findings from qualitative studies on the influence of cross-border ties for the well-being of immigrants themselves, both through the continued connectivity of social networks and through the separation of family members across borders using survey data from young Latino adults from the 1.5 and second generations living in Southern California. This study seeks to address the following research questions: To

what extent does continued attachment to one's home country contribute to overall health status? How might parents' cross-border ties influence the self-reported health status of young Latino adults living in Southern California? How does the relationship between personal and parental cross-border ties and health differ between the 1.5 and second generations?

The following analysis considers cross border ties as predictors of overall health status, extending the literature on the psychological implications of these relationships. Given the limitations of the data set, health cannot be identified as a motivation for cross border ties. Before beginning the analysis, I first review in greater depth how cross-border ties might be conceived of with relationship to health and the broader field of "transnationalism". I then address the rationale for linking cross-border ties to immigrant health and propose several mechanisms for this connection drawn from previous work. In addition, I attempt to cover the potential differences for first-generation immigrants and those in the 1.5 generation (foreign-born, but arrived as children) and the 2nd generation, given that the latter generations comprise the analytical sample.

What are cross-border ties?

Cross-border social ties have largely been described within the framework of "transnationalism", defined as a set of activities and practices that operate across national borders. These activities range from telephone conversations with family members to participation in political or economic projects and beyond (Basch, Glick-Schiller, and Szanton-Blanc 1994; Smith 2006). Scholars of this phenomenon observed that immigrants' lives – their relationships, their politics and their identities – often remain connected to places of origin, spanning nation-state boundaries even as they settle and

assimilate into the context of reception (Basch et al. 1994). While immigrants may have always maintained such hometown ties (Waldinger and Fitzgerald 2004; Handlin 1951), some argue that advances in technology and transport have enabled these connections to occur with increased frequency and intensity (Levitt and Jaworsky 2007).

For some, the existence of such accelerated connectivity challenges the very idea that everyday social, political and economic life is necessarily contained by the bounds of the nation-state; lives may instead exist within a largely unbound “transnational social field”. Indeed, the discovery of “transnational” activities was initially celebrated as evidence of the weakening salience of the nation-state, although such optimism has been tempered by more recent arguments about the continued power of the state to regulate “transnational” activities, particularly with relationship to the entry and exit of undocumented migrants (Menjívar 2002a, 2002b).

The concept of transnationalism has also been criticized for being overly expansive in its inclusion of a broad set of practices enacted by individuals and families as well as corporations, political movements, and the flows of capital and information (Levitt and Jaworsky 2007). In addition, some of the activities labeled “transnational” may in fact be feelings attachment to one’s home country expressed solely in terms of activities practiced in the receiving country context, as in the case of some “hometown associations” organized by immigrants sharing a place of origin and residence in the host society (Waldinger 2010). At the same time, transnationalism has been described as particularly restrictive in its requirements for who is truly “transnational” – an elite group comprised of those conducting cross-border political and economic activity on a regular basis (Guarnizo, Portes, and Haller 2003).

In response to these concerns, as well as the narrow interest of health research in *social* connections and separation across borders, I hesitate to use “transnationalism” to describe the kinds of cross-border activities measured in relationship to health outcomes. Instead, I focus on relationships that link immigrants to family and friends in their places of origin, referring to cross-border ties or relationships, home country ties, or other synonyms. These cross-border ties are not necessarily linked to the regular forms of economic or political engagement that describe “transnational” actors; there is a less explicit connection between such activities and health outcomes. Cross-border relationships may not involve actual movement – they may in fact be characterized variably by feelings of nostalgia and loneliness, a sense of belonging and the fulfillment of familial obligations or roles that play out through international phone calls or through sending remittances, without ever making physical contact after migration (Viruell-Fuentes and Schulz 2009). In addition to attempting greater specificity by referring to cross-border ties, I intend to also acknowledge the role of the nation-state in both maintaining and generating the “cross-border” nature of some families through deportations and otherwise controlling the “transnational” movement of undocumented immigrants in particular, causing short and long-term separations with potentially adverse implications for health (C. Suárez-Orozco, Yoshikawa, et al. 2011; Thronson 2008).

What are the mechanisms by which cross-border ties might influence health?

Drawing from in-depth interviews with first and second-generation Mexican and Mexican American women in Detroit, Viruell-Fuentes and Schulz describe that for the first generation, continued contact with intimate social networks have the potential to provide a sense of belonging among close family and friends. While local ties in the US

provided instrumental support related to the demands of settling in a new, and often hostile, society, first-generation Mexican women in particular received social support from their parents and siblings abroad that provided them “with a sense of refuge, an alternative space of belonging that was particularly important in dealing with feelings of isolation in the United States” (Viruell-Fuentes and Schulz 2009:2171). This sense of belonging may be particularly supportive of one’s emotional well-being in the context of immigration, which may itself engender feelings of isolation and loneliness alongside other adversities such as discrimination and occupational exploitation (Muñoz-Laboy et al. 2009). The authors find that even when the demands of sending remittances or providing moral support over the phone to family members abroad may have been an emotional burden, these connections served to decrease feelings of loneliness and isolation, particularly among the first-generation (Viruell-Fuentes and Schulz 2009; Viruell-Fuentes 2006). For many respondents, the sense of belonging that came with fulfilling familial roles was not easily replicated in the looser social networks developed in settlement communities that nonetheless provided migrant women essential informational, material and emotional support.

The kinds of social support described by participants in Viruell-Fuentes and Schulz’ work have been linked to both physical and mental health through a number of mechanisms. For one, social support has been found to buffer the adverse effects of stress on both physical and psychological well-being (Kawachi and Berkman 2001; Berkman et al. 2000). Even in the absence of stress, the perception of available social support in the event of future adverse circumstances might have a positive bearing on one’s overall mental health (Kawachi and Berkman 2001; Berkman et al. 2000). The psychological

beneficial effects of social support can translate into positive physical health outcomes through a number of protective physiological processes related to the immunological function, cardiovascular health (e.g. blood pressure) and neuroendocrine process (e.g. cortisol production) (Uchino 2006).

Of course, the effect of social networks on health does not always result in the positive outcomes implied by social support. Social ties can also generate conflict and excessive obligation and burden, resulting in increased stress, with negative implications for health. In the particular case of Puerto Rican migrants to the US, who have the legal flexibility to come and go, Falcón and authors suggest that the constant migration of core members of an individual's social network has the potential to provoke instability and conflict within social networks, associated with adverse effects on health (Falcón et al. 2009). The countervailing effects of support and conflict must be kept in mind when interpreting results related to social ties and health. In addition, the context in which social ties occur, whether under adverse conditions of poverty or the stressful circumstances of migration must be kept in mind to the extent possible in quantitative analyses (Menjívar 2000). Given the balance of these findings, I hypothesize that measures of cross-border relationships will be positively associated with a self-rated measure of overall health status, with the exception of an indicator of parental separation, discussed further on. In some cases, the countervailing effects of social support and social stress might yield negative findings for the relationship between cross-border ties and health; even given significant findings, these dual influences are likely at play.

The potential for cross-border social ties to directly influence health-- either positively or negatively-- seems clearer for the first generation. However, the question

follows as to whether this link may exist for children of immigrants in the 1.5 and 2nd generations. It is generally accepted that members of the second generation participates less frequently and intensively in cross-border relationships than the first generation, on average, although this is not as clear for the 1.5 generation, given the variable inclusion of this group within studies of the second generation (Kasinitz et al. 2002). Despite the fact that children of immigrants generally may not be as actively engaged or invested in maintaining cross-border ties as their parents does not necessarily render these ties, whether direct or experienced through parents, unimportant in terms of general health outcomes. Indeed, Menjívar argues that the limited cross-border links she observes for 1.5 and 2nd generation Guatemalan youth in Los Angeles “does not imply that children’s lives are played out independently of their communities of origin, because important decisions in their lives involve families in both places. The children’s ties with the parental homeland, however, depend on parents’ activities and interests” (2002a:547). Indeed, qualitative researchers often interpret that in contrast to the first generation, cross-border ties second generation immigrants may generate a sense of belonging in a broader extended family network or within an ethno-national community, rather than within a set of intimate, primary social relationships (Levitt and Waters 2002; Viruell-Fuentes and Schulz 2009).

In ethnographic research with Filipino-American second-generation youth in California, Wolf (Wolf 2002) describes what she terms “emotional transnationalism”. She suggests that parents were much more engaged in maintaining relationships with family and friends in the Philippines, “the children of immigrants maintain these ties, at the very least, at the level of emotions, ideologies and cultural codes” (2002:258). While

actual cross-border activity might be scarce, it may be that young adults in the 1.5 and 2nd generation “establish their identities, moral practices, educational goals, and careers within families that are deeply connected to the Philippines both symbolically and physically”(2002:258).

What is less clear is the degree to which a sense of belonging within an ethno-national community, or the strengthening of an ethnic identity, may be supportive of health outcomes. Social psychologists have written about the influence of ethnic identity on mental health outcomes, including self-esteem (Phinney 1990) and there is a growing body of public health research on the role of ethnic identity as a buffering mechanism in the relationship between discrimination and poor health outcomes (Yip, Gee, and D. T. Takeuchi 2008). Results from these studies have been largely mixed as to whether feelings of strong ethnic identity or a sense of belonging within an ethnic group are actually protective of health outcomes. The ambivalence of these results is partially the result of highly variant definitions and measurement of ethnic identity, with some studies focusing on the concept of ethnic pride while others have measured the degree to which one’s ethnic identity accounts for one’s overall self-identity. While mixed, findings suggest the potential for ethnic identity to serve as a mechanism linking cross-border ties to health—and in this case, better health, particularly for the 1.5 and 2nd generations. The salience of such emotional connections to the family’s cross-border relationships for the overall health of 1.5 and 2nd generation Latinos remains to be tested in the present analysis.

Given the evidence, I hypothesize that parents’ cross-border relationships will have a stronger relationship with overall health status than respondents’ direct cross-

border ties. Although members of the 1.5 generation are often subsumed within the 2nd generation in discussions of the cross-border ties of immigrant children (Levitt and Waters 2002), I additionally expect to see differences in the kinds of relationships that matter for members of the 1.5 and 2nd generations, given that language, ethno-national identity and legal status may result in distinct orientations towards (parents') countries of origin for these two groups (Menjívar 2002a). Indeed, these differences have important implications for health, particularly given the generalized decline in health status over time and generation that has been observed for Latino immigrants to the US (Lara et al. 2005).

The final mechanism proposed as a potential link between cross-border social ties and, in this case, worse overall health status, is that of family separation indicated by cross-border activity. In her qualitative work with cross-border families in the US and Central America, Menjívar suggests that that celebratory responses to uncovering transnational social networks should be “tempered by the numerous costs and anxiety, dislocation and alienation these separations often produce”, particularly in the case of parents and children (Menjívar 2002a:539). Indeed, in a longitudinal study of immigrant adolescents in New York, those who had experienced separated from their parents due to immigration were significantly more likely to report depressive and anxiety symptoms than those who did not experience separation at baseline, shortly after reunification (C. Suárez-Orozco, Hee Jin Bang, et al. 2011). These negative effects appeared to diminish over the course of the seven-year study period, although it may be premature to conclude definitively that that such negative effects of cross-border separation dissipate entirely over time, given the potential for such stressful life experiences to have cumulative

emotional and even physiological effects over the life-course (Viruell-Fuentes 2006). Indeed, both Menjívar and Suárez-Orozco and colleagues follow immigrant children through adolescence, but little is known about how cross-border separation may relate to health status during young adulthood. Based research related to cross-border separation, I hypothesize that those who indicate they were separated from their parents during childhood – in this case indicated by a parent’s extended return to their country of origin—will be associated with poorer overall health status.

Methods

Study

The data for this analysis comes from the 2004 study Immigration and Intergenerational Mobility in Metropolitan Los Angeles (IIMMLA). The IIMMLA study is a telephone survey of 4655 young adults from 1.5, second, third and fourth immigrant generations living in five counties of the greater Los Angeles area. The study includes six different ethnic groups, including Mexican or Mexican-Americans and Central Americans (primarily Salvadoran and Guatemalan). The IIMMLA employed a multistage random sampling scheme achieved through the following sequence: 1) random digit-dialing of households in all five counties using probability proportionate-to-size, excluding areas with a high concentration of white non-Hispanic households; 2) targeted geographic and race-ethnic samples, including sampling of areas with a high density of Asian residents. At the household level, adults between 20 and 40 were randomly selected using the “next recent birthday” method.

The analysis is limited to the 1276 Mexican/Mexican-American and Central American young adults who immigrated to the US as before the age of 15 (the 1.5

generation) or who have at least one parent born abroad (the second generation). Third and fourth generation respondents are excluded given the expectation far fewer, if any, connections to immigrant origin countries [i.e. grandparents' country of origin] if neither parent was born abroad. After excluding 3 cases missing on the dependent variable, the analytical sample is 1273 respondents (484 in the 1.5 generation; 782 in the 2nd generation).

Dependent and Key Independent Variables

The dependent variable is a measure of self-rated health status. Self-rated health status has been shown to be significantly associated with a number of chronic physical and mental health outcomes, as well as mortality (Idler and Benyamini 1997). The validity of the self-rated health measure for Latinos is comparable to that of other race/ethnic groups particularly among Latinos who have spent longer periods of time in the US, including the second generation (Finch et al. 2002). Respondents were asked if in general, their health was “excellent, very good, good, fair or poor”. Responses of fair and poor, which are significantly associated with an increased risk of mortality and health-related distress, were grouped into one category. The remaining responses were maintained for a four-category measure of self-rated health.

Five measures of cross-border relationships are tested in each model. The first two measure parents' cross-border activities. First, respondents indicate whether or not their respondent parents ever sent remittances to their country-of-origin. Secondly, respondents indicate whether or not parents returned to their country-of-origin for at least six months. This measure was further specified for those who answered affirmatively whether or not they accompanied their parents on this extended return to their country of

origin. The remaining three measures reflect respondents' own cross-border ties: whether or not respondents still have a close relative who lives in their or their parents' country-of-origin; if respondents themselves have ever sent remittances to relatives in their or their parents' country-of-origin; and if respondents have ever visited their or their parents' country-of-origin as an adult. For all cross-border variables, "don't know" and "refused" responses were coded as negative for that particular cross-border relationship.

Given important observations about the varying frequency and intensity of cross-border activities (Tamaki 2011; Soehl and Waldinger 2010), I complete a sensitivity analysis using a second set of more detailed cross-border measures, when available: For the measure of respondents' remittance sending, I include a measure specifying both whether or not respondents remit and, if they do, how often ("only once or twice", once or several times a year and once a month or once a week; don't know and refused categories were coded as not sending remittances in this case). Respondents were also asked about amounts of money sent in a typical year, with response categories coded as no remittances sent, less than \$500, between \$500 and \$1000 and more than \$1000. For the measure of adult visits to respondents' or parents' countries of origin, I include a continuous variable indicating the number of visits respondents have made as an adult. This measure includes visits made to both mother and father's country of origin if those are in fact different. All else equal, however, I will prefer the more parsimonious variables given relatively small sample sizes.

Covariates

Gender is included given that the nature of cross-border relationships and their influence on feelings of emotional well-being have been found to differ for men and

women (Pessar and Mahler 2003; Viruell-Fuentes 2006). Age is also included as a continuous measure (range: 20-40); older age is generally associated with a decline in self-rated health status. Socio-economic measures of income and educational attainment both have been found to have a significant, positive association with self-rated health status, although less so for Latino immigrants who have recently arrived in the US (Acevedo-Garcia et al. 2010). Income is included as a categorical indicator, with categories of less than \$19,999, \$20,000-49,999 and \$50,000 or more; a fourth category stands for cases with missing income data (n=87 total respondents or 7% of 1.5 and 2nd generation combined). Educational attainment is a binary measure of at least a high school diploma compared to some college or more.

An additional health measure reflects whether respondents have a severe physical or mental health condition. Respondents were asked if they were “limited in the kind or amount of work they could do because of a long-term physical or mental impairment or medical condition”. This may be an important control variable in inferring the relationship between cross-border ties and health, given that severe physical or mental health conditions may influence whether or not respondents are capable of visiting their or their parents home countries, all else equal. That is, controlling for serious health conditions helps rule out the fact that health predicts cross-border activities, rather than vice-versa.

The analysis controls for whether respondents are Mexican/Mexican-American or Central American. It has been described that cross-border ties may differ for each of these groups given the different proximity of origin countries to the US and the different contexts of exit and settlement. For example, while many Central American migrants also

seek labor and family reunification, a large portion of migrants from El Salvador and Guatemala came during the 1980s and 1990s to seek refuge from violent civil conflict and did not necessarily encounter the same pre-existing social networks that Mexican migrants may have settled into during this same time period (Menjívar 2000).

Respondents who may have had one Central American and one Mexican parent were classified as Central American.

Language

Given the important differences in the Spanish-language version of the self-rated health status measure, whereby “fair” in the English version is translated into the more positive “*regular*” in the Spanish version (Bzostek, Goldman, and Pebley 2007; Viruell-Fuentes et al. 2011), language of interview (whether or not respondents answered the interview in English or Spanish) is included as a control in the model for the 1.5 generation. Too few 2nd generation respondents (n=34) answered in Spanish to make this a viable control for that group. Instead, the analysis includes an indicator of linguistic attachments—a measure of whether or not respondents prefer to speak English, Spanish or both languages at home. Scholars of cross-border ties among the 2nd generation suggest that some language ability is both a requirement for regularly engaging in cross-border ties, as well as product of these relationships (Rumbaut 2002). The linguistic attachment variable was left out of the model for the 1.5 generation given multicollinearity with the language of interview indicator; the latter measure is more closely linked to responses on the dependent variable.

Legal Status Measures

Both models for the 1.5 and 2nd generation include a measure of whether or not at least one of the respondent's parents entered the country with documentation. Respondents were marked as having at least one parent who entered with documentation if either their mother or father entered as a legal permanent resident with a green card, with a student or tourist visa, with a temporary work visa, with a border crossing card, or as a refugee. Although it is possible that individuals who entered with documentation may have become undocumented by overstaying, this measure provides some information as to the access to benefits including healthcare services that respondents and their families may have had as children, as well as the possible conditions of migration itself. The model for the 1.5 generation also includes a measure of respondents' legal status at the time of the study, with a variable indicating whether respondents are US Citizens, legal permanent residents (LPR) or neither of the two.

It is expected that being undocumented, or not holding either US citizenship or legal permanent residency, will be associated with increased odds of reporting poorer health status. This is based on research observing that migrants without documentation are less likely to access basic healthcare services, including preventative care and acute care, and may have poorer mental health status due to discrimination based on legal status as well as fear of detention and deportation (Cavazos-Rehg, Zayas, and Spitznagel 2007; H. Castañeda 2009; Hacker et al. 2011) In addition, documentation status often structures cross-border relationships; undocumented migrants are more limited in their ability to make return visits home, although cross-border connections through phone, mail or remittance sending might be just as salient in terms of social support, social conflict and the consequences for health outcomes (Menjívar 2002b, 2002a).

Analyses

The analyses include the calculation of descriptive statistics separately for the 1.5 and second generations, followed by chi-squared tests to test for significant differences between the two generational groups. Regression analyses are done using ordinal logistic models with the four-category self-rated health measure as the dependent variable. Analyses are stratified by generational status. Model 1 presents odds ratios and 95% Confidence Intervals for the bivariate regressions of self-rated health on each independent variable. Model 2 shows the results of a multivariate regression model where all measures of cross-border ties along with socio-demographic and immigration-related covariates are included; likelihood ratio statistics are included to assess model fit. Given the ordered nature of the dependent health status measure, the odds ratios should be interpreted as the odds of reporting better health status by one category – for example, the odds of reporting “excellent” versus “very good” health. In order to fulfill the assumption that the covariates function equally across all categories of self-rated health, the proportional odds assumption for all covariates in the final models are tested using the - OMODEL – function. The results suggest that model satisfies the restriction in ordered logistic regression that variable coefficients are equal across categories ($\chi^2 = 36.52$, $p=0.19$ for the 1.5 generation and $\chi^2 = 23.98$, $p=0.46$). All analyses were completed using STATA V. 12.

Results

The descriptive statistics (Table 1) show no significant differences in self-rated health status between the 1.5 and 2nd generations; 14% of the 1.5 and 11% of the 2nd generation reported fair/poor health status compared with about one-third of each group reporting

excellent health. As predicted, there were significant differences in the cross-border ties variables between the two groups. The majority of respondents -- 87% of the 1.5 generation and 76% of the 2nd generation-- still have a close relative in their or their parents' country of origin. Overall about 71% of 1.5 generation respondents reported their parents remitted money and half reported they themselves ever remitted money to close family abroad. This compares with 63% of US-born respondents reporting that their parents ever remitted and one-third who ever sent money someone in their parents' country of origin. A quarter of respondents born abroad reported that their parents had ever returned to their country of origin for at least six months compared with less than 20% of the 2nd generation. Of those reporting their parents made an extended return visit home during their childhood, only about 8% of each generational group accompanied their parents for these extended trips. Both groups were similar in their frequency of visiting their parents' country of origin as adults, with about two-thirds reporting they had done so.

Respondents are in their late-20s on average, with men and women equally represented in the sample. Second-generation respondents have significantly better indicators of educational and economic attainment: less than half of 1.5 generation respondents had completed some post-secondary education compared with 58% of the 2nd generation. Similarly, one-quarter of the foreign-born group reported a past-year income of less than \$20,000 compared with one-fifth of the US-born; 26% of those in the 1.5 generation had incomes of at least \$50,000 compared with 36% of the 2nd generation. Unsurprisingly, respondents in the 1.5 generation were more proficient in Spanish-- a quarter of respondents answered their interview in Spanish compared with 4% of the 2nd

generation. About two-third of the 1.5 generation and just under 40% of the 2nd generation respondents reported that they preferred to speak Spanish at home, potentially indicative of a home-country linguistic attachment.

Foreign-born respondents arrived in the US at less than six years of age, on average; 60% migrated from Mexico with the remaining 40% migrating from Central America. In contrast, only 30% of the 2nd generation respondents have at least one Central American-born parent. Nearly half of 1.5 generation holds US citizenship and another 35% hold legal permanent residency (LPR). About 18% of respondents in the 1.5 generation indicated they had neither citizenship nor LPR status, from which it is inferred that they are undocumented. Two-thirds of foreign-born respondents had at least one parent enter the United States with some form of documentation compared with 78% of the US-born.

Regression Analysis for the 1.5 generation (Table 2)

The results for bivariate analyses suggest significant relationships between select measures of cross-border ties and overall health status for 1.5 generation Mexican and Central American respondents. Specifically, those who report having a close relative in their country of origin are 80% more likely to report better health (e.g. “excellent” versus “very good”, “good” versus “fair/poor”, etc). Conversely, those who reported a period of separation from their parents due to a return to their country-of-origin were significantly less likely to indicate better health status than those never experiencing an extended separation. That is, respondents who reported that during their childhood one of their parents returned to their place of origin for six months or more AND that that they accompanied them were 46% less likely to report better general health compared to those

whose parents never made an extended return trip. There was no significant difference, however, if respondents accompanied their parents on return trips home. None of the remaining cross-border variables has a significant relationship with health status in bivariate analyses. In sensitivity analyses (not shown), there are no significant for those with varying intensity and frequency of adult visits to their country of origin or remittance sending. Based on these findings, the reduced, binary indicators of cross-border ties are preferred for the multivariate model.

Additional bivariate findings suggest that age and gender are not significantly related to general health status, likely explained by the fact that the sample is relatively young, and age gradients in health are not yet readily apparent. Reporting an income of between \$50,000 and 99,999 dollars is significantly associated with better health status compared with those making less than \$20,000 per year; greater educational attainment is similarly, positively associated with improved health status. Conducting the interview in Spanish is associated with reduced odds of reporting good health status. As described above, this is likely explained by the translation of the self-reported health measure whereby “fair”, translated as “*regular*”, becomes the normative category in Spanish, whereas “good” is the normative category in English.

Surprisingly, none of the immigration measures are significantly associated with overall health status. While intuitively it may be that respondents’ undocumented status or parents’ undocumented entry might be associated with poorer health status due to limited access to health care and stressors related to fear of deportation, there may be countervailing factors that might link currently undocumented respondents or respondents from families that entered without documentation to better health, at least in

bivariate analysis. Undocumented immigrants tend to have better overall health outcomes than their documented counterparts despite poorer health access, perhaps due to increased health selectivity for undocumented migration.

In the multivariate model, both cross-border ties measures with significant bivariate associations to general health status remain significant. Even when including the full set of controls, those who report having a close relative in one's home country remain nearly 80% more likely to report better categories of overall health. Given the inclusion of the other measures of cross-border relationships in this model, this means that simply having a close relative in one's country of origin is associated with better health regardless of actual visits to one's home country or the provision of instrumental support through remittances. This finding is consistent with the few qualitative studies done on the relationship between cross-border ties and emotional health for Mexican immigrant women (Viruell-Fuentes and Schulz 2009). This literature suggests that in-person contact through visits is not a prerequisite for cross-border ties to have a protective influence on emotional health. It may be that phone or mail contact may equally provide a sense of connectedness to intimate social networks or serve to bolster one's sense of belonging – either within a family unit or a broader ethnic community. These benefits to emotional well-being may then function to improve an overall sense of health.

It also appears that the measure of extended parental return during respondents' childhood remains robust to the set of controls included in multivariate analysis. Respondents whose parents returned without them for 6 months or more were 39% less likely to report better levels of overall health than those whose parents never made an extended return. Again, those who accompanied their parents were not significantly

different from those whose parents never left in terms of health status. This suggests that experiences of cross-border separation during childhood may have a persistent influence on overall health status, perhaps again operating through psycho-social well-being to affect health in general. This finding is consistent with both qualitative and quantitative studies that suggest that separation is an important component in the relationship between cross-border links and health outcomes (C. Suárez-Orozco, Hee Jin Bang, et al. 2011). The potentially negative health impacts of such separation should be considered alongside the protective effects of cross-border social networks.

Regression Analysis for the 2nd generation (Table 3)

The tests of bivariate associations between health status and the measures of cross-border ties suggest that aspects of home country social networks remain significant in predicting the overall health of second-generation respondents as well. In this case, respondents who reported that their parents ever remitted money to family and friends in their home country were 42% more likely to report better overall health status compared to those who reported that their parents never remitted money (or that they did not know if they ever did). In the case of the second generation, it may be that a sense of belonging within an extended family and ethnic community linked to their parents' country of origin is associated with health, but that parents' cross-border links are more indicative of this protective influence. Indeed, respondents own remittance sending or visits to their country of origin, although somewhat frequent, are not significantly associated with health status.

One potential explanation for this finding is that if parents in the immigrant generation are integrated within an expansive social network that includes close relatives

that remained in their countries of origin, this may be associated with improved parental health status, including emotional health status, which may in turn positively influence second-generation children's health outcomes. Or, as has been described in the qualitative literature, links to extended family in parents' country of origin may serve to strengthen a sense of belonging within an ethno-national community as well as a family network. It may be that parents' cross-border ties may be more consistently indicative of intimate family connections whereas those who visit their parents' home country as an adult may include some who operate more as tourists, with less importance for health outcomes.

As with the 1.5 generation, indication of separation from at least one parent due to return migration for six months or more is associated with a lower general health status. That is, those who reported their parents returned to their home countries for an extended time and that they did not accompany their parents are 37% less likely to report better health status categories (e.g. "good" versus "fair/poor"). Both the measures of parent remittance sending and parental return migration remain significant in the multivariate model with almost no change to the logistic regression coefficients and the odds ratios, reported here. This suggests that these measures cannot be explained away by other socio-demographic or immigration-related variables. None of the other cross-border measures were significantly related to health status. Again, in sensitivity analysis (not shown), those indicators of frequency and intensity of adult visits to parents' country of origin and personal remittance sending were not significantly related to the health outcome variable.

Also as with the 1.5 generation, higher income and educational attainment is associated with significantly better self-reported health in both bivariate and multivariate analyses. However, for the 2nd generation respondents, these socio-economic status measures remain significant in multivariate analysis. This finding of a more robust relationship between socio-economic status and health status for the 2nd generation corresponds with research observing a weaker socio-economic gradient in health for the immigrant generation, and even more so for newly arrived immigrants (Bzostek et al. 2007). It may be that as the frame of reference shifts towards US socio-economic arrangements, personal attainment along these lines has a greater bearing on one's sense of well-being.

Finally, the two immigration-related measures included in the model for the 2nd generation—ethno-national origin and parents' documentation status at entry—are both significantly related to overall health status, unlike for the 1.5 generation. Specifically, Central American young adults in the 2nd generation were 27% less likely to report better categories of health compared to Mexican American 2nd generation respondents, all else equal. In addition, 2nd generation respondents with at least one parent who entered as documented are 42% more likely to report better categories of overall health status when including the remaining controls. While countervailing forces of both protective factors (i.e. health selectivity) and adverse conditions (e.g. social isolation, discrimination, fear of deportation and lack of access to public resources) may have rendered this measure of parents' status at entry insignificant for the 1.5 generation, 2nd generation adults do not directly benefit from factors of health selectivity associated with migration, and undocumented migration in particular. Instead, the significant odds ratio for 2nd

generation adults with at least one parent who entered as documented may reflect improved family-level access to public resources related to health, including supplemental income and food assistance.

Discussion

The analyses presented here show a mixed set of relationships between cross-border ties and overall health status for a sample of 1.5 and 2nd generation Latinos living in Southern California. Consistent with findings from qualitative works, I show that cross-border ties may be associated with either better or worse health status, depending on whether the presence of these relationships affords a sense of belonging and identity that is protective of one's well-being, or whether they are indicative of familial separation. In many cases, ties with one's hometown might be indicative of both a strong social network that helps buffer the stresses of immigration, discrimination and other adversities, as well as indicating separation. These countervailing forces may contribute to non-significant results found for some measures of cross-border ties in their effect on health.

To review, I found that for a sample of 1.5 generation Latinos in Southern California, that simply having a relative in their country of origin was associated with significantly greater odds of reporting better health status along an ordinal, self-rated scale (e.g. "excellent" versus "very good", "very good" versus "good"). This measure of self-rated health has been shown to be significantly related to a range of chronic and psycho-social health outcomes and is predictive of seven-year mortality. This positive relationship has been explained by a set of social support mechanisms in qualitative research on cross-border ties, including a sense of belonging in a family or ethnic

community. This result held even when controlling for a number of demographic, socio-economic and immigration-related factors, including the remaining cross-border measures.

These positive results were replicated for the 2nd generation sample, although the salient measure of cross-border ties in this case was whether or not respondents' parents ever sent remittances to family members in their country of origin. In this case, I speculate that parents' own relationships in their home countries might be more indicative of how closely connected these cross-border ties are, given that respondents own cross-border movement might be motivated by factors outside of their cross-border social networks, such as tourism or business (Wolf 2002). These positive findings for both the 1.5 and 2nd generation provide some evidence for the fact that even if cross-border ties are less frequent and no longer account for one's primary social network, they are not inconsequential for immigrant children's overall health status.

In contrast to these positive relationships uncovered for each sample, I also show that indication of respondents' extended separation from a parent who returned to their country-of-origin during their childhood is significantly associated with poorer health; these results remain in multivariate analysis. These results are consistent with research on familial separation that reminds scholars of cross-border ties that such relationships may serve as a source of social support, but also indicate the stress of separation amongst intimate family members.

There are several important limitations to note when interpreting this analysis. For one, the data used are unweighted, implying that results must be interpreted for the sample alone—a representative sample of young adult children of immigrants in

Southern California. This particular geographical, social and political context may have important implications for cross-border relationships and feelings of cross-border connectivity that might not be reproduced elsewhere in the US or other immigrant sending contexts.

In addition, because the data is cross-sectional, caution should be taken not to make a causal linkage between cross-border relationships and self-rated health status. The relationships between cross-border ties and health could easily be reversed from those I hypothesized: better overall health status may enable respondents to visit their or their parents' home countries, all else equal, for example. It is also possible that better health outcomes enable respondents to earn a sufficient income such that they can send remittances, although I controlled for a measure of severe health limitations that affected respondents' ability to work to limit the possibility that the effect of health on cross-border relationships might be driving the significant findings.

Another limitation is that the IIMMLA study does not collect other relevant social network measures, including indicators of social support and social conflict. Therefore, I could not test whether or not home country or parents' home country attachments indicated a level of social support (or burden) above and beyond that provided by US-based social networks. Separating out local and cross-border ties may not, however, reflect the reality of immigrant social networks. Indeed, local and cross-border social ties often intersect as family and friends reunite, as immigrants return and as local social networks develop around activities in the communities of origin, as with hometown associations or churches (Waldinger 2010; Muñoz-Laboy et al. 2009). Nevertheless, future studies of Latino immigrant social networks and health should consider social

network measures that take into account the cross-border nature of family and friend relationships in addition to uncovering the marginal effects of cross-border relationships on health, above and beyond those of more geographically proximate ties. Future quantitative research should also strive to test the mechanisms linking cross-border ties and health by testing effects of intervening measures of ethnic identity that have been studied in other analyses of 1st and 2nd generation immigrant health (Yip et al. 2008; Alegria et al. 2004).

Questions about the relevance of these findings to public health research and policy necessarily follow. It may be unrealistic to conclude that public health efforts should promote cross-border ties, given their potentially beneficial influence. However, given the proliferation of public health interventions that involve the strengthening of immigrant social networks (Keller et al. 2011); it may be worthwhile to consider the expanded immigrant social network in these efforts— even if this expanded network includes little personal contact. In addition, these findings may compel immigrant health researchers to ask questions that link respondents to their countries of origin, or those of their parents, in the case of the second generation.

A more pressing set of recommendations come from the findings about childhood separations due to return migration, and follow from work by Suárez-Orozco and colleagues, as well as qualitative work by Menjívar. That is, childhood separation from parents due to return migration is associated with poorer overall health status during young adulthood – corroborating Suárez-Orozco and authors' findings related to the mental health status of adolescent migrants. The findings here both generalize the effects of separation to overall health status but also show the persistence of the effects into

adulthood, albeit using cross-sectional data with retrospective questions about childhood separation. While such episodes of return migration may have been motivated by a range of circumstances unspecified by the survey instrument, the effects of such separation may be of increasing concern in a climate where immigration raids and deportation of undocumented immigrants, often leaving behind young, US born children, has become an all too regular practice (Thronson 2008). While it may not be difficult to speculate as to the emotional and developmental impacts of such sudden removal of parents from their children, few studies have documented these effects. Of course, the contribution of deportations to the incidence of childhood separation in this sample cannot be accurately estimated – although the effects of such separation in general should be noted in a climate of increasingly forced separation.

Overall, this analysis shows the potential importance of acknowledging cross-border ties as part of the social determinants of immigrants' overall health status, regardless of whether these ties would “qualify” under the rubric of transnational activities, given that they often occur in the context of relatively little personal contact or back-and-forth migration. They also potentially compel further research, and greater acknowledgement of the role of cross-border ties in health outcomes and vice-versa.

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Table 1. Socio-demographic characteristics, home country attachments, discrimination and self-rated health status for a sample of 1.5 and 2nd generation Mexican and Central American-origin young adults migrants in the greater Los Angeles, CA metropolitan area, (n=1266)

	1.5 gen. (n=484)		2nd gen. (n=782)	
Socio-demographic Characteristics				
Age, y, mean (SD)***	28.8	(0.3)	27.1	(0.2)
Female, no. (%)	242	(50.0)	395	(50.5)
Income, \$, no. (%)***				
≤19,999	114	(23.6)	148	(18.9)
20000-49,999	214	(44.2)	289	(36.0)
≥ 50,000	126	(26.0)	289	(36.0)
Don't Know/Refused	30	(6.2)	56	(7.1)
Educational Attainment***				
High school or less (≤12 years)	260	(53.7)	330	(42.2)
At least some college (>12)	224	(46.3)	452	(57.8)
Long-term physical/medical health condition				
Spanish-language interview, no. (%)***	122	(25.2)	34	(4.4)
Immigration Measures				
Ethno-national Group, no. (%)***				
Mexican/Mexican-American	288	(59.5)	550	(70.3)
Central American	196	(40.5)	232	(29.7)
Age at immigration, y, mean (SD)	5.8	(0.4)	NA	NA
Respondent Legal Status, no. (%)***				
US Citizen	228	(47.1)	782	(100.0)
Legal Permanent Resident (LPR)	171	(35.3)	NA	NA
Neither US Citizen or LPR	85	(17.6)	NA	NA
At least one parent entered US with documentation, no. (%)***	313	(64.8)	592	(75.7)
Cross-border ties				
Parents ever remitted money, no. (%)**	342	(70.7)	493	(63.0)
Either parent visited country-of-origin for ≥ 6 mos., no. (%)*	116	(24.0)	149	(19.1)
R accompanied parent on visit, no. (%)				
R ever remitted money, no. (%)***	254	(52.3)	248	(31.7)
R ever visited (parents') country of origin as an adult, no. (%)	331	(68.4)	504	(64.5)
Has relative in (parents') country-of-origin, no. (%)***	421	(87.0)	591	(75.6)
Self-rated health status, no. (%)				
Excellent	150	(31.0)	232	(29.7)
Very Good	132	(27.3)	251	(32.1)
Good	132	(27.3)	214	(27.4)
Fair/Poor	70	(14.4)	85	(10.9)

Source: Intergenerational and Immigrant Mobility in Metropolitan Los Angeles (IIMMLA), 2004. Notes: a. Including if respondent considers both the US and R's or parents' country-of-origin home. *p<0.05, **p<0.01, ***p<0.001 for tests of differences between 1.5 and 2nd generation.

Table 2. Odds ratios and 95% Confidence Intervals for ordinal logistic regression analyses of self-rated health status for a sample of 1.5 generation Mexican and Central American-origin young adults migrants in the greater Los Angeles, CA metropolitan area (n=484).

	Bivariate		Multivariate	
	OR	95% CI	OR	95% CI
Cross-border ties				
Parents ever remitted money	1.17	(0.81, 1.67)	0.95	(0.65, 1.39)
Either parent visited country-of-origin for ≥ 6 mos. ^a				
Yes, and R accompanied parent	0.75	(0.41, 1.37)	0.89	(0.47, 1.68)
Yes, and R did not accompany parent	0.54	(0.34, 0.85)	0.61	(0.38, 0.98)
R ever remitted money	1.02	(0.74, 1.41)	1.13	(0.79, 1.60)
R ever visited country of origin as an adult	1.24	(0.88, 1.75)	0.93	(0.62, 1.40)
Has relative in country of origin	1.81	(1.13, 2.88)	1.76	(1.06, 2.93)
Socio-demographic Characteristics				
Age, y	0.99	(0.97, 1.03)	0.98	(0.95, 1.01)
Female	1.21	(0.88, 1.67)	1.24	(0.88, 1.73)
Income, \$				
20000-49,999	1.39	(0.93, 2.08)	1.30	(0.84, 2.00)
$\geq 50,000-99,999$	2.08	(1.33, 3.27)	1.52	(0.89, 2.59)
Don't Know/Refused	1.03	(0.48, 2.21)	1.32	(0.60, 2.89)
At least some college (>12 years education)	1.85	(1.34, 2.56)	1.30	(0.90, 1.88)
Long-term physical/mental health condition	0.27	(0.14, 0.53)	0.37	(0.18, 0.75)
Spanish-language interview	0.42	(0.28, 0.61)	0.57	(0.37, 0.88)
Immigration Measures				
Central American	1.35	(0.98, 1.88)	1.08	(0.76, 1.55)
Age at immigration, y	0.99	(0.98, 1.01)	0.99	(0.98, 1.01)
Respondent Legal Status				
Legal Permanent Resident (LPR)	0.69	(0.48, 0.99)	0.81	(0.54, 1.22)
Neither Citizen or LPR	0.46	(0.29, 0.73)	0.72	(0.40, 1.29)
At least one parent entered US as documented	1.38	(0.99, 1.92)	1.44	(1.01, 2.04)
Likelihood Ratio Chi-Squared Statistic			57.63	***

Source: Intergenerational and Immigrant Mobility in Metropolitan Los Angeles (IIMMLA), 2004. Notes: a. Reference categories are: no

extended trip by respondents' parents to country-of-origin, income of <\$19,000, US citizen, *p<0.001

Table 3. Multivariable ordinal logistic regression analyses of self-rated health status for a sample of 2nd generation Mexican and Central American-origin young adults migrants in the greater Los Angeles, CA metropolitan area (n=782).

	Bivariate		Multivariate	
Cross-border ties				
Parents ever remitted money	1.42	(1.09, 1.85)	1.43	(1.07, 1.91)
Either parent visited country-of-origin for ≥ 6 mos.				
Yes, and R accompanied parent	0.87	(0.55, 1.39)	0.88	(0.54, 1.42)
Yes, and R did not accompany parent	0.63	(0.42, 0.95)	0.64	(0.42, 0.97)
R ever remitted money	0.97	(0.74, 1.26)	0.87	(0.65, 1.18)
R ever visited parents country of origin as an adult	1.01	(0.77, 1.32)	0.91	(0.68, 1.23)
Has relative in parents' country-of-origin	0.95	(0.71, 1.28)	0.83	(0.60, 1.14)
Socio-demographic Characteristics				
Age, y	0.97	(0.95, 0.99)	0.98	(0.95, 1.00)
Female	1.02	0.78, 1.32)	0.99	(0.76, 1.29)
Income, \$				
20000-49,999	1.42	(0.98, 2.04)	1.43	(0.97, 2.07)
$\geq 50,000-99,999$	2.12	(1.44, 3.11)	2.05	(1.39, 3.03)
Don't Know/Refused	1.36	(0.75, 2.47)	1.41	(0.77, 2.55)
At least some college (>12 years education)	1.48	(1.12, 1.95)	1.49	(1.13, 1.97)
Long-term physical/medical health condition	0.25	(0.14, 0.44)	0.25	(0.15, 0.44)
Prefer to speak Spanish at home	0.83	(0.64, 1.08)	0.89	(0.67, 1.17)
Central American	0.77	(0.58, 1.03)	0.73	(0.54, 0.99)
At least one parent entered US as documented	1.42	(1.05, 1.92)	1.41	(1.04, 1.92)
Likelihood Ratio Chi-Squared Statistic			85.52	***

Source: Intergenerational and Immigrant Mobility in Metropolitan Los Angeles (IIMMLA), 2004. ***p<0.001