

The health of returned migrants: Mexico and Colombia in comparative perspective

Introduction

International migration is a defining feature of the era of globalization in which we live and it is an important phenomenon in Latin America and the Caribbean. Indeed, over the past fifteen years, this region has changed its historical position from a net migrant-receiving region to one of the leading immigrant sending areas of the world (Donato et al., 2010). In 2000 it was estimated that just over 20 million people from Latin American and the Caribbean lived outside their country of birth; this is equivalent to nearly 10 percent of all international migrants in the world (Pizarro & Villa, 2005). While the health of Latin American immigrants in destination countries has been well studied, relatively less is known about the health of these migrants when they return to their communities of origin.

Colombia and Mexico make for two interesting case studies on returned migrant health. Mexico is the main migrant sending country in Latin America, with a long and rich history of migration to the U.S. Recently called one of the “largest mass migrations in modern history” (Pew Hispanic Center, 2011), Mexican migration has had considerable social and economic impacts for communities both in the U.S. and in Mexico. Much can be learned from this significant, but in many ways unique, flow of migrants. Colombia presents a counter-balance. Like migration flows from other Latin American countries, Colombian migration flows are more diversified, in that they occur to the U.S., but also to Europe, and other Latin American countries. In contrast to other countries in the region, however, Colombian migration is marked by a high degree of forced migration and displacement due to civil conflict.

In some aspects, Mexican and Colombian migration share commonalities. For example, the U.S. is the main destination country for Mexican and Colombian migrants (OIM Colombia, 2008; CONAPO, 2011). One important difference between Mexican and Colombian migration is that, over the course of the last decades, Mexican migration has become increasingly undocumented. This has the potential to influence the health of migrants (and thus, returned migrants). Undocumented status may be damaging to health, not only with regard to emotional and psychiatric health, but also other health outcomes, given the limited access to health care for the undocumented in the U.S. Although there is undocumented migration from Colombia, it is not of the same magnitude as Mexico.

I aim to do three things in this paper. First I assess differences in adult health status between returned migrants and non-migrants in Mexico and Colombia. However, in order to compare the adult health of returned migrants and non-migrants in these two countries it is also necessary to address the potential health selectivity of returned migrants by assessing the early life (pre-migration) health profiles of the returned migrants compared with the non-migrants in each country. A final aspect I will consider is whether the health of Mexican returned migrants differs from the health of Colombian returned migrants. Because these two groups of migrants likely differ in their documentation status during their last migration, I will control for documentation status to evaluate differences in their health status net of

documentation status during their last migration trip. Differences between these two groups may reflect differences in their profiles and in their migration experiences.

Data and Methods

I use recently gathered data from the Mexican Migration Project (MMP) and the Latin American Migration Project (LAMP) to address these questions. The MMP is a collaborative research project based at Princeton University and the University of Guadalajara. The MMP incorporates techniques of ethnographic fieldwork with representative survey sampling to collect cross-sectional data in Mexican communities and migrant-receiving communities in the U.S. (MMP, 2011). It is based on a purposive, representative sample of communities in the main migrant-sending and migrant-receiving regions. Comparisons between the MMP and a representative Mexican national survey, the National Survey of Population Dynamics, reveal that the MMP provides an accurate profile of the characteristics and experiences of Mexican migrants to the U.S. (Massey & Zenteno, 2000). The LAMP is a multidisciplinary research effort between investigators in various countries in Latin America and the United States, also based at Princeton University and the University of Guadalajara (LAMP, 2012). In Colombia, data collection efforts are made possible through an association between the LAMP, the Red de Universidades Públicas del Eje Cafetero-Alma Mater, the Fundación Esperanza, and the Pontificia Universidad Javeriana.

Community samples in MMP consist of 150-200 households selected randomly from a census of each community. The 20 communities contained in this analysis are located in five Mexican states: Morelos, Michoacán, Jalisco, Yucatán, and Veracruz. Some of these states are considered to be traditional migrant sending states (for example, Michoacán), whereas others have only more recently joined U.S. migration flows (for example, Yucatán). The MMP data used in this analysis were gathered between 2007 and 2011. The Colombian data were gathered between 2008 and 2011 in 11 communities located in the departments of Cundinamarca, Caldas, Risaralda and Quindío. In each of these communities 200 households were interviewed.

For both surveys, data are collected via interview on social, economic, and demographic characteristics of the head of household and other household members. Information is also gathered on whether the head of household has migration experience. Comparability across these two surveys is made possible by the fact that the two data sets share the same methodology. To the extent possible, sampling strategies, questionnaire design, interviewing, and fieldwork in the LAMP were structured to be the same as in the MMP (Donato et al., 2010).

Because few female household heads in the Mexican sample have migration experience to the U.S., the analysis focuses on men only. The final analytic sample from Mexico comprises 2,974 male heads of household and the Colombian sample comprises 1,223 male heads of household.

Measures

Migration

A variable in each of the surveys counts how many migration trips the head of household made to the U.S. (in the Mexican data) and abroad more generally (in the Colombian data). In both, a migration trip is defined as a visit that involves work, an active job search, or a reasonably stable residency. Short visits to family or friends and vacations are not considered trips. Migration experience is coded as a binary variable, defined as having made a migration trip after the age of 14 to exclude individuals who migrated with their parents as children. Thus “returned migrants” are those in the sample that have previous migration experience but are in Mexico or Colombia at the time of survey.

Health

All health measures in these two surveys, including anthropometric measures, are self-reported. Respondents are asked about current and ever smoking, their height and weight, and whether they have suffered from the following diseases and conditions: hypertension, diabetes/elevated blood sugar, heart attack or other heart problems, and emotional/psychiatric disorders. Using the anthropometric data I calculate BMI as weight in kilograms divided by height in meters squared in order to assess the prevalence of obesity in the sample. Obesity is defined as $BMI \geq 30$. Respondents are also asked to rate their health at the time of survey and their health at the age of 14. These four-point scales comprise poor, fair, good, and excellent.

Retrospective self-reports of health at the age of 14 and adult height are used as proxies for early life health. Adult height is at least partially determined by early life nutritional and health environments (Case & Paxson, 2010), so it approximates a measure of pre-migration health. Adult health status is operationalized as the presence of six diseases or health conditions (hypertension, diabetes, heart disease, emotional/psychiatric disorders, ever smoking, and obesity) and SRH at the time of survey. I create a dichotomous variable to reflect whether a respondent rates his health at the time of survey as excellent or good.

Demographic and socioeconomic characteristics

Age and marital status are included in the analyses as demographic controls. Age is analyzed as a linear variable (but including a quadratic term to test for non-linearities) and marital status as a binary variable based on whether the respondent is married or in a consensual union at the time of survey. Because additional early life socioeconomic status (SES) variables are not available in MMP or LAMP, I follow Crimmins et al. (2005) and use the respondent’s education to reflect early life SES. Current SES is measured by household assets (Filmer & Pritchett, 2001). An index of household assets is constructed using factor analysis based on the ownership of 10 items: stove, refrigerator, washing machine, sewing

machine, stereo, television, phone, internet, computer, and cellular phone (Cronbach's alpha = 0.73). The scale ranges from 0 to 1 with higher values reflecting more asset ownership. Because the distribution of the asset scale is trimodal, I coded it into terciles (low/medium/high). Years of completed schooling are also included in the models as a control for current SES. Rural versus urban residence is also included in the models. Metropolitan and small urban areas are categorized as urban, while towns and villages are classified as rural.

Analytical strategy

This analysis proceeds in four stages. After describing the characteristics of the sample, I explore whether early life health (as reflected in adult height and self-rated health at age 14) predicts having migration experience in Mexico and in Colombia. This is important in order to address the possibility that returned migrants and non-migrants have different initial health endowments. I next compare the adult health of returned migrants to the adult health of non-migrants in the two separate countries. A final step is to compare the adult health of the Mexican returned migrants to the health of the Colombian returned migrants.

Results

The migration and socioeconomic characteristics of the sample disaggregated by country are presented in Table 1. We see that migration is over two times more common in the Mexican sub-sample than in the Colombian sub-sample. Among returned migrants, Mexican returned migrants make more trips, but stay abroad for a shorter period of time compared with Colombian returned migrants. Relative to Colombian returned migrants, Mexican returned migrants made their first migration trip at a younger age and they are over four times more likely to have been undocumented during their last migration trip. On average the Colombian males in the sample are of higher socioeconomic status than the Mexican males in the sample: they have achieved more years of schooling and they own more assets.

Table 1. Migration and socioeconomic for Mexican and Colombian males [N=4,197]

	Mexican sub-sample	Colombian sub-sample	p-value
Migration characteristics			
Percent with migration experience	20.9%	7.2%	p<0.01
<i>Among those with migration experience</i>			
Mean number of trips abroad	2.1	1.2	p<0.01
Mean length of time spent abroad (months)	50.5	70.6	p<0.05
Mean age at first migration (years)	26.3	32.6	p<0.01
Percent undocumented during last migration	73.3%	17.0%	p<0.01
Socioeconomic characteristics			
Mean years of education	7.3	8.1	p<0.01
Mean asset ownership index score (range: 0-1)	0.55	0.64	p<0.01
N	2,974	1,223	

Source: Mexican Migration Project (MMP134) and Latin American Migration Project-Colombia (COL11).

The demographic and health characteristics of the sample disaggregated by country and returned migrant status are presented in Table 2. Differences are observed not only within but also between country samples. On average, Mexican returned migrants are the youngest and the least likely to be from urban areas. Mexican non-migrants are the shortest and Mexican returned migrants are the heaviest. Ever smoking prevalence is highest among Colombian returned migrants and those in this group rate their health at the time of survey in more favorable terms than those in the other groups. Other than hypertension and heart disease, Mexican returned migrants report a higher prevalence of all health conditions than their Mexican non-migrant counterparts, and also than those in the Colombian sub-sample.

Table 2. Demographic and health characteristics by returned migrant status for Mexican and Colombian males [N=4,197]¹

	Sample	Mexico		Colombia	
		Returned migrant	Non-migrant	Returned migrant	Non-migrant
Demographic characteristics					
Age	48.8	46.1	47.9	49.8	51.8
Urban	46.8%	28.8%	45.6%	63.6%	57.8%
Married	94.8%	95.3	96.6	84.1%	91.6%
Anthropometric characteristics					
Height (m)	1.66	1.67	1.65	1.70	1.68
Weight (kg)	74.2	77.6	74.6	75.9	71.4
Health behaviors					
Ever smoking	37.4%	41.2%	33.5%	50.0%	42.3%
Self-rated health status					
<i>Health at age 14</i>					
Excellent	34.5%	38.5%	19.2%	75.0%	60.7%
Good	63.2%	58.7%	78.0%	22.7%	38.0%
Fair/Poor	2.3%	2.7%	2.7%	2.2%	1.2%
<i>Health at the time of survey</i>					
Excellent/Good	70.1%	67.6%	68.1%	81.8%	74.8%
Health conditions and diseases					
Obesity	17.0%	23.8%	19.5%	9.1%	8.5%
Hypertension	16.2%	16.9%	12.8%	18.1%	22.6%
Diabetes/high blood sugar	9.6%	10.6%	9.6%	6.8%	9.3%
Emotional or psychiatric disorders	4.9%	10.5%	4.4%	3.4%	3.3%
Heart attack or heart problems	4.4%	5.8%	3.0%	4.5%	6.4%
N		621	2,353	88	1,135

Source: Mexican Migration Project (MMP134) and Latin American Migration Project-Colombia (COL11).

Do returned migrants have better early life health profiles than non-migrants?

The results that address this question are presented in Table 3. For the Mexican sub-sample, we see that height and self-rated health at 14 are predictive of having migration experience (Model 1), even in the presence of demographic and early life SES controls (Model 2). Every centimeter in additional

¹ Of the 88 Colombian returned migrants in the sample, 33% (N=29) migrated to the United States, while 67% (N=59) migrated to either Europe or other Latin American countries. Although it is highly desirable to distinguish between these two groups, particularly in order to make the comparison with the Mexican sample more appropriate, because of the small sample size this is not possible so both migrant categories are combined.

height is associated with a 1.01 increase in the odds of having migration experience ($p < 0.05$). Similarly, respondents who rate their health at 14 as excellent, relative to those who rate it as poor or fair have 2.58 higher odds of migration ($p < 0.01$). The results from the Colombian sub-sample are consistent, at least with respect to height. Controlling for demographic and early life SES characteristics (Model 4), taller Colombian males in this sample are more likely to have migration experience, with each additional centimeter in height associated with a 1.04 increase in the odds of having migration experience ($p < 0.05$). Together, these results support a process of positive migrant health selection, whereby those with migration experience appear to have more favorable early life (pre-migration) health than non-migrants, although the positive selection appears to be stronger in Mexico than in Colombia, insofar as both height and self-rated health at 14 are predictive of having migration experience in Mexico.

Table 3. Odds ratios from random intercept logistic regression models predicting migration experience for Mexican males and Colombian males

	Mexico		Colombia	
	Model 1	Model 2	Model 3	Model 4
Height (cm)	1.02** [1.01-1.03]	1.01* [1.00-1.02]	1.04** [1.01-1.08]	1.04* [1.01-1.07]
Health at 14 (Ref = Fair/Poor)				
Good	1.18 [0.65-2.13]	1.20 [0.66-2.18]	0.30 [0.62-1.49]	0.25 [0.05-1.24]
Excellent	2.39** [1.30-4.38]	2.58** [1.40-4.74]	0.66 [0.13-3.13]	0.55 [0.11-2.63]
Age		0.97 [0.93-1.01]		1.16* [1.04-1.30]
Age squared		1.00 [0.99-1.00]		0.99* [0.99-0.99]
Education (years)		0.98 [0.95-1.01]		1.07* [1.01-1.14]
Urban		0.35* [0.15-0.81]		0.87 [0.33-2.24]
N	2,974	2,974	1,223	1,223

Source: Source: Mexican Migration Project (MMP134) and Latin American Migration Project-Colombia (COL11). 95% Confidence Intervals are reported in brackets. The individual odds ratio is statistically significant at the **1% significance level, at the *5% significance level, and at the †10% significance level.

Comparing the adult health of non-migrants and returned migrants: Mexico and Colombia

The results comparing the health of returned migrants and non-migrants in the Mexican sub-sample are presented in Table 4. In the Mexican sub-sample, migration is strongly and positively associated with hypertension, heart disease, and emotional/psychiatric disorders. Controlling for relevant demographic, socioeconomic status, and health characteristics, returned migrants from Mexico have 1.40 times the odds of hypertension ($p<0.05$), 1.97 times the odds of heart disease ($p<0.01$) and 2.38 times the odds of emotional/psychiatric disorders ($p<0.01$). Returned migrants in the Mexican context are also more likely to be obese and to have ever smoked than their non-migrant counterparts ($p<0.01$ for both).

Table 4. Odds ratios from random intercept logistic regression models predicting adult health for Mexican males [N=2,974]

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Dependent variable	G/E SRH	HTN	Diabetes	Heart disease	Emotiona l/ psych	Obesity	Ever smoking
Returned migrant	0.85 [0.68-1.08]	1.40* [1.05-1.86]	1.27 [0.91-1.78]	1.97** [1.22-3.16]	2.38** [1.64-3.45]	1.40** [1.11-1.76]	1.32** [1.09-1.62]

Source: Mexican Migration Project (MMP134). 95% Confidence Intervals are reported in brackets. The individual odds ratio is statistically significant at the **1% significance level, at the *5% significance level, and at the †10% significance level. All models control for: demographic characteristics (age, age squared, marital status) and socioeconomic status (years of education and asset ownership). Additionally models 1 through 5 control for health at 14, height, and weight.

The results comparing the health of returned migrants and non-migrants in the Colombian sub-sample (Table 5) are quite different. Few differences are found in the adult health profiles of returned migrants and non-migrants in Colombia. In fact, the only statistically significant difference between Colombian returned migrants and Colombian non-migrants is that the returned migrants are more likely to have ever smoked than the non-migrants. More specifically, returned migrants have 1.56 higher odds of ever smoking than non-migrants ($p<0.10$).

Table 5. Odds ratios from random intercept logistic regression models predicting adult health for Colombian males [N=1,223]

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Dependent variable	G/E SRH	HTN	Diabetes	Heart disease	Emotional/psych	Obesity	Ever smoking
Returned migrant	1.31 [0.71-2.44]	0.74 [0.39-1.39]	0.69 [0.28-1.68]	0.79 [0.27-2.29]	1.21 [0.35-4.20]	0.92 [0.43-2.00]	1.56† [0.99-2.43]

Source: Latin American Migration Project-Colombia (COL11). 95% Confidence Intervals are reported in brackets. The individual odds ratio is statistically significant at the **1% significance level, at the *5% significance level, and at the †10% significance level. All models control for: demographic characteristics (age, age squared, marital status) and socioeconomic status (years of education and asset ownership). Additionally models 1 through 5 control for health at 14, height, and weight.

What about the relative adult health of the two returned migrant groups?

The final comparison is between Colombian returned migrants and Mexican returned migrants (Table 6). Overall, Mexican returned migrants appear to have worse adult health than Colombian returned migrants. Controlling for demographic, socioeconomic, health characteristics, and documentation status, in terms of self-rated health, Mexican returned migrants have 0.43 lower odds of reporting good or excellent health at the time of survey than Colombian returned migrants ($p < 0.05$). Mexican returned migrants are also more likely to report health conditions: they have higher odds of diabetes ($p < 0.10$), emotional/psychiatric disorders ($p < 0.05$), and they are more likely to be obese ($p < 0.01$). These differences are all net of documentation status. However, independent of country of origin, those who were undocumented during their last migration have over two times the odds of heart disease compared to returned migrants who had some sort of documentation ($p < 0.05$).

Table 6. Odds ratios from random intercept logistic regression models predicting adult health for Colombian and Mexican returned migrant males [N=709]

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Dependent variable	G/E SRH	HTN	Diabetes	Heart disease	Emotional/psych	Obesity	Ever smoking
Mexican returned migrant	0.43* [0.21-0.85]	1.37 [0.66-2.84]	2.49† [0.91-6.83]	1.01 [0.28-3.70]	3.97* [1.09-14.4]	3.39** [1.47-7.82]	0.80 [0.45-1.38]
Undocumented	0.92 [0.60-1.41]	0.88 [0.54-1.43]	0.72 [0.40-1.29]	2.31* [1.01-5.31]	1.54 [0.81-2.95]	1.09 [0.70-1.70]	1.21 [0.83-1.77]

Source: Mexican Migration Project (MMP134) and Latin American Migration Project-Colombia (COL11). 95% Confidence Intervals are reported in brackets. The individual odds ratio is statistically significant at the **1% significance level, at the *5% significance level, and at the †10% significance level. All models control for: demographic characteristics (age, age squared, marital status) and socioeconomic status (years of education and asset ownership). Additionally models 1 through 5 control for health at 14, height, and weight.

Discussion

International migration is a dynamic and complex process. Despite being an important component of this process, our understanding of return migration is far from complete. We know that returned migrants differ on social and economic characteristics from non-migrants, as well as from migrants who settle permanently (Reyes, 1997; Riosmena, 2004), but we know far less about the health of returned migrants.

The present study finds support for a process of migrant health selection. Returned migrants in both the Colombian and the Mexican sub-samples are more likely to be taller than non-migrants in those countries, and height reflects more favorable early life health and nutrition environments. Additionally, in Mexico, returned migrants also report better self-rated health at 14 relative to non-migrants in that country. This suggests that health selection may be operating more strongly in Mexico than in Colombia. There are two possible explanations for this observation. First, Mexican returned migrants tend to originate from rural locales, unlike Colombian migrants, who are primarily from urban settings (OIM Colombia, 2008). Therefore, perhaps Mexican migrants face more economic and physical obstacles to immigration out of these areas and only those who are especially robust in Mexico enter into the migration stream. Another possibility pertains to the motivations for migration. In the Colombian case, immigration may be influenced by violence, which would in theory affect all individuals equally, and therefore reduce health selection into migration streams.²

The comparisons between returned migrants and non-migrants in the two countries reveal that Mexican returned migrants appear to have worse health than their non-migrant counterparts, insofar as they report more health conditions. This is in contrast to the finding on early life health, which indicates that the Mexican returned migrants have *better* early-life health than the non-migrants in that country. As described in the paper that gave rise to this portion of the analysis (Ullmann et al., 2011), the observation that, relative to non-migrants, returned migrants have better health initially, but then worse health after their migration lends itself to at least two interpretations. First, perhaps Mexican returned migrants have worse adult health than Mexican non-migrants because of the so-called salmon bias (Abraído-Lanza et al., 1999; Palloni & Arias, 2004; Turra & Elo, 2008). In this view, migrants who are the least healthy are most likely to return to their country of origin. In the context of my results, perhaps Mexican immigrants who develop heart conditions in the U.S. return to Mexico for treatment in light of their limited access to health care services in the U.S. (Nigenda et al., 2009). An alternative interpretation for the results presented is that Mexican returned migrants have worse health than Mexican non-migrants *because of*

² Although violence in Mexico has increased markedly in the last half-decade, returned migrants from Mexico in this sample last migrated an average of 16 years so it is unlikely that violence played a major role in influencing the decision to migrate in this sample. Alvarado and Massey's analysis of violence and emigration in Mexico supports this assertion (Alvarado & Massey, 2010).

their experience migrating to and residing in the U.S. Given the high levels of discrimination against Mexican immigrants in the U.S. (Massey & Sanchez R., 2010) it seems reasonable to argue that exposure to such a hostile environment has contributed to emotional/psychiatric disorders, smoking, and heart disease among Mexican returned migrants.

The situation appears to be quite different in Colombia, where few differences are found between the returned migrants and non-migrants. Indeed, the only difference that is found between Colombian non-migrants and Colombian returned migrants is that the latter group is more likely to have ever smoked. Perhaps Colombian migrants encounter discrimination abroad which results in stress and anxiety (see for example Agudelo-Suarez, 2011; Ruiz-Hernandez et al., 2011). Stress and anxiety, in turn, have been associated with smoking (Mykletun et al., 2008).

Interpreting the results of the final portion of the analysis that compares the health of Colombian and Mexican returned migrants is complicated by the fact that the patterns and dynamics of Mexican and Colombian migration (and return migration) are different. For example, because of closer geographic proximity, those who migrated to other Latin American countries or the U.S. may be more likely to return than those who migrated to Europe. Selective return migration for different groups, especially if the return is motivated by health, is an area I cannot explore with the current data. Moreover, due to sample size considerations, I compare Mexican returned migrants (who almost exclusively migrated to the U.S.) to Colombian migrants who migrated both to the U.S. and to other destinations (in Europe and other Latin American countries). This is not ideal because the migration experiences of Colombians in Europe may differ from those who migrated to the U.S. in ways that can affect health. While xenophobia is a phenomenon that is unfortunately universal, provisions in Europe to extend health care to migrants may create disparities in the health status of Colombians who immigrate to Europe versus the U.S.

Notwithstanding, the health differences between Mexican and Colombian returned migrants may reflect differences in the socioeconomic profiles of immigrants and differences in the immigrant experiences in the destination countries. Although I control for level of education in the models, I do not specifically examine occupation. If Mexican returned migrants are employed in more hazardous or stressful occupations than their Colombian counterparts, all else being equal, perhaps this accounts for the differences in overall health status and mental health observed between these two returned migrant groups. Although it was initially hypothesized that differences in health status between Mexican and Colombian returned migrants would be highly dependent on documentation status, as the final portion of the analysis reveals, this is not necessarily the case. Controlling for documentation status, Mexican returned migrants still report poorer overall health status, more diabetes, more emotional/psychiatric disorders, and more obesity than Colombian returned migrants. This is not to say that documentation status is unimportant: it is independently associated with heart disease, regardless of the returned migrant's origin.

A final note worth mentioning with respect to the comparison between Mexican and Colombia returned migrants is that the national context might also be impacting the results. In particular, obesity is considerably more widespread in Mexico than in Colombia (Kain et al., 2003), so that the increased obesity rates among Mexican returned migrants relative to Colombia returned migrants may reflect not only differences in the profile of migrants, their experiences abroad, but also differences in the social, economic, cultural, and health context of the country of origin.

The results from this study also need to be interpreted in light of its limitations. First, these findings are generalizable to only the male populations of selected migrant-sending communities in Mexico and Colombia. Another limitation is that the health measures are all self-reported. It is possible that reporting of diseases and health conditions is higher among those who receive regular medical care. If returned migrants are more likely than non-migrants to have the means to visit a doctor, then they might be more cognizant of their health conditions rather than suffer from these conditions more than non-migrants. Likewise, there may be differences in the ways in which returned migrants and non-migrants, and Colombians and Mexicans, perceive their health.

Although Latin American immigrants are often perceived to be one homogeneous group in destination countries, this analysis has shown that the health consequences for different groups of migrants can be quite diverse. In migrant sending countries, it will be important to pay attention to difference in health status among returned migrants versus non-migrants in order to better serve the unique health needs of the returned migrant population.

References

- Abraído-Lanza, A., Dohrenwend, B.P., Ng-Mak, D.S., & Turner, J.B. (1999). The Latino mortality paradox: a test of the “salmon bias” and healthy migrant hypothesis. *Am J Pub Health*, 89(10), 1543-1548.
- Agudelo-Suárez, A.A., Ronda-Pérez, E., Gil-González, D., Vives-Cases, C., García, A.M., Ruiz-Frutos, C., Felt, E., & Benavides, F.G. (2011). The effect of perceived discrimination on the health of immigrant workers in Spain. *BMC Public Health*, 17, 11, 652.
- Alvarado, S.E., & Massey, D.S. (2010). Search of peace: structural adjustment, violence, and international migration. *The Annals of the American Academy of Political and Social Science*, 630(1), 137-161.
- Case, A., & Paxson, C. (2010). Causes and consequences of early-life health. *Demography*, 47.S, S65-S85.
- Consejo Nacional de Población (CONAPO). (2011). La situación demográfica de México. Available at: <http://www.conapo.gob.mx/publicaciones/sdm/sdm2011/SDM2011.pdf>. Accessed April 2012.
- Crimmins, E., Soldo, B.J., Kim, J.K., & Alley, D.E. (2005). Using anthropometric indicators for Mexicans in the United States and Mexico to understand the selection of migrants and the “Hispanic paradox.” *Social Biology*, 52, 164-177.
- Donato, K.M., Hiskey, J., Durand, J., & Massey, D.S. (2010). Migration in the Americas: Mexico and Latin America in comparative context. *The ANNALS of the American Academy of Political and Social Science*, 630, 6-17.
- Filmer D., & Pritchett L.H. (2001). Estimating wealth effects without expenditure data—or tears: An application to educational enrollments in states of India. *Demography*, 38(1), 115–132.
- Kain, J., Vio, F., Albala, C. (2003). Tendencias en la obesidad y factores determinantes. *Cad. Saúde Pública*, 19(1), S77-S86.
- Latin American Migration Project. (2012). Available at: www.lamp.opr.princeton.edu. Accessed Jan 2012.
- Massey, D.S., & Sanchez R., M. (2010). *Brokered boundaries: creating immigrant identity in anti-immigrant times*. New York: Russell Sage Foundation Publications.
- Massey, D.S., & Zenteno, R. (2000). A validation of the ethnosurvey: the case of Mexico-U.S. migration. *Int Mig Rev*, 34, 766–793.
- Mexican Migration Project (2011). Available at: www.mmp.opr.princeton.edu. Accessed Oct. 2010.
- Mykletun, A., Overland, S., Aarø, L.E., Liabø, H.M., & Stewart, R. (2008). Smoking in relation to anxiety and depression: Evidence from a large population survey: The HUNT study. *European Psychiatry*, 23(2), 77-84.
- Nigenda, G., Ruiz-Larios, J.A., Bejarano-Arias, R.M., Alcalde-Rabanal, J.E., & Bonilla-Fernández, P. (2009). Análisis de las alternativas de los migrantes mexicanos en Estados Unidos de América para atender sus problemas de salud. *Salud Pública Mex*, 51, 407-416.

Organización Internacional para las Migraciones. (2008). Datos y cifras. Available at: <http://www.oim.org.co/Sobremigración/Migracióncolombiana/Datosycifras/tabid/160/language/es-CO/Default.aspx>. Accessed April 2012.

Palloni, A., & Arias, E. (2004). Paradox lost: explaining the Hispanic adult mortality advantage. *Demography*, 41(3), 385-415.

Passel, J., Cohn, D., & Gonzalez-Barrera, A. (2012). Net migration from Mexico falls to zero—and perhaps less. Pew Hispanic Center. Available at: <http://www.pewhispanic.org/2012/04/23/ii-migration-between-the-u-s-and-mexico>. Accessed April 2012.

Pew Hispanic Center. (2011). The Mexican American boom – births overtake immigration. Available at: <http://pewhispanic.org/files/reports/144.pdf>. Accessed July 2011.

Pizarro, J.M., & Villa, M. (2005). International migration in Latin America and the Caribbean: a summary view of trends and patterns. United Nations expert group meeting on international migration and development. Available at: www.un.org/esa/population/meetings/.../P14_JMartinez_ECLAC.pdf. Accessed April 2012.

Reyes, B. (1997). Dynamics of immigration: return migration to Western Mexico. San Francisco: Public Policy Institute of California.

Riosmena, F. (2004). Return versus settlement among undocumented Mexican migrants, 1980 to 1996. In D.S. Massey, & J. Durand (Eds.), *Crossing the border: research from the Mexican Migration Project* (pp. 265-280). New York: Russell Sage Foundation.

Ruiz Hernández, J.A., Torrente Hernández, G., Rodríguez González, A., & Ramírez de la Fe Mdel, C. (2011). Acculturative stress in Latin-American immigrants: an assessment proposal. *Span J Psychol*, 14(1), 227-236.

Turra, C., & Elo, I. (2008). The impact of the salmon bias on the Hispanic mortality advantage: new evidence from social security data. *Popul Res Policy Rev*, 27(5), 515–530.

Ullmann, S.H., Goldman, N., & Massey, D.S. (2011). Healthier before they migrate, less healthy when they return? The health of returned migrants in Mexico. *Soc Sci Med*, 73, 421-428.