

CMHI/UC MEXUS FINAL REPORT

Migration and Reproductive Health Among Mexican Youth

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This project was a partnership between investigators at the University of California, San Francisco (UCSF) and the Mexican National Institute of Public Health (INSP) in Cuernavaca, Mexico. Additional staff included two graduate student researchers: Christine Tucker, a Master's student in Public Health from UC Berkeley, and Pilar Torres Pereda, a Master's Student in Medical Anthropology from the University of Sussex. Christine was hired to work for UCSF in December 2005 and Pilar for INSP in June 2006. Presently, both have graduated from their Master's programs and are working at INSP.

The objective of the project *Migration and Reproductive Health among Mexican Youth*, was to explore the relationship between migration to the United States and reproductive health among youth in Mexico. To examine this relationship quantitatively, we conducted two separate secondary analyses of the first wave of the Mexican Family Life Survey (MxFLS) 2002. To explore what structural aspects of migration influenced reproductive health risk, we conducted a qualitative study that consisted of 47 in-depth interviews with youth from two sending communities in Mexico and analyzed the transcripts using grounded theory methodology.

Quantitative

We began the quantitative analysis by conducting a literature review on Latino adolescent reproductive health and migration to guide our analysis. In February 2006 we began descriptive analysis and the Principal Investigators met in San Francisco to discuss their initial findings and to give feedback on paper ideas. From this meeting, two paper ideas were developed: one with an epidemiological approach and one with an economics approach.

Migration and Reproductive health paper:

Under the leadership of Alexandra Minnis at UCSF, we examined the association between migration and various reproductive health outcomes among women from the MXFLS. Migration was defined as the woman's actual experience migrating to the U.S., as well as her exposure to U.S. culture through her husband's migration experience (See Table 1).

Table 1: Migration exposure among Mexican women of reproductive age

Ever Migrated to U.S.		
No	8127	(98.9)
Yes	91	(1.1)
Partner ever or current migration to U.S. (among partnered women only)		
No	4608	(91.7)
Yes	416	(8.3)

**number of observations varies by migration measure based on missing data among different questions*

The following two tables (Tables 2 and 3) display our preliminary results of the association between a woman's migration to the U.S. and her partner's migration to the U.S. on various reproductive health outcomes.

Table 2: Reproductive health by migration status among Mexican women of reproductive age

	Total n=8734 (100%)		Non-migrant N=8127 (98.9%)		Migrant n=91 (1.1%)		test stat	p-value
Early age at 1st sex							1.6	0.21
No	5025	(84.5)	4856	(84.4)	76	(89.4)		
Yes	921	(15.5)	894	(15.6)	9	(10.6)		
Number of sex partners							10.7	0.00
1	4877	(81.5)	4736	(81.8)	57	(67.9)		
More than 1	1108	(18.5)	1055	(18.2)	27	(32.1)		
Age at 1 st pregnancy							2.5	0.29
≤ 15	525	(9.3)	511	(9.3)	4	(5.1)		
≤ 19	2482	(44.0)	2405	(44.0)	32	(41.0)		
20 and older	2640	(46.7)	2553	(46.7)	42	(53.9)		
Ever used condoms							16.5	0.00
No	6252	(81.2)	5805	(80.8)	56	(63.6)		
Yes	1447	(18.8)	1376	(19.2)	32	(36.4)		
Current use contraceptive							3.2	0.08
No	2053	(39.6)	1974	(39.5)	39	(49.4)		
Yes	3127	(60.4)	3021	(60.5)	40	(50.6)		

As presented in Table 2, women with migration experience were more likely to have had more than one partner and to have used condoms than women without migration experience to the U.S. However, migrant women to the U.S. were less likely to report using contraception currently.

Table 3: Reproductive health by partner's migration status among Mexican women of reproductive age

Age categories	15-19		20-29		30+		All	
	US Contact	No contact						
N	14	194	122	1296	217	3118	354	4615
%	6.73	93.27	8.6	91.4	6.51	93.49	7.12	92.88
Age of 1st intercourse	16	15.9	18.47	18.43	19.46	19.42	18.97	18.98
More than one partner (%)	7.14	9.27	9.83	12.42	11.52	16.32	10.73	14.90**
Age of 1st pregnancy	16.53	16.28	19.24	19.25	20.55	20.49	19.93	19.99
Ever used condom (%)	14.28	29.16	36.36	33.7	23.5	24.27	27.38	27.17
Current use contraceptive (%)	55.55	45.16	54.71	67.75***	59.55	65.13	57.67	65.08***

** sig at $p < .05$, ***sig at $p < .01$

Table 3 presents an analysis of the effects of having a sexual partner with a U.S. migration history on several reproductive health risks. The sample includes only those women who reported having a sexual partner currently. No differences in condom use among women whose partners have migrated compared to women whose partners have no migration experience to the U.S. However, women whose partner has migration experience are significantly less likely to have had more than one partner and less likely to currently report contraceptive use. Based on this bivariate analysis we are currently conducting the multivariate analysis and writing up the results presenting a comparison of women's reproductive health in Mexico by their exposure to the U.S. either directly or through their partners.

Risk preferences and Migration paper:

The other MxFLS analysis, led by Sergio Bautista at INSP, was an examination of risk preferences in relation to migration intentions. Research on the Hispanic Paradox demonstrates that despite the poor socioeconomic conditions which many immigrants face in the U.S, their health (most documented in terms of birth outcomes and chronic disease) is generally better than natives from the U.S. One hypothesis that aims to explain this paradox is health selection. Migrants are selected on their health status and are generally healthier than non migrants in their country of origin, and thus the decline in health status with time in the U.S. is simply a regression towards the mean. We wanted to examine this selectivity hypothesis in more detail and hypothesized that migrants from Mexico to the U.S., most of whom migrate undocumented and thus face great uncertainty, are more likely to be risk takers compared to non-migrants. Thus the health decline observed in the U.S. over time among immigrants may be reflective of risk taking in other realms such as health matters like smoking and alcohol use.

To test this hypothesis, we used intention to migrate as the dependent variable and compared those with the intention to migrate against those who did not intend to migrate on a variety of health outcomes and risk preferences. The results can be seen in Tables 4 and 5.

Table 4. Decision to Migrate using Self reported Health Status

	Intention to migrate			
	Measure of risk 1	Measure of risk 2	Measure of risk 3	Measure of risk 4
Sex	-0.028	0.004	-0.005	0.013
15-25 years old	0.369	0.42	0.427	0.416
26-36 years old	0.168	0.174	0.174	0.172
Primary School	0.076	0.075	0.065	0.071
Secondary School	0.296	0.299	0.288	0.294
High School	0.493	0.5	0.486	0.496
Above High School	0.688	0.699	0.673	0.691
Low wage*	0.073	0.073	0.081	0.075
Relatives in US	0.286	0.282	0.284	0.283
Low expenditure per capita**	-0.257	-0.244	-0.244	-0.247
High expenditure per capita**	0.183	0.158	0.174	0.167
Lives in medium margination municipality***	0.018	0.029	0.022	0.024
Lives in high margination municipality***	-0.093	-0.069	-0.081	-0.079
Good Health	-0.077	-0.073	-0.076	-0.074
Young age of first intercourse	0.071			
2 or 3 sexual partners****	0.265			
Above 4 sexual partners****	0.205			
Smoke		0.25		
Consume alcohol			0.16	
Consume Smoke & Alcohol				0.234
Constant	-1.658	-1.579	-0.879	-1.555
Observations	13281	13281	13281	13281

Marginal effects reported

Significant values in bold

**Compared with high wage*

***Compared with medium expenditure per capita*

****Compared with living in a low marginalization municipality*

*****Compared with one partner*

Table 4 portrays the correlation between intention to migrate and four different proxies of risk behavior. The table shows that respondents who intended to migrate compared to those who did not were less likely to report themselves as having good health but more likely to display selected risk behaviors such as more than one sexual partner, smoking, and alcohol use.

Table 5. Migration, Health, and Risk Behaviors

	Smoke	Alcohol	Age at commencing smoking	Age of first intercourse	Number of sexual partners
Sex	0.774	1.072	-1.838		
15-25 years old	-0.308	-0.486	-2.691	-2.251	-0.129
26-36 years old	-0.117	-0.103	-0.721	-0.322	0.003
Primary School	-0.029	0.12	0.22	0.66	-0.045
Secondary School	0.017	0.14	1.291	1.61	-0.07
High School	-0.001	0.141	1.498	2.55	-0.007
Above High School	-0.072	0.34	1.843	4.028	-0.075
Low expenditure per capita*	-0.345	-0.304	0.465	-0.155	-0.051
High expenditure per capita*	0.376	0.161	0.254	0.294	0.057
Intention to migrate	0.282	0.184	-0.586	-0.374	0.176
With couple				-0.098	-0.458
Constant	-1.281	-0.867	19.095	18.306	1.769
Observations	13282	13420	2052	5162	5192
R squared			0.11	0.13	0.02

Marginal effects reported

Significant values in bold

**Compared with medium expenditure per capita*

In Table 5 we used risk behaviors as the dependent variables and intention to migrate as the independent variable of interest while controlling for important covariates. From this cross sectional analysis we conclude that the intention to migrate is associated with risk preferences. As shown in Table 5, respondents who expressed an intention to migrate were more likely to report that they smoked and started smoking at a younger age, used alcohol, had more sex partners and an earlier age at first sex controlling for important covariates. We are currently writing up these results for publication with plans to submit it to the journal Demography.

Qualitative

Beginning in March 2006 we started the qualitative portion of the project by designing a recruitment plan for data collection, submitting IRB applications, and designing the interview guides. Upon receipt of IRB approval in October 2006, pilot testing and data collection began under the leadership of Pilar Torres. Two study sites were chosen based on the prevalence of migration in the municipalities with an aim to compare two communities of differing migration density (one low and one high) and the impact on reproductive health, as well as their cultural characteristics (urbanization, indigenous population, and regional sub cultures). The first community was Tehuacán, Puebla, which according to CONAPO's migration index 2000, is a low density migration municipality. The second community chosen was Jiquilpan, Michoacán, a high migration density municipality. Data collection was conducted by P Torres and C Tucker.

Participants were recruited using venue based recruitment, snowball sampling, and referral by health workers and local families. In-depth semi-structured interviews were conducted with male and female Mexican adolescents ages 15 to 24 (n=47). Half of the participants were return migrants and half were non-migrants with relatives in the U.S. (mostly brothers and sisters of migrants). A description of study participants is available in Tables 6 and 7 below. Key informant interviews were also conducted with community members including priests, health care workers, and parents. The interviewers elicited information on adolescents' demographic background, experiences with migration, adaptation to the U.S., reproductive health risk, and community-level migration patterns. Interviews were transcribed in Spanish and coded using ATLAS.ti software.

Table 6. Descriptive Characteristics of Participants of Qualitative Interviews by Community

	Tehuacan	Michoacán
<i>Demographics</i>		
<i>Age</i>		
15-18	10	11
19-24	14	12
<i>Education</i>		
Primary	3	0
Secondary	5	5
High School	15	14
University	1	3
		1 NI
<i>Marital Status</i>		
Single	16	19
Married/Free Union	8	4
<i>Migration Status</i>		
Migrant	12	12
Non-migrant	12	11

Table 7. Migration Characteristics of Participants of Qualitative Interviews by community

	Tehuacán	Michoacán
<i>Migration Characteristics</i>		
Generation		
1 st	6	0
2 nd	4	5
3 rd	2	7
Documents		
Yes	0	5**
No	12	7
Age at Migration		
< 18	8	9
≥ 18	4	3
Number of Trips		
1	11	7
More than 1	1	5
Who Migrated with		
Without relatives	3	1
Parents	4	7
Other relatives	5	3
Spouse	0	1
Where Migrated*		
California	8	12
Las Vegas	4	0
New York	1	1
Arizona	2	1

*some participants listed more than one place

** 2 of which crossed w/ fake papers

In January 2007 the two principal investigators and graduate students met in San Francisco to review initial findings of the qualitative interviews. Currently, we are continuing the analysis and beginning to write up the qualitative results. There are two main lines of analysis that we are pursuing and below are initial findings on how migration density in the community impacts vulnerability along the journey and in the United States.

Journey

While in Jiquilpan migrants showed much more knowledge about the migration process and declared to have better ways to cross the border (based on networks), in Tehuacán the journeys described are much more dangerous. In Michoacán we found among migrant informants three

forms of crossing the border: legally, with fake papers and through the hills. There is a clear knowledge about the border dynamics and the way in which coyotes operate; in some cases coyotes are from the town or even relatives. Discourses among non migrants are in relation to siblings, cousins, and oftentimes about parents and grandparents. In their discourses we hear high awareness about risks on the hills particularly for women. Compared to Michoacán, Tehuacan stories are more dramatic. In general the panorama is chaotic and many of the events described, such as crossing through the desert and river, are mostly absent in Michoacán discourses. No one from Tehuacán goes legally and no one crosses with fake papers. In comparison with discourses from Michoacán, knowledge about the border seems to be minor and good luck is often used as an explanation for success. Among non migrants in Tehuacan, death during the crossing is one of the most important topics that emerged.

In the U.S.

In the low density community, migrants had fewer social networks, which was associated with less social support in the U.S. and increased vulnerability for success. Migrant youth from the high density community were more likely to be 2nd and 3rd generation with documents with stronger social networks and in some cases with documents, which was associated with increased exposure to U.S. society, including drugs and gangs.

The following publications are in progress:

- 1) Bautista S and Minnis A. *Health and risk-preferences selectivity among Mexican migrants to the US*. Demography. In progress.
- 2) Minnis A, Tucker C, Figueroa JL, Bautista S. Partner migration to the U.S. and Mexican women's reproductive health risk.

The following abstracts have been submitted:

- 1) American Public Health Association 135th Annual Meeting -- Washington, DC -- November 3-7, 2007. Tucker C, Torres P, Bautista S, Minnis A. *Community-level migration density and HIV/STI risk among Mexican youth*
- 2) Asociación Fronteriza Mexicano-Estadounidense de Salud (AFMES), LXV Annual Meeting. Texas, May 20 al 23, 2007. Torres MP, Tucker C, Minnis A, Bautista SA. *Auto-selectividad y trayectoria en la salud de los jóvenes migrantes mexicanos no documentados a EUA*.

The following presentations have been conducted:

- 1) Bautista, S. *Resultados preliminares de UC MEXUS*. June 1, 2006. Seminario Multidisciplinario de Evaluación de Programas. Centro de Investigación en Sistemas de Salud. Instituto Nacional de Salud Pública. Cuernavaca, México.
- 2) Bautista, S. *Auto-selectividad y trayectoria de salud de migrantes mexicanos a los EU*. Sept 28, 2006. Seminario Multidisciplinario de Evaluación de Programas. Centro de Investigación en Sistemas de Salud. Instituto Nacional de Salud Pública. Cuernavaca, México.
- 3) Bautista, S. *Migration and reproductive health among Mexican youth*. Oct. 10, 2006. Pimsa Programa de Investigación en Migración y Salud. California – Mexico Health Initiative. Guadalajara, México.

4) Bautista, S. *Auto-selectividad y trayectoria de salud de migrantes mexicanos a los EU*. Nov. 13, 2006. Seminario ad hoc en el Instituto Nacional de Salud Pública, con Paul Gertler, Stefano Bertozzi, José Luis Figueroa, Jef Leroy.

5) Torres, P. *Auto-selectividad y trayectoria de salud de migrantes mexicanos a los EU, Componente Cualitativo*. Nov 27, 2006. Seminario ad hoc en el Centro de Estudios Regionales- UNAM de Jiquilpan. With Flor Urbina and Mario Constantino

The following conference was attended

1) Turker C, and Torres, P. *Second Conference of the International Net in Migration and Development*. October 2006, Cocoyoc, Morelos, Mexico.

Future Research Plans:

Both investigators plan to continue exploring the relationship between migration and reproductive health using the MxFLS data. When the second wave (2005) data become publicly available, in which participants who migrated are followed and interviewed in their new destination. We will be able to examine these same analyses more robustly through a longitudinal analysis. Alexandra Minnis has received funding through an NIH K award to continue analysis using the MxFLS and compare it to the U.S. National Survey of Family Growth. Sergio Bautista will also begin to analyze the second wave of MxFLS data and, in addition, utilize the Oportunidades panel data to examine these same research questions in a different population of Mexican residents. He also plans to submit a proposal to PIMSA for additional funding to continue this work.

Financial Report *Please supply a detailed financial report of how the grant was spent (check with your department or institution). Report accounts must be in U.S. dollars and concur directly with the categories specified in the approved budget.* Student Salaries (for whom?): Salary Benefits: Supplies and Expenses (please elaborate): Travel (include names, means of travel, locations, and dates): Any funds paid to another institution through a subcontract: Other (please specify): **TOTAL: PLEASE NOTE: ALL FUNDS UNEXPENDED AT THE END OF THE GRANT PERIOD MUST BE RETURNED TO UC MEXUS.**

Official financial reports from UCSF are sent directly by the accounting department. A summary report of UCSF expenses is included here. The final INSP report will be sent directly to UC MEXUS and was not available for inclusion here.

	Awarded	Proj. Tot.	Proj. End
	Amount	Exp.	Balance
Salaries (Christine Tucker)	\$ 10,498	\$ 9,887	\$ 611
Benefits	\$ 695	\$ 1,470	\$ (775)
Subtotal Personnel	\$ 11,193	\$ 11,357	\$ (164)
OPERATING EXPENSES			
NON-PAYROLL UNALLOCATED	\$ (341)	\$ -	\$ (341)
OTHER SERVICES	\$ 1,384	\$ 1,166	\$ 218
TRAVEL	\$ 3,954	\$ 4,074	\$ (120)
OTHER EXPENSES	\$ 437	\$ 20	\$ 417
TOTAL OPERATING EXPENSES	\$ 5,434	\$ 5,260	\$ 174
TOTAL EXPENSES	\$ 16,627	\$ 16,617	\$ 10

Salary: Christine Tucker, MPH Graduate Student at UC Berkeley (as defined above).

Supplies and Expenses (included above in non-payroll unallocated, other services, and other expenses line items): These costs included routine office supplies, one software license for Atlas.ti qualitative analysis software, and one software license for STATA, which was used for analysis of MxFLS data. In addition, expenses included a telephone line, UCSF IT computer support, and space rental for Christine Tucker for the duration of her work on the project.

Travel: Three trips between San Francisco and Cuernavaca, Mexico were taken as part of this grant. Each involved air travel.

- 1) Christine Tucker: SF to Mexico for data collection activities in the state of Puebla. October 2006. Duration of trip was four weeks.
- 2) Sergio Bautista: Mexico to SF for study team data analysis and manuscript preparation meeting. January 2007.
- 3) Pilar Torres: Mexico to SF for study team data analysis meeting. January 2007.