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The Consequences of Migration to the United States for Short-term Changes in the Health of Mexican Immigrants

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Abstract

Although many studies have attempted to examine the consequences of Mexico-U.S. migration for Mexican immigrants' health, few have had adequate data to generate the appropriate comparisons. In this article, we use data from two waves of the Mexican Family Life Survey (MxFLS) to compare the health of current migrants from Mexico with those of earlier migrants and nonmigrants. Because the longitudinal data permit us to examine short-term changes in health status subsequent to the baseline survey for current migrants and for Mexican residents, as well as to control for the potential health selectivity of migrants, the results provide a clearer picture of the consequences of immigration for Mexican migrant health than have previous studies. Our findings demonstrate that current migrants are more likely to experience recent changes in health status—both improvements and declines—than either earlier migrants or nonmigrants. The net effect, however, is a decline in health for current migrants: compared with never migrants, the health of current migrants is much more likely to have declined in the year or two since migration and not significantly more likely to have improved. Thus, it appears that the migration process itself and/or the experiences of the immediate post-migration period detrimentally affect Mexican immigrants' health.

Keywords

Immigrant; Health status; Self-rated health; Selection; Mexico

Introduction

Large-scale Mexican-U.S. migration has changed social, economic, and cultural life on both sides of the border. Migration to the United States can offer increased earnings and savings accumulation (Gathmann 2008). However, it can also be a difficult experience for migrants because of the risks and costs of border crossing; poorly paying, irregular, and hazardous jobs; crowded housing; lengthy family separation; discrimination; and a politically hostile climate (Hovey 2000; Massey and Sanchez 2010; Ullmann et al. 2011).

What are the consequences of the immigrant experience for immigrants' health? The literature suggests that Mexican immigrants are positively selected for good health and healthy behaviors (the "healthy migrant effect") but that living in the United States may lead to deterioration in both health and healthy behaviors of migrants (Ceballos and Palloni 2010; Kaestner et al. 2009; Oza-Frank et al. 2011; Riosmena and Dennis 2012). However, the evidence for both parts of this scenario is often contradictory and limited by available data. A study based on Mexican longitudinal data found only weak evidence of positive health selection for migrants (Rubalcava et al. 2008). However, studies using binational cross-sectional data to compare Mexican immigrants in the United States with Mexican residents have argued more strongly in support of positive health selection (Barquera et al. 2008; Crimmins et al. 2005).

Research on the effects of life in the United States on immigrant health is also problematic. Studies comparing immigrant duration cohorts cross-sectionally in the United States have generally suggested that immigrant health and health behaviors deteriorate with longer durations of residence (Abraído-Lanza et al. 2005; Lara et al. 2005). In contrast, some studies indicate that health trajectories are not monotonically related to time spent in the United States (Jasso et al. 2004; Teitler et al. 2012).

Many of the limitations characterizing previous research on immigrant health result from reliance on cross-sectional data. These studies did not have adequate information on premigration health, making it impossible to determine when health deterioration began. In addition, cross-sectional comparisons involve cohorts of immigrants with different characteristics that arrived in different time periods with distinct political and economic climates; comparisons are further biased by selective attrition of return migrants, who, on average, are less healthy than the stayers (i.e., the "salmon bias"; Riosmena et al. 2013). Moreover, cross-sectional studies cannot assess whether the observed health trajectories of immigrants differ from those of nonmigrants. Alternative strategies that compare U.S. emigrants who have returned to Mexico with those who remained in their home communities are also problematic because of potential health-selective return migration.

In this article, we use data from the two waves of the Mexican Family Life Survey (MxFLS) to explicitly examine short-term changes in health status for current migrants in the United States compared with return migrants and never migrants. Because the richness of data in the MxFLS permits extensive controls for the potential health selectivity of migrants, this article provides a significantly clearer picture of the consequences of immigration for Mexican migrant health than previous studies.

Background

The literature suggests several reasons why immigrant health may deteriorate in the United States. The first is inadequate access to health care, particularly for undocumented migrants (Nandi et al. 2008; Prentice et al. 2005; Vargas Bustamante et al. 2012). Having health insurance is a key predictor of access to health care, particularly for immigrants (Siddiqi et al. 2009).

A second explanation is the detrimental effects of acculturation on health behaviors (i.e., poor diet, a sedentary lifestyle, and substance abuse) through exposure to U.S. society. In recent years, the acculturation literature has been strongly criticized (Carter-Pokras et al. 2008; Creighton et al. 2012; Hunt et al. 2004; Viruell-Fuentes 2007; Zambrana and Carter-Pokras 2010) for failing to take socioeconomic status seriously and for its limited theoretical grounding in the immigrant integration literature. A more nuanced interpretation of the acculturation hypothesis, drawn from the literature on segmented assimilation, suggests that Mexican immigrants may adopt the less healthy behaviors of lower-income Americans because many involuntarily join this social class upon entering the United States (Abraído-Lanza et al. 2006).

Other hypotheses focus on social inequality as causes of declines in migrant health (Viruell-Fuentes et al. 2012). For example, the acculturative stress hypothesis suggests that because U.S. society views Mexican-origin immigrants as low status, immigrants face discrimination and chronic stress (Finch and Vega 2003). In addition, Mexican immigrants may live and work under unhealthy conditions that expose them to infectious disease, environmental toxins, injury, and other health risks (Acevedo-Garcia 2001; Kandel and Donato 2009; Orrenius and Zavodny 2009).

A related stressor is the increasingly hostile political climate for recent immigrants in the United States, including stronger border enforcement, restriction of access to welfare and Medicaid, and state anti-immigrant efforts (Cornelius 2001; Massey and Sanchez 2010). Discrimination, family cultural conflict and lengthy separation, a hostile political climate, loss of social support, and, after the 2008 economic crisis, fewer jobs are all likely to be stressful experiences, especially for undocumented immigrants, and are likely to have a more immediate impact on immigrants' mental and physical health than poor access to health care or acculturation mechanisms.

Despite these findings, it is possible that emigration to the United States improves Mexican migrants' health. Residence in the United States has a consistently positive effect on the wealth of middle-aged and older Mexican return migrants (Wong et al. 2007), and income and wealth are strongly associated with better health (Marmot and Bell 2012). Mexican migrants, particularly documented ones, may also experience better working and housing conditions than they would have in Mexico. Previous studies have found that health care use and self-perceptions of health may improve with duration in the United States (Hummer et al. 2004; Lara et al. 2005) and that some health outcomes are better for immigrants who have resided in the United States for several years (Riosmena et al. 2013; Teitler et al. 2012).

In this article, we examine whether the health of Mexican immigrants deteriorates or improves after migration to the United States. We explicitly compare changes in health status of recent immigrants with those of previous immigrants and with individuals who remained in Mexico. Because these three groups are likely to differ in initial health status (e.g., because of the healthy migrant effect and salmon bias), a critical part of this analysis is the introduction of extensive controls for baseline health status.

Data

The Mexican Family Life Survey (MxFLS) has several advantages for this analysis: it interviews respondents at closely spaced waves that permit assessment of short-term changes in health for migrants to the United States and individuals who remain in or return to Mexico; it collects objective and subjective health assessments that provide controls for potential health selectivity of migrants; and it obtains detailed migration histories that allow us to distinguish among recent, earlier, and never migrants. The baseline survey in 2002 (MxFLS-1) interviewed all adult members residing in more than 8,440 households in 147 localities of Mexico (Rubalcava and Teruel 2006). Respondents in the baseline survey were reinterviewed in 2005–2006 (MxFLS-2) and 2009–2012 (MxFLS-3). MxFLS followed individuals who left their household of origin, irrespective of destination, including movers to the United States: of those sampled in MxFLS-1, more than 90% were located and interviewed again in MxFLS-2 (Rubalcava et al. 2008). This analysis is based on MxFLS-1 and MxFLS-2; MxFLS-3 is not yet available.

The sample includes respondents who are 20 years and older at baseline. Of the 19,132 age-appropriate respondents, one could not be matched to a municipality and was excluded. An additional 4,874 respondents did not report one or both of the health outcomes at follow-up. After exclusion of these respondents, the analytic sample comprises 14,257 adults.

In exploratory analyses, we estimated a logistic model of the probability that a respondent was missing either of the two health outcomes. The results indicate that individuals with no previous migration history, those with more education, men, and individuals in their 20s were more likely to be missing outcomes than others. However, with these variables in the model, there were no significant differences by self-reported health status at baseline.

Variables

Outcome Variables: Self-reported Health and Change in Health

Despite the frequent use of self-reports of overall health to compare the well-being of various immigrant and native-born groups (e.g., Finch and Vega 2003), comparisons may be biased by differences in choice of reference group, degree of acculturation, and language of interview (Bzostek et al. 2007). Because this analysis examines changes in reported health for a given individual, such biases are likely to be substantially reduced. We consider two outcomes—self-rated health (SRH) and perceived change in health—each with five possible responses: “much better,” “better,” “the same,” “worse,” and “much worse.” The SRH question in MxFLS-2 for both Mexican residents and immigrants in the United States, is as follows:

If you compare yourself with people of the same age and sex, would you say that your health is (...)?

With controls for SRH at baseline, an analysis of SRH at follow-up implicitly examines change in the respondent's health between interviews.

The second outcome is a direct assessment of change, based on different questions for respondents in the United States and in Mexico. Respondents in Mexico were asked:

Comparing your health to a year ago, would you say your health now is (...)?

Respondents interviewed in the United States were instead asked:

Comparing your health to just before you came to the United States, would you say your health now is (...)?

Calculations indicate that the average time since migration to the United States for current migrants is 1.6 years—only slightly longer than the explicit period of 1 year used in the Mexico interviews.

Because few respondents reported the extreme categories of “much better” or “much worse,” the five response categories were collapsed into three: “much better” and “better” were combined into a single category, as were “much worse” and “worse;” “same” health is the reference category.

Migrant Status

We categorize respondents as “current,” “return,” and “never” migrants. Current migrants migrated after the baseline survey and were interviewed in the United States in MxFLS-2. Return migrants were interviewed in Mexico at Wave 2 but had previous migration experience to the United States; they include long-term and temporary migrants as well as those who migrated to the United States between survey waves but returned to Mexico before the second interview. Never migrants reported no international migration experience by Wave 2.

Control Variables

To account for potential differences in the health status of migrants, return migrants, and nonmigrants at baseline that are not captured by SRH, we include four health variables in addition to SRH, all measured at Wave 1. Obesity, anemia, and hypertension are derived from assessments conducted in the home by a trained health worker. Obesity is defined as a body mass index (BMI) ≥ 30 based on height and weight measurements (WHO 2000). Individuals are classified as anemic for the following hemoglobin (Hb) levels: Hb < 130 g/L for males or Hb < 120 g/L for females (WHO 2000). Individuals with elevated systolic (mmHg ≥ 140) and/or diastolic (mmHg ≥ 90) blood pressure are considered hypertensive (WHO 2000). The final health measure reflects whether the respondent had been hospitalized in the past year.

Two measures of socioeconomic status provide additional controls for potential selectivity of migrants: (1) years of schooling, and (2) log per capita household expenditure. The latter

measure has been used to assess household economic well-being in a broad range of contexts, including Mexico (Contreras 2003; Rubalcava et al. 2009; Xu et al. 2009). All models also control for sex and age (linear and quadratic terms).

Municipal Controls

Because the literature suggests that migration decisions depend on place of origin (Rubalcava et al. 2008) and migration flows at the municipality level are likely to be related to unobserved characteristics (e.g., human capital) of residents, we include three variables at the municipality level. A municipality was coded as rural if there were fewer than 2,500 residents (INEGI 2003). We also include two measures based on the 2000 Mexican Census: (1) a marginalization index derived from a factor analysis of municipal-level measures of education, housing, income, and schooling (Luis-Ávila et al. 2001); and (2) a measure of migration intensity based on the number of return migrants, current migrants, and amount of remittances received by households (Tuirán et al. 2002). Both measures are categorized as “low,” “medium,” and “high.”

Methods

As described earlier, we classify both health outcome variables (self-rated health at Wave 2 relative to someone of the same age and sex and perceived health change over the year prior to Wave 2) as better, same, or worse health. For each of the two health outcomes, we fit multinomial regression models, with “same” health as the reference category, to estimate relative risk ratios (RRRs) for worse relative to same health and RRRs for better relative to same health. We estimate a set of three models that sequentially includes (1) migrant status, baseline SRH, age and sex; (2) objective health measures; (3) socioeconomic status and municipal-level characteristics. The estimate of primary interest pertains to current migrants: that is, is health at follow-up or perceived change in health of current migrants better, worse, or the same as that of never or return migrants?

We use multiple imputation to estimate a response for explanatory variables with missing values (see Table 1 for the frequency of missing data). We create five imputed data sets. The imputation models include all covariates with complete information as well as a variable denoting household size (to improve overall model fit). The estimated RRRs in the results section are derived from average values of the coefficients across the five imputed data sets.

The sample is clustered at two levels: 14,257 adults are drawn from 7,200 households and 136 municipalities. To account for the dependence of observations, we use robust standard errors clustered at the household level to calculate variances under multiple imputation. The estimates are computed in Stata 12 using the *mlogit* command (StataCorp 2011).

Results

Descriptive statistics are presented in Table 1. At each wave, about 60 % of respondents evaluate their overall health the same as someone of the same age and sex, and only about 8 % rate their health as worse. Almost twice as many respondents note an improvement as

compared with a deterioration in health over the period. About 5 % of the respondents are current or return migrants.

The relative risk ratios (RRRs, or exponentiated coefficients) in Table 2 pertain to self-rated health at follow-up. Based on Model 3, the estimated RRR for current migrants is 1.7 ($p < .05$) for worse compared with the same health and 1.3 ($p < .05$) for better compared with the same health (relative to a never migrant). In other words, current migrants in the United States are less likely than never migrants to rate themselves as having the same health status as someone of their age and sex: they are more apt to rate their health both worse and better—but especially worse than their peers—at the second interview. The estimates for return migrants are not significantly different from those for never migrants. Estimates for the control variables generally conform to expectation.

Because RRRs are difficult to interpret, in upcoming Table 4, we present predicted probabilities of worse, same, or better health at follow-up by migrant status. Each estimate was determined by setting all explanatory variables except migrant status at their observed values for each individual, setting migrant status to the same value for all individuals (never, return, or current migrant) and calculating the mean prediction from the model. The first panel, which shows predictions based on Model 3 in Table 2, underscores the results noted earlier: at follow-up, current migrants are considerably more likely (by nearly 50 %) than never migrants to rate their health as worse than someone of the same age and sex and only slightly more likely (by about 13 %) to rate their health as better.

The RRRs in Table 3 are based on respondents' assessments of the change in their health status. Consistent with the previous estimates, the RRRs for deteriorating health are large and significant for current migrants (1.9 in Model 3). In contrast, the RRRs for improving health are not significantly different from one for current migrants. As with SRH, the RRRs for return migrants are not significantly different from one for either deteriorating or improving health. The predicted probabilities in the second panel of Table 4 indicate that the health of current migrants is about 60 % more likely than that of never migrants to have worsened in the recent past and only very slightly (and insignificantly) more likely to have improved.

Discussion

The central question of this analysis has been whether migrants from Mexico to the United States experience changes in their health after they move. This simple question has not been adequately answered by prior research because of the dearth of appropriate data. However, through data collection efforts in Mexico and the United States at the second wave, and extensive baseline information on variables potentially related to the health selectivity of migrants, the MxFLS permits us to address this issue in a methodologically appropriate way.

Two outcome variables—SRH at the second wave and self-assessment of recent change in health status—provide insights into the changing health status of current migrants relative to others. Both measures indicate that current migrants are more likely to have experienced recent changes in health status—both improvements and declines—than either earlier

migrants or nonmigrants. This is perhaps not surprising because migration to the United States is associated with changes in many of the determinants of health status, including access to health care, exposure to stressful experiences and health risks, and lifestyle. Moreover, the fact that some migrants report better health while others report worse health is consistent with the notion of multiple acculturative processes that ultimately lead to distinct mental and physical health outcomes (Castro 2013).

An important question concerns the net change in health status: compared with residents in Mexico, was improvement in health as prevalent as deterioration in health among current migrants? Because migrants may use a different reference group to evaluate their health status in the United States than they used three years earlier in Mexico (Bzostek et al. 2007), respondents' direct assessments of changes in their recent health status may be more informative. Our results demonstrate that the net change across the sample of current migrants is a decline in their overall health relative to the other groups.

Although this finding is consistent with the large literature on deteriorating migrant health with length of residence in the United States, our study is the first (to our knowledge) to demonstrate that declines in self-assessed health appear quickly after migrants' arrival in the United States. Most previous studies suggest that recent Mexican immigrants in the United States are in better health compared with longer-term migrants and the U.S.-born population. However, comparisons based only on U.S. residents miss an important part of the picture: they ignore changes in individual immigrant health in the year or so after migration (compared with migrants' own health before migration and that of nonmigrants). Our results suggest that the migration process itself and/or the experiences of the immediate post-migration period detrimentally affect Mexican immigrants' health.

The speed with which declines occur suggests that the process of acculturation, which tends to unfold over numerous years (Antecol and Bedard 2006; Creighton et al. 2012), is unlikely to account for most of the decline in migrant health status. Instead, we speculate that the process of border crossing for undocumented immigrants—now more costly and dangerous than in the past (Gathmann 2008; US GAO 2006)—combined with the physical and psychological costs of finding work and lodging in the United States, lack of health care, and the stress of undocumented status can cause rapid deterioration in immigrants' physical and mental well-being and hence perceptions of their own health. Regardless of documentation status, many immigrants face extreme poverty, isolation from families, and harsh work conditions after arrival that may affect their health assessment.

Unfortunately, given the limited set of health questions asked of migrants at the second wave, we cannot provide a more nuanced analysis of how physical and mental well-being change. Moreover, the sample size of individuals who migrated between MxFLS-1 and MxFLS-2 is not sufficiently large to consider how working and housing conditions, diet, social interactions, lack of access to health care, financial stress, and other factors moderate the relationship between migration and health.

With the availability of the third wave of MxFLS, collected in 2009–2012, many such questions can be addressed in the future. Objective markers of health status collected in the

third wave for migrants and nonmigrants alike will yield a more precise description of the ways in which health status has evolved. In addition, the inclusion of migrants between the second and third waves will not only yield a larger sample of migrants but will also permit an analysis of whether migrants who came to the United States during the past few years—a period with an especially hostile political climate and an economic recession—experienced even worse health outcomes than the migrants analyzed in this study.

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Table 1

Description of the outcome and explanatory variables in the analytic sample

Variable	Count	%	Mean	SD	% Missing
Outcome					
Self-rated health status relative to same age and sex (MxFLS-2)					0.0
Worse	1,183	8.3	—	—	
Same	8,676	60.9	—	—	
Better	4,398	30.9	—	—	
Perceived change in health status (MxFLS-2)					0.0
Worse	1,735	12.2	—	—	
Same	9,385	65.8	—	—	
Better	3,137	22.0	—	—	
Explanatory					
Migrant status (MxFLS-2)					0.0
Never	13,560	95.1	—	—	
Return	391	2.7	—	—	
Current	306	2.2	—	—	
Self-rated health status relative to same age and sex (MxFLS-1)					10.5
Worse	1,008	7.9	—	—	
Same	7,461	58.4	—	—	
Better	4,298	33.7	—	—	
Male	—	—	0.43	0.49	0.0
Age (years)	—	—	42.22	15.74	0.0
Obese	—	—	0.33	0.47	0.0
Anemic	—	—	0.06	0.24	0.0
Hypertensive	—	—	0.34	0.47	8.3
Hospitalized in previous year	—	—	0.06	0.23	10.5
Marginalization Index					0.0
Low	9,520	66.8	—	—	
Medium	2,729	19.1	—	—	
High	2,008	14.1	—	—	

Variable	Count	%	Mean	SD	% Missing
Migration intensity index					0.0
Low	11,021	77.3	—	—	
Medium	1,376	9.7	—	—	
High	1,860	13.1	—	—	
Rural	—	—	0.44	0.50	0.0
Years of education	—	—	6.31	4.40	1.2
Log per capita expenditure	—	—	6.88	1.08	3.5
<i>N</i>	14,257				

Relative risk ratios (RRRs) and *t* statistics from multinomial logistic model of self-rated health status (SRH) relative to same age and sex at MxFLS-2

Table 2

	Model 1		Model 2		Model 3	
	RRR	<i>t</i>	RRR	<i>t</i>	RRR	<i>t</i>
Contrast: Worse (vs. same)						
Migrant status (ref. = never)						
Return	0.861	-0.72	0.851	-0.78	0.858	-0.73
Current	1.731 *	2.56	1.789 **	2.70	1.707 *	2.49
Male	0.688 ***	-5.76	0.732 ***	-4.70	0.760 ***	-4.08
Age (years) ^a	1.604 ***	11.00	1.621 ***	10.79	1.402 ***	6.70
Age Squared SRH at MxFLS-1 (ref. = same)						
Worse	3.377 ***	13.06	3.311 ***	12.72	3.122 ***	11.96
Better	0.944	-0.62	0.944	-0.62	0.984	-0.17
Obese			1.245 **	3.22	1.264 **	3.42
Anemic			1.140	1.10	1.111	0.87
Hypertensive			0.890	-1.64	0.887	-1.70
Hospitalized in previous year			1.658 ***	4.05	1.668 ***	4.08
Marginalization index (ref. = low)						
Medium					1.240 *	2.30
High					1.006	0.06
Migration intensity index (ref. = low)						
Medium					1.216	1.72
High					0.998	-0.02
Rural					0.903	-1.31
Years of education					0.939 ***	-5.71
Log per capita expenditure					1.060	1.86
Contrast: Better (vs. same)						
Migrant status (ref. = never)						
Return	0.937	-0.57	0.934	-0.60	0.940	-0.53
Current	1.129	0.93	1.122	0.88	1.303 *	1.99

	Model 1		Model 2		Model 3	
	RRR	t	RRR	t	RRR	t
Male	1.033	0.91	1.033	0.88	1.001	0.03
Age (years)	0.994	-0.26	1.004	0.17	1.091**	3.32
Age squared SRH at MxFLS-1 (ref. = same)	0.979	-1.21	0.977	-1.33	0.977	-1.31
Worse	0.938	-0.76	0.937	-0.78	0.970	-0.36
Better	1.652***	12.05	1.653***	12.07	1.541***	10.21
Obese			0.965	-0.85	0.944	-1.36
Anemic			0.880	-1.52	0.920	-0.98
Hypertensive			0.960	-0.95	0.943	-1.33
Hospitalized in previous year			1.137	1.46	1.053	0.58
Marginalization index (ref. = low)						
Medium					0.925	-1.23
High					0.666***	-5.32
Migration intensity index (ref. = low)						
Medium					1.012	0.15
High					0.722***	-4.26
Rural					1.004	0.08
Years of education					1.034***	5.97
Log per capita expenditure					1.093***	4.44
N	14,257					

Notes: Based on five multiple imputations of missing values. Standard errors are adjusted for clustering at the household level.

^a Age is standardized by centering on the mean of 42.2 years in standard deviation (15.7 years) unit.

* $p < .05$;

** $p < .01$;

*** $p < .001$

Table 3

Relative Risk Ratios (RRRs) and t-statistics from Multinomial Model of Perceived Change in Health Status Relative to Previous Year or Prior to Migration

	Models					
	(1)		(2)		(3)	
	RRR	t	RRR	t	RRR	t
<i>Contrast: Worse (vs. Same)</i>						
Migrant Status (ref=Never)						
Return	0.961	-0.25	0.955	-0.29	0.870	-0.85
Current	2.202 ***	4.28	2.227 ***	4.33	1.909 **	3.46
Male	0.631 ***	-8.59	0.649 ***	-7.93	0.673 ***	-7.16
Age (Years) ¹	1.774 ***	15.89	1.787 ***	15.54	1.609 ***	11.73
Age Squared	0.927 **	-3.43	0.928 **	-3.38	0.937 **	-2.92
SRH at MxFLS-1 (ref=Same)						
Worse	2.416 ***	10.34	2.393 ***	10.15	2.241 ***	9.22
Better	1.126	1.89	1.127	1.90	1.188 **	2.72
Obese			1.098	1.60	1.130 *	2.09
Anemic			1.049	0.44	1.060	0.52
Hypertensive			0.929	-1.18	0.937	-1.04
Hospitalized in Previous Year			1.293 *	2.22	1.296 *	2.22
Marginalization Index (ref=Low)						
Medium					1.055	0.69
High					0.975	-0.27
Migration Intensity Index (ref=Low)						
Medium					1.402 ***	3.63
High					1.535 ***	5.10
Rural					0.895	-1.65
Years of Education					0.958 ***	-5.14
Log Per Capita Expenditure					1.034	1.25

	Models					
	(1)		(2)		(3)	
	RRR	t	RRR	t	RRR	t
<i>Contrast: Better (vs. Same)</i>						
Migrant Status (ref=Never)						
Return	0.972	-0.22	0.970	-0.24	1.020	0.15
Current	1.048	0.31	1.055	0.36	1.192	1.16
Male	0.855 ***	-3.85	0.862 ***	-3.49	0.856 ***	-3.63
Age (Years)	0.834 ***	-7.56	0.830 ***	-7.52	0.830 ***	-6.59
Age Squared	1.038	1.90	1.038	1.86	1.042 *	2.06
SRH at MxFLS-1 (ref=Same)						
Worse	1.153	1.58	1.136	1.41	1.144	1.48
Better	1.285 ***	5.49	1.286 ***	5.51	1.243 ***	4.73
Obese			1.016	0.35	1.001	0.02
Anemic			1.000	0.00	1.016	0.17
Hypertensive			1.057	1.12	1.041	0.81
Hospitalized in Previous Year			1.362 **	3.44	1.309 **	2.97
Marginalization Index (ref=Low)						
Medium					0.836 **	-2.62
High					0.776 **	-3.27
Migration Intensity Index (ref=Low)						
Medium					0.832 *	-2.20
High					0.734 ***	-3.78
Rural					1.043	0.77
Years of Education					0.996	-0.60
Log Per Capita Expenditure					1.056 *	2.43
N	14257					

* p<0.05;
 ** p<0.01;

p<0.001

Note: Based on five multiple imputations of missing values. Standard errors are adjusted for clustering at the household level.

J Age is standardized by centering around the mean of 42.2 years in standard deviation (15.7 years) unit.

Table 4

Average predicted probabilities of self-rated health status at Wave 2^a and perceived change in health status^b by migrant status

Outcome	Migrant Status		
	Never	Return	Current
Self-rated Health Status (MxFLS-2)			
Worse	.0826	.0735	.1199
Same	.6096	.6281	.5316
Better	.3078	.2983	.3485
Total ^c	1.0000	1.0000	1.0000
Perceived Change in Health Status			
Worse	.1208	.1072	.1939
Same	.6596	.6668	.5764
Better	.2195	.2259	.2297
Total ^c	1.0000	1.0000	1.0000

Notes: Predicted probabilities were determined by setting all explanatory variables except migrant status at their observed values for each individual, setting migrant status to the same value for all individuals (never, return, current migrants), and calculating the mean prediction from the model.

^a Based on Model 3 in Table 2.

^b Based on Model 3 in Table 3.

^c Some columns may not sum exactly to 1.0000 because of rounding.