Participatory Survey Research

Integrating Community Collaboration and Quantitative Methods for the Study of Gender and HIV Risks Among Hispanic Migrants

EMILIO A. PARRADO
Duke University

CHRIS McQUISTON
University of North Carolina at Chapel Hill

CHENOA A. FLIPPEN
Duke University

This article outlines a research strategy for studying difficult-to-reach migrant populations that combines community collaboration, targeted random sampling, and parallel sampling in sending and receiving areas. The authors describe how this methodology was applied to the study of gender, migration, and HIV risks among Hispanic migrants in Durham, North Carolina. They illustrate the usefulness of community collaboration for informing survey design and providing a contextual understanding of research findings. They likewise demonstrate the importance of parallel sampling and assess the bias that would have resulted from conducting their study with convenience samples as opposed to a targeted random sampling technique. While the authors describe its application to HIV risks among Hispanic migrants, the methodology can easily be extended to other migrant groups as well as to other sensitive topics pertaining to migration and social adaptation.

Keywords: *immigrant health; mixed methodology; participatory research; survey research; Mexicans*

Between 1990 and 2000, close to eight million Latin American migrants entered the United States, nearly doubling the number of foreign-born Hispanics in the country in the span of 10 years. Mexico alone provided more than half of the new arrivals. Given current economic trends, the volume and pace of the flow are unlikely to abate

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anytime in the foreseeable future, with more than 400,000 Mexican migrants projected to move to the United States annually in coming years and many more expected to migrate on a more temporary basis (Conesejo Nacional de Población [CONAPO] 2000). The sheer size and rapid growth of the foreign-born Hispanic population makes understanding immigrant adaptation and social behavior a pressing social concern. This understanding, however, has been constrained by data limitations. First-generation and recently arrived immigrants are a population notoriously difficult to study (DaVanzo et al. 1994; Massey 1987a; Stepick and Stepick 1990). While growing rapidly, Hispanic migrants remain a relatively small proportion of the total population in most settings, rendering survey through simple random sampling very costly in both community- and national-level studies. Moreover, issues of documentation, language barriers, low levels of education and acculturation, and high rates of geographic mobility (including significant cyclical and return migration) ensure that migrants are underrepresented in standard surveys.

While there have been numerous advances in recent years in measuring the core concepts related to the determinants of migration, more subtle, nuanced social phenomena associated with the process of adaptation have yet to be systematically explored. Areas of critical research importance from both a theoretical and public policy perspective remain poorly understood, often covered only by small-scale, convenience sample studies that are not necessarily generalizable. Prime examples of this are gender, sexuality, and the myriad of social and behavioral factors associated with health risk behaviors, such as those related to the diffusion of HIV.

Understanding the relationship between migration and HIV requires complex information on migration dynamics, gender ideologies, and sexual practices (National Alliance of State and Territorial AIDS Directors [NASTAD] 2003). Migrants bring with them values and customs from their communities of origin that often clash with those prevalent in the United States. Cross-cultural understandings of how worldviews and practices are affected by migration cannot be readily captured through standard surveys. Instead, an approach is needed that can both reconstruct a group's subjective views and cultural orientations and provide information that is representative and

generalizable to be able to reproduce results, assess significance levels, and inform public policies.

These issues are particularly relevant in new areas of Hispanic destination, such as those in the southeastern United States, where rapidly growing migrant populations remain relatively understudied and difficult to reach. Accordingly, in this article, we describe a data collection methodology developed specifically to collect representative *and* culturally specific information on migration, gender, and sexual behavior in a rapidly growing Hispanic community in Durham, North Carolina, and four migrant sending communities in Mexico.

Durham is an interesting case study of immigrant adaptation due to the rapid growth of the Hispanic population, which grew an astounding 730 percent between 1990 and 2000 and currently represents more than 8 percent of the total population. According to data from the 2000 census, nearly three quarters of the Hispanic population of Durham are foreign born and recently arrived, with upwards of 85 percent migrating to the United States between 1990 and 2000. As in many areas of new migrant destination, the Durham Hispanic community is characterized by a large share of undocumented workers and by a highly uneven gender composition, with large numbers of single men and married men migrating without their families. The accompanying rapid increase in Hispanic representation in HIV cases in the area highlights the saliency of gender- and HIV-related research in this population (North Carolina Department of Health and Human Services 2002).

Our methodology stresses an original combination of three key elements: community-based participatory research (CBPR),[1] targeted random sampling, and parallel data collection in sending and receiving areas. The general principle guiding our approach is that community collaboration and survey methods can be fruitfully combined to obtain more representative and reliable information about social behavior and cultural beliefs among difficult-to-reach populations. In addition, the binational design allows us to compare immigrant and nonimmigrant groups and captures some of the selectivity of the migration process. While we describe its application to gender, sexuality, and HIV risks among Hispanic migrants in Durham, the methodology can easily be extended to other migrant groups as well as to

studies of other culturally sensitive topics pertaining to migration and social adaptation.

INTERNATIONAL MIGRATION AND HIV IN THE UNITED STATES AND MEXICO

There is increasing recognition that migration contributes to the diffusion of the HIV epidemic in many regions of the world (Herdt 1997; Shtarshall and Soskolne 2000). Migration not only brings more and different people into contact with one another, increasing the likelihood of infectious disease transmission, but also fosters new patterns of behavior that might facilitate the generalization of health risk behaviors. In most cases, migration implies a dramatic change in cultural environment that challenges the norms and behaviors prevalent at the place of origin. Family separation and social isolation, together with a generalized perception of anonymity, often render migrants more vulnerable to the adoption of risky sexual practices at the place of destination (Brockerhoff and Biddlecom 1998). At the same time, migrants' low income and poor work conditions, together with lack of documentation, language barriers, and problems of adaptation, frequently reduce access to social services and limit immigrants' ability to obtain reliable health information (Organista and Organista 1997). And finally, the male-dominated gender composition of Hispanic labor migration, in tandem with migrants' limited English fluency, reduces the possibilities for encountering opposite-sex partners and promotes risky sexual behaviors (Jochelson, Mothibeli, and Leger 1991; Parrado, Flippen, and McQuiston 2004).

These issues are particularly salient in the U.S. context, given the volume of migration from Mexico and Central America. Trends in the evolution of the HIV epidemic in the United States show that Hispanics, especially women, are particularly vulnerable to HIV transmission (Karon et al. 2001). While Hispanics represented 13 percent of the U.S. population in 2001, they accounted for 20 percent of the reported AIDS cases. The AIDS rates per 100,000 Hispanic men (43.3) and women (12.9) were 3.2 and 5.4 times that of non-Hispanic white men and women, respectively (Centers for Disease

Control and Prevention [CDC] 2001). In addition, heterosexual transmission is both more common among Hispanics (representing 10 percent of all AIDS cases among Hispanic men relative to only 4 percent among white men, with comparable differences among women) and increasing over time (CDC 2001; Karon et al. 2001).

Evidence that migration contributes to the AIDS epidemic in migrant sending regions is also available. While the epidemic is mainly concentrated in Mexico among men who have sex with men in urban areas, there is evidence of increasing heterosexual transmission and extension to rural areas (Magis-Rodriguez et al. 1995; Organista et al. 1997). Moreover, the prevalence of heterosexual transmission is higher in states with a greater incidence of migration to the United States than in other areas. Rural women appear to be particularly vulnerable, representing 21 percent of AIDS cases in rural areas in 1995, compared to 14 percent in urban environments (Magis-Rodriguez et al. 1995). Similar patterns are evident in Central America, although research on the region remains rudimentary (Bronfman 1998).

CHALLENGES IN CONDUCTING RESEARCH ON MIGRATION AND HIV

Despite mounting evidence linking migration to HIV transmission, several methodological problems undermine a better understanding of the mechanisms driving the association. Obtaining a representative sample of migrants challenges conventional survey techniques that rely on the existence of an appropriate sampling frame. Such a sampling frame is not available for the foreign-born population of the United States. Moreover, immigrants represent only a small share of the total population in most settings; thus, assembling a random sample of households, screening them to identify immigrants, and subsequently administering the survey is prohibitively expensive (DaVanzo et al. 1994). These issues are compounded when dealing with undocumented immigrants, who are even less likely to be listed in household enumerations and other sampling frames.

In addition, the sensitive nature of the topics under consideration also affects data collection. Fear of detention and deportation among

undocumented migrants raises suspicion and increases reticence to answering questions about migration history, adaptation, and legal status. Sexuality is a very personal area of behavior that people might be hesitant to discuss openly, particularly in more traditional cultures where women might not feel free to discuss their sexuality. In addition, pressures to conform to established sexual norms and lack of public discussion among marginalized groups might make it difficult to obtain reliable information on sexual practices. Large-scale sexuality surveys have reduced the likelihood of nonresponse and enhanced the reliability and confidentiality of information collected by including sensitive questions in self-administered sections of questionnaires (Laumann et al. 1994). This alternative is not viable among low-income migrant groups that have lower rates of literacy and are less familiar with the idea of mailing a survey questionnaire.

Another sensitive issue to be taken into consideration is gender, which has been argued to be central to understanding Hispanic women's HIV risk (Amaro 1995; Gomez and Marin 1996; Miller, Burns, and Rothspan 1995; Parrado, Flippen, and McQuiston 2005; Parrado and Flippen 2005). As in the case of sexuality, societal gender norms encourage compliance with established stereotypical representations of men and women, and special efforts are needed to reduce pressures on respondents to conform (Wingood and DiClemente 1998). For all of these sensitive topics, trust in the interviewer, assurance of confidentiality, and the ability to talk to men and women in an open environment and in their native language are essential to obtain spontaneous and reliable information.

In addition, contemporary migration patterns also require special consideration. Current research on migration has stressed the dynamic nature of population movements and their close connection with other life course events. Especially in the case of Mexico, migration often involves several trips, frequently associated with changing family arrangements. The cross-sectional information typical of standard surveys generally fails to capture the complexities of migration dynamics and their close association with other life course events. Instead, a flexible survey design is required that can more fully register detailed migration histories and life course transitions to illuminate the effect of migration and U.S. residence on health behavior.

And finally, to assess the impact of migration on social behavior, we must also have a clear sense of the cultural and behavioral background present in migrants' communities of origin. Transnational information is necessary to compare migrant and nonmigrant groups and disentangle what aspects of migrants' behavior are simply extensions of patterns prevalent in sending communities and what actions constitute new behaviors that arise from the experience of migration and exposure to a different local context. Studies of immigrant groups conducted in the United States alone can only infer the cultural background of migrants from respondents' recollection or alternative data sources that are not always comparable. This dramatically limits our ability to assess the actual impact of migration on social behavior, including factors related to HIV risk.

MIXED METHODOLOGY APPROACHES TO SURVEYING MIGRANT COMMUNITIES

Scholars have long recognized the need to mix methodologies, especially when dealing with issues of cross-cultural adaptation and worldviews. In the area of fertility and family life, "The Microdemographic Community-Study Approach" incorporates community-level ethnographic information to identify contextual forces not captured in standard surveys and assist in the interpretation of quantitative results (Axinn, Fricke, and Thornton 1991). In migration studies, Durand and Massey's ethnosurvey methodology combines in-depth interview strategies with a semi-structured survey questionnaire in migrant-sending communities in Mexico and their sibling communities in the United States to better capture the determinants of migration, the dynamism of the flow, and issues of documentation (Massey 1987a). Stepick and Stepick (1990) have found ethnographic involvement with U.S. migrant communities a central strategy for collecting a random sample of undocumented Haitians in Miami and reducing refusal rates. In the area of health research and community psychology, ethnomedical surveys and other forms of mixed methodologies have been particularly useful in conducting culturally sensitive research on issues such as alternative medicine, mental health, and health-seeking behavior among diverse groups

(Fabrega 1989; Freidenberg, Mulvihill, and Caraballo 1993; Manton 1993; Stratford et al. 2003).

Building on these previous examples, the cornerstone of our participatory survey approach is CBPR combined with targeted random sampling and parallel surveys in sending and receiving communities.

COMMUNITY INVOLVEMENT

A central element of our research design is the incorporation of CBPR) into standard survey methodology. CBPR, especially in the area of public health and intervention, is a collaborative approach to research that involves community members in all stages of the research process. The sharing of responsibilities and expertise involved in this collaboration enhances the understanding of observed social behaviors and is well suited for the integration of knowledge and action needed to improve the health and well-being of local communities (Cheatham and Shen 2003). In our case, community involvement was of key importance to gain access to a difficult-to-reach population, develop a flexible survey instrument, increase data quality, and ground our findings within the cultural realities of Durham migrants.

CBPR ensures that the perspectives and worldviews of community members are taken into consideration (Bravette 2001). As such, it shares the ethnographic aim of providing a cultural interpretation of social processes based on an ''insider's'' point of view. At the same time, CBPR is very much action oriented since community members are directly involved in collecting and analyzing information and in generating recommendations for change.

In our case, we drew from eight years of both formal and informal involvement with the Durham Hispanic community, including focus groups and an HIV prevention lay health advisory program conducted in collaboration with El Centro Hispano, a local grassroots organization, (McQuiston, Choi-Hevel, and Clawson 2001; McQuiston and Flaskerud 2003), to assemble an initial set of community members that had expressed a desire to work on HIV prevention among migrants. This initial pool of community members was later expanded to include additional men and women interested in Hispanic health and community involvement. The end result was

the ongoing participation of 14 community members, 6 men and 8 women, who were integral to all aspects of the research process, including the conceptualization of the project, execution of the data collection, and interpretation of research findings.

First, the CBPR group worked from the very formative stages of the project to help conceptualize the research problem and issues to be addressed at the grant-writing stage. Specifically, in biweekly meetings, the group was divided into two small groups separated by gender to facilitate the discussion of sensitive topics. Each small group was given a task by the academic facilitator—for example, to define HIV in the Hispanic community or to describe what contributes to the problem. Each group had a community member facilitator who would keep the group on task, a scribe who would write the ''findings'' on a flipchart, and a presenter who would present the small-group results to the entire group (see Arnold et al. 1995 for further discussion of alternative approaches).

Through this process, the group helped identify key elements of social adaptation that were central to HIV risk, including social isolation, alcohol consumption, and commercial sex worker use. While these factors had been previously documented in the migration literature, collaborating with community members to frame HIV risk factors served the dual purpose of bringing locally specific information and context to the research design and also giving community members greater ownership of the investigative process. In addition, CBPR members were an invaluable resource in identifying areas of geographic concentration of Durham Hispanics and in addressing gender differences in how to reach respondents. Their insights informed the random sample design and strategy for the data collection stage.

Once funding was obtained, the group helped devise the survey questionnaire. The sensitive nature of the topics under consideration required a questionnaire that was nonintimidating and able to collect complex information that could be subject to statistical analysis. Continuing the series of biweekly meetings, the group was presented with a subsection of a draft of the survey instrument and broken into groups for review and discussion. At midsession, the groups would come together to discuss concerns and make suggestions for survey revisions. The group expressed concern about the

wording of several items and was especially sensitive to variation in potential interpretations of questions or phrases based on respondents' place of origin (both country and rural/urban differences). In several cases, the wording was changed. In other cases, alternative words for the same concept were included so that interviewers would have alternatives readily available as they conducted the interviews.[2] In addition, questions about particularly sensitive issues, such as homosexuality and drug use, were deemed too controversial to ask directly and were introduced as hypothetical scenarios.

The end result was a flexible semi-structured questionnaire[3] that allowed for the reconstruction of individual experiences (such as complex migration histories) while maintaining a casual conversation with the respondent. The conversational style was particularly important during the opening sections of the survey, which collected information on social background and family status, detailing retrospective life histories on marriage, fertility, employment, and migration behavior. The trust and rapport established during these opening sections allowed for more open discussion of sensitive issues pertaining to gender norms and sexual behaviors, including sexual initiation, use of commercial sex workers, and extramarital partners.

Second, community collaboration was central to the execution of the project, as CBPR members were trained as interviewers and conducted all surveys in Durham. Previous research with immigrant groups has shown that one of the most important tasks in reaching marginalized populations is gaining trust from the community (DaVanzo et al. 1994; Stepick and Stepick 1990). This is especially the case in newly emerging migrant destinations such as Durham, where advocacy agencies are limited, a large proportion of the migrant population is undocumented, and knowledge about the characteristics and origin of the flow is rudimentary. Using the CBPR group as interviewers enhanced community recognition, confidence in the research team, identification with the objectives of the study, and understanding of the long-term impact of the results that are central to gaining access to the migrant community.

The combined experience gleaned from survey development and familiarity with the Hispanic community implied that by the end of the training process, CBPR participants were extremely knowledgeable

about the topics under consideration and well aware of the specific information needed. Because CBPR members were involved from the very beginning of the project, they were both better able to explain the study to potential survey respondents and were also highly committed personally to making the project a success. This, in tandem with the fact that they share the same migrant and ethnic background as our target population, helped ensure the quality of the data collected and contributed to an 10.7 and 7.6 percent refusal rate among men and women, respectively, figures that are lower than those reported in other surveys on sexuality and with immigrant populations.[4]

The self-reflective nature of CBPR methodology also contributed to the effectiveness of the survey. During biweekly meetings held throughout the data collection phase, interviewers regularly reported problems and shared their experiences in a group setting. Solutions to common problems were discussed collectively regarding the interpretation and registration of specific questions, clarification of sampling issues, methods for reducing nonresponse, and other issues pertaining to data collection. For instance, one group member described how she always made sure to tell the respondents a little bit about herself and her own story as an immigrant so that they would feel more comfortable talking to her about their experiences. Another described how he would ask immigrants if they knew about the ITIN (Individual Tax Identification Number) system as a segue into asking if they had legal documentation.

And finally, CBPR was also central to the analysis and interpretation of the survey data. CBPR members recorded their observations as field notes at the end of each survey, describing local conditions, respondents' attitudes, and any other interesting material that was not registered in the questionnaire. This exercise provided invaluable information about the context of the various apartment complexes, including the atmosphere of public drinking, police presence, and institutional aspects of the commercial sex industry. In certain buildings, interviewers were commonly approached by commercial sex workers while visiting apartments for interviews, and they occasionally stumbled upon *casas de citas*, or apartments used as brothels. Through these interactions and unstructured discussions with interviewees, CBPR participants were able to glean significant

information about how the sex industry is advertised, promoted, and accessed by local residents.

Thus, in addition to the insight into the community brought to the interpretation process through their own personal experiences, CBPR members also had the benefit of considerable time in the field. After survey collection was completed, CBPR members' insights and observations were brought to bear on data analysis through regular and ongoing presentation of quantitative findings. Collective discussions of research findings allowed community and academic members to assess the results from the study, reconsider preliminary expectations, provide a cultural understanding of specific findings, and identify new lines of inquiry. This process of collectively cycling back between assumptions, findings, and explanations is central to the CBPR process (Stringer 1999). By allowing members to bring their field experiences into discussions of quantitative findings, it also provided academic researchers valuable insight into the cultural context and subjective meanings undergirding statistical analyses.

Community involvement enriches research but also poses certain challenges as well. It is important to recognize that community members attracted to this type of endeavor are in many ways not typical of the population at large. They tend to be among the more established and civic-minded migrants to the area. Many of the CBPR members had already collaborated with El Centro Hispano and, as such, self-selected into participatory work. This selectivity is advantageous because in addition to being from the community, CBPR participants are key informants and often community leaders who have already been observing and thinking about their environment. At the same time, their perspectives on the community are colored by their own experiences and activism, and researchers must be sure to continuously challenge, evaluate, and revisit the group's conclusions.

Community collaboration also raises other issues, particularly if they serve as interviewers. In most cases, CBPR members were either current or former residents of the apartment complexes under study. Team members were not allowed to interview acquaintances and did not conduct interviews in their own buildings to avoid awkward situations and maintain confidentiality.

In addition, community collaboration heightens the need for foreign-language fluency at all levels of project administration. The need for bilingual interviewers has long been recognized by researchers working with migrant populations. However, it is often the case that upper levels of project administration are not fluent in the target language. This renders the training and close supervision of interviewers more tenuous because these tasks are not adequately monitored by monolingual investigators. Using community members as interviewers resulted in considerable variation in English proficiency among our interview team. Ironically, those with the least English-language skills were often the best interviewers, as they were closest to interviewees with respect to socioeconomic origins and were best able to establish a close rapport with respondents. These interviewers would have been considerably less effective had they been trained and supervised in English.

TARGETED RANDOM SAMPLING IN THE UNITED STATES

A main task in our research project was to develop a procedure to approximate a random sample of the Hispanic population in Durham. Random sampling eliminates the biases inherent in studies relying on convenience samples of migrants visiting a particular institution, such as a health care provider or church (Carter-Edwards et al. 2002; Gritz, Berman, and Bennett 1992), or snowball designs that select respondents through personal references (Erickson 1979; Heckathorn 2002). However, lack of an appropriate sampling frame complicates drawing a random sample for foreign-born groups. Targeted sampling (Watters and Biernacki 1989) is a widely employed method of systematically studying social behavior among populations that are difficult to reach due to factors such as social stigma or legal status. Previous studies of migrant groups suggest that targeting areas of immigrant concentration is a good strategy to focus resources, increase survey efficiency, and approximate a random sample of the foreign born in local settings (DaVanzo et al. 1994; Stepick and Stepick 1990).

To identify areas of Hispanic concentration in Durham, our involvement with the community was of key importance. The Hispanic population of Durham increased from 2,054 in 1990 to 17,039 in

2000. In such contexts of explosive growth, data from the decennial census are inadequate to identify target areas for survey. In our case, data from the 2000 census were not available at the time of survey, and relying on the 1990 census to identify areas of Hispanic concentration would not have produced meaningful results. In addition, even in 2000, Hispanic neighborhoods in Durham were not well developed. Unlike established immigrant destinations such as Los Angeles or Chicago, which have well-defined and well-known immigrant enclaves, most Hispanics in Durham tend to be tightly clustered in blocks and apartment complexes that are usually shared with other racial and ethnic groups.

Combining CBPR group discussions and fieldwork around the city of Durham, we identified 13 apartment complexes that predominantly house Hispanics. We then constructed a census of all housing units in these complexes to serve as our sampling frame. From this list of more than 2,000 apartments, we drew independent random samples for men and women to be visited by male and female interviewers, respectively. Surveys were collected between March 2002 and July 2003.

Comparison of our data with information from the 2000 census reveals that the vast majority of Durham's Hispanics, close to 75 percent, live in areas similar to those in which the 13 apartment complexes are located—that is, in blocks that are between 25 and 60 percent Hispanic (see Figure 1). This figure would likely be even higher if block-level data identifying the foreign born were available. In addition, our estimates indicate that more than 7,000 Hispanic migrants reside in the apartment complexes included in our sample, which represents nearly 70 percent of the total foreign-born Hispanic population of Durham enumerated in the 2000 census.

Once an apartment was selected, the male or female interviewer assessed whether a Hispanic man or woman between ages 18 and 49 was residing in the apartment. Table 1 reports the outcomes from interviewers' visits. Highlighting the problem of identifying migrants in relatively new areas of immigrant settlement, our data indicate that even within our areas of high Hispanic concentration, a large number of housing units did not qualify for interview. Of all the apartments selected, 48 and 41 percent qualified for male and

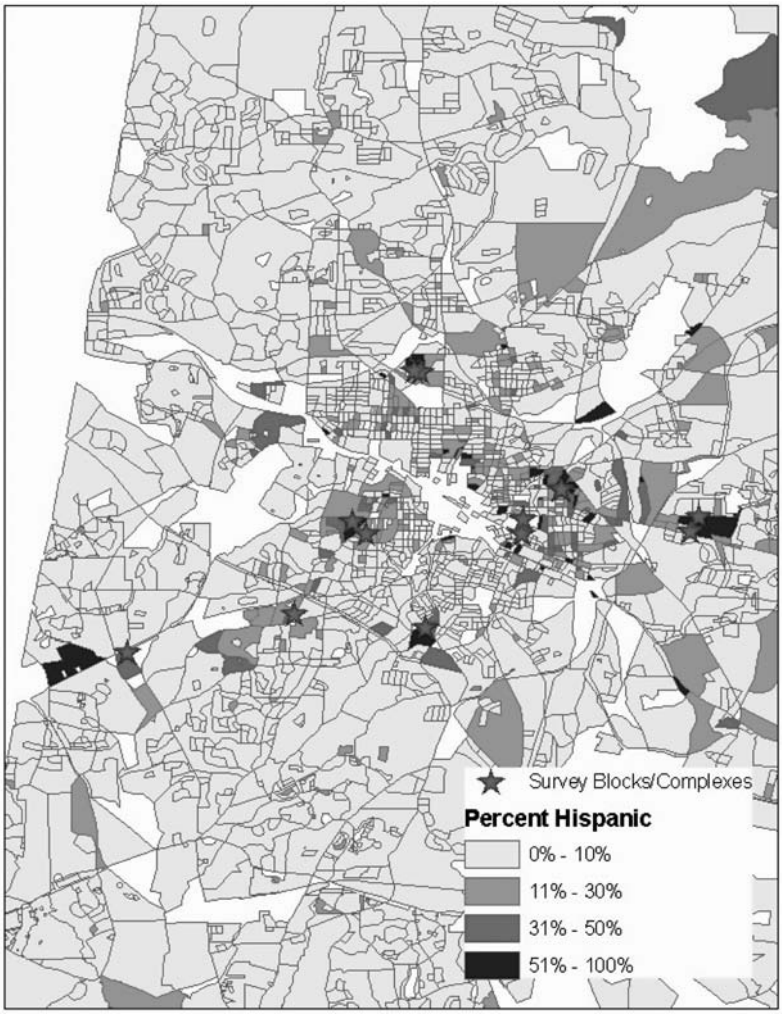


Figure 1: Durham Hispanic population by block and survey locales.

female interviews, respectively. Nonqualifying apartments include empty units and apartments inhabited by other racial and ethnic groups, predominantly African American. The greater proportion of nonqualifying apartments in the female sample results from

TABLE 1: Eligibility and Response Rates for Durham Survey

	Randomly Selected Apartments	*Qualified for Interview*	*Refusals*	*Completed Interviews*
Men				
Number	1,043	532	57	475
Percent		51.0	10.7[a]	
Women				
Number	580	237	18	219
Percent		40.9	7.6[a]	

a. Calculated based on qualifying units.

the considerable number of apartments inhabited exclusively by Hispanic men.

The precarious legal situation of Durham Hispanic migrants also rendered common methods of randomly selecting individuals within the housing unit problematic, as residents were leery of divulging information about coresidents and often not familiar with their housemates' personal information (such as birthdays). Thus, interviewers were instructed to survey the person who answered the door or, if this person was ineligible, to ask for a qualifying person to interview (i.e., someone who was foreign born, Hispanic, and between ages 18 and 49). After the interviewer established trust with the interviewee, basic information about other household residents was collected. Comparing respondents' characteristics with those of other household members shows no obvious bias resulting from our method of choosing respondents within the household.

Nevertheless, by focusing on areas of Hispanic concentration, more established migrants are likely to be underrepresented in the study. To assess the potential bias resulting from our sampling method, we compared basic descriptive statistics in our sample with results obtained from the 5 percent sample of the Public Use Microdata Area (PUMA) encompassing Durham from the 2000 census (Ruggles et al. 2004). Estimates, reported in Table 2, show remarkably few differences in demographic characteristics across samples. Foreign-born Hispanic men in the census appear to have higher levels of education than those registered in our sample. This disparity

TABLE 2: Data Evaluation: Comparison of Durham and Mexican Samples With Other Data Sources

	U.S. Sample[a]				*Mexican Sample*			
	Men		*Women*		*Men*		*Women*	
	2000 Census	*Our Data*	*2000 Census*	*Our Data*	*MMP*	*Our Data*	*MMP*	*Our Data*
Age (mean)	28.1	28.8	28.5	29.6	31.2	30.4	31.3	30.4
(SD)	(6.6)	(7.1)	(6.7)	(7.0)	(9.0)	(8.0)	(9.0)	(7.4)
Years of education (mean)	8.2	7.6**	9.2	8.9	8.4	8.6	7.9	8.7**
(SD)	(4.1)	(3.0)	(4.5)	(11.2)	(4.2)	(3.4)	(4.0)	(3.4)
Currently working (percent)	85.6	91.2**	58.8	59.5				
Hourly wage (mean $)	10.0	9.9	9.5	8.7				
(SD)	(7.0)	(3.3)	(8.0)	(2.6)				
Marital status								
Married (percent)	55.7	61.8*	69.1	81.4**	64.6	69.0*	63.0	62.8
Immigration								
Year of migration (mean)	1995	1996	1994	1995				
Years of U.S. experience (mean)	5.0	6.0**	5.9	6.5				
(SD)	(4.8)	(4.5)	(6.5)	(4.0)				
Internal U.S. migrant (percent)	39.7	44.4	38.2	31.2				
Speaks English well (percent)	36.5	8.2	40.4	7.4				
Ever been to United States (percent)					23.4	23.3	5.9	6.0
Years of U.S. experience (mean)					4.3	4.3	3.2	2.9
(SD)					(5.1)	(4.5)	(4.5)	(3.6)
n	299	475	136	219	7,889	400	8,772	400
Percent female			31.3	31.6			52.6	50.0

NOTE: MMP = Mexican Migration Project.
a. Difference in timing of surveys affects these results. Census data were collected in 2000, and our data were collected between 2002 and 2003.
*$p < .1$. **$p < .05$.

in part results from differences in question format[5] but also from underrepresentation of better-off migrants in our sample. Slightly more men reported working in our sample than in the census, and

their average years of U.S. experience tended to be higher, reflecting differences in survey dates.

Greater differences are registered with respect to marital status as both men and women are more likely to be married in our data than in the census. There are two main sources of this discrepancy. First, the 5 percent PUMA from the census is a sample of households, rather than individuals as in our sample, and includes information from all household residents, including nonrelatives. This could result in an overestimation of certain groups, especially in small contexts. In fact, for the nation as a whole, the proportion of foreign-born Mexicans, Hondurans, and Salvadorians who are married is 63 percent among men and 74 percent among women, figures that are closer to ours. Especially in the case of women, the close connection between wives' and husbands' migration decisions makes the relative overrepresentation of unmarried women in new areas of destination unlikely.

Another potential source of disparity stems from differences across surveys in the question format. Our survey distinguishes between legal and consensual unions, and our measure of marriage includes both.[6] This distinction is not present in the census. Close to 32 and 37 percent of men and women report being in a consensual union in our data. The prevalence of consensual unions is particularly high among migrants who form unions in the United States.[7] The association between migration and informal union formation has been identified in historical studies of migration in Europe (Tilly and Scott 1987), although it has not received adequate attention in the U.S. context, where precarious legal status and lack of familiarity with the legal environment hinder formal union formation.

Thus, irregularities in the Durham census data relative to national averages and differences across surveys in question format make evaluating differences in marital status across surveys difficult. Overall, the comparison of our sample with the 2000 census shows striking similarity, as we even produce comparable estimates of the percentage of the Hispanic migrant population that is female, a figure that would be lower in our sample if better established migrants, who tend to live with their families, were significantly underrepresented in our data.

PARALLEL SAMPLES IN MIGRANT SENDING COMMUNITIES

A common source of bias in studies assessing the effect of migration on factors such as gender and health behaviors is the lack of information about the practices and attitudes that migrants bring with them from their communities of origin. Collecting information on both migrants and nonmigrants is also necessary to understand the selectivity of the migration flow and separate patterns of behavior that arise from social background from those connected to migration itself. In addition, the high degree of circularity and return migration between Mexico and Central America and the United States necessitates data collection in sending regions to identify the role migration plays in the diffusion of risky health behaviors to communities of origin.

The importance of gathering information both in sending and receiving societies for understanding the process of migration and its impact on social behavior has long been recognized in migration studies, dating back to Thomas and Znaniecki's (1918 to 1920) work on the Polish peasant in America. Parallel samples have been particularly instrumental for understanding issues of cultural and family change associated with migration. Young and Willmott's (1957) study of migration from a working-class neighborhood to a new housing estate in London shows the importance of combining information from both context of origin and reception to understand the disruptive effect of migration on family life and the reconstitution of kinship and social ties in a foreign environment. In the case of migration from Mexico to the United States, parallel samples have been used in Gamio's (1930) seminal depiction of Mexican immigrant life, and the technique has been extensively applied in Durand and Massey's Mexican Migration Project (Massey 1987a; Massey and Zenteno 2000).

However, obtaining a parallel sample of migrants currently residing in Durham and those in their place of origin raises several methodological issues. Previous applications of parallel sampling techniques have typically surveyed communities in Mexico and then gathered a snowball sample of community members residing in the United States from references obtained from relatives and returned migrants (Massey 1987b). While useful for constructing

a purposive sample of immigrants, the reliance on network connections implies that households that have settled permanently in the United States are underrepresented in the analysis. Moreover, the surveys at the place of destination tend to be concentrated in just one community, typically in California, even though Mexican immigrants show an increasing diversity in residential preferences (Singer 2004). More ambitious attempts to reconstruct the community of origin in the context of internal migration in Thailand have followed all household members even after migration and interviewed them at several places of destination (Rindfuss et al. 2004).

In our case, however, the main difficulty lies in obtaining a sample of communities in Mexico and Central America representative of the communities of origin of the Hispanic population in Durham. Budget constraints limited our foreign survey component to sending communities within Mexico, where more than 70 percent of all Durham Hispanics originate. Thus, to select communities to survey, a list of migrants' places of origin was compiled. The list showed that 20 communities provided approximately one third of the Mexican population of Durham. From these 20 sending places and based on information obtained from the 2000 Mexican census, 4 communities were purposively selected to reflect different population sizes, economic activities, education levels, and geographic areas of Mexico. The 4 selected communities are located in the states of Michoacán de Ocampo (2), Guerrero, and Veracruz. Once selected, the research team visited the communities to assess the viability of conducting a random survey in each location. In-depth interviews with health care providers were conducted to gather information about the extent of immigration to the United States and the perceived connection between migration and health risks.

The procedure to obtain a random sample of men and women in the communities followed standard survey techniques. Information from the Mexican Census Bureau was used to select 10 Area Geoestadística Básica (AGEB)—basic geostatistical areas (these areas are approximately 14-15 blocks of houses depending on the size of the city, equivalent to census tracts in the United States). Within each AGEB, 2 blocks were randomly selected to interview women, and an

additional 2 blocks were chosen to interview men. Within each block, the interviewer visited even housing numbers. Once a dwelling had been identified, the person between ages 18 to 49 with the most recent birthday was selected to answer the questionnaire. Within Mexico, where respondents are not as marginalized and legal status is not an issue, surveys were conducted by professional interviewers specifically trained to collect data on sexuality and migration. A total of 200 interviews with equal numbers of men and women were conducted within each community. The refusal rate was relatively low and comparable to the experience in the Durham sample, ranging from 11 to 3 percent among men and around 7 percent among women. Surveys in Mexico were conducted between December 2002 and April 2003.

To the extent that they reflect the variability in migrants' places of origin in Durham, our sample of communities constitutes a valuable reference point against which to evaluate the impact of migration on gender and HIV risks. However, our sample does not capture the entire universe of migrant sending communities in Mexico. To investigate the potential bias resulting from our limited sample of communities, we compared basic demographic variables in our sample with those from the Mexican Migration Project (MMP).[8] The results, reported in Table 2 above, show remarkable similarity between our sample and the much larger sample of communities in the MMP. Men in our data show a slightly higher likelihood of being married, 69 percent compared to 65 percent in the MMP. In addition, higher levels of education are evidenced among women in our sample than in the MMP, which could reflect period differences. Estimates for the proportion of men and women with U.S. migration experience and average years of experience are remarkably similar across data sets, which suggests that our four communities capture the typical international migration experience in Mexico. While the MMP data are also a sample of communities, their much larger size and broader scope provide a more diverse representation of Mexican communities. Overall, this comparison suggests that our four communities do not differ significantly from average migrant-sending communities in Mexico.

ILLUSTRATION OF THE IMPACT OF COMMUNITY COLLABORATION AND RANDOM, PARALLEL SAMPLING

THE IMPORTANCE OF COMMUNITY COLLABORATION AND LOCAL KNOWLEDGE TO STUDY DESIGN

An example of how CBPR informed the survey design to allow for the collection of information typically overlooked in standard surveys on sexuality and HIV risk was community members' knowledge about the workings of the Durham sex work industry. CBPR was instrumental not only in recognizing commercial sex worker (CSW) use as a common practice among migrant men but also in identifying three different types of sex workers associated with differential HIV risk: brothel, apartment-visiting, and street-walking CSWs. While the literature on CSWs often draws a distinction between street walking and other types of CSWs, the apartment-visiting CSW is not as widely described. Somewhat analogous to CSWs who target areas where migrant farm workers gather (Magana, de la Rocha, and Amsel 1996; Perez and Fennelly 1996), this group could not have been anticipated without local experience. The three types of CSWs described by the CBPR group are organized along a hierarchy loosely connected to cost and risk. At the top of the hierarchy are contacts with CSWs in casa de citas (brothels). These are the most expensive contacts, typically costing $30 for a 15-minute session, that take place in a highly structured environment in which apartments are often rented and "run" by a couple and where sex workers are mostly Latinas. To retain customer interest, CSWs in casa de citas are rotated frequently. Casa de citas managers are perceived as "taking care" of CSWs and enforcing condom use. Information about the location of casa de citas circulates among migrants through word of mouth since they tend to change location on a regular basis.

The next type of CSW consists of women who visit the apartment complexes where migrants are concentrated. In most cases, this type of commercial sex is also fairly structured. Male "handlers" will often drive a group of CSWs to a particular apartment complex and wait for them in the parking lot while they make the rounds. As recognized sex workers, these women tend to carry

condoms with them and are generally committed to using them. In some cases, they might form a clientele since the same sex workers visit apartment complexes on a regular basis.

The final type of contact is encounters with street-walking CSWs. These women are least likely to work under any form of organization and might be trading sex on a more casual basis. They are perceived as "not clean" and risky by migrants, and indeed the literature on commercial sex suggests that these women are most likely to be intravenous drug users (Deren et al. 1997; Green and Goldberg 1993). Street-walking CSWs are the least expensive of the three types and are often open to negotiation, with migrants reporting paying as little as $8 per session. Street workers could also be most prone to unprotected sex with clients.

The relevance of CBPR members' insights is confirmed in Table 3, which reports differences in personal and HIV-related characteristics of unaccompanied migrants (i.e., single men and married men whose wives reside in their country of origin) according to the type of CSW visited during the previous year in Durham. Overall, 42 percent of unaccompanied migrants reported visiting a CSW in the previous year. Among these, 62 and 60 percent reported visiting a casa de citas or receiving sex workers in their apartments, respectively. A much smaller 19 percent reported encounters with street-walking CSWs, a reflection of the riskier status afforded to this group.[9]

The hierarchy of costs and risks outlined by the CBPR group is reflected in the clients' personal characteristics. The small number of men reporting contact with street-walking CSWs prevents us from reaching clear conclusions about this group. Overall, however, casa de citas customers average higher education and wages than customers of other types of CSWs.

More instructively, HIV-related characteristics also vary across types of CSW. Customers of casa de citas visit sex workers less often than other groups, limiting their potential exposure to HIV. Frequency of use is especially high among men reporting using the services of street workers, who average eight visits per year compared to only six among casa de citas customers. While the share of migrants reporting always using condoms with CSWs is similar and high across groups (upwards of 90 percent), attitudes toward condoms vary systematically across type of CSWs. The percentage of

TABLE 3: Personal and HIV-Related Characteristics by Type of Commercial Sex Worker (CSW)

	Type of Sex Worker		
	Casa de Citas	*Apartment Visiting*	*Street Walking*
Among CSW users			
Percent using each CSW type	61.5	60.7	18.4
Personal characteristics			
Age (mean)	28.2	28.9	29.9
(SD)	(7.3)	(8.0)	(8.2)
Years of education (mean)	8.1	7.6	7.5
(SD)	(2.7)	(3.0)	(3.4)
Hourly wages (mean)	9.8	9.4	9.2
(SD)	(2.3)	(2.7)	(2.0)
Single (percent)	65.8	64.6	70.8
Married with wife in community of origin (percent)	34.2	35.4	29.2
HIV-risk related characteristics			
Number of visits in past year (mean)	6.1	7.1	7.6
(SD)	(6.7)	(7.1)	(6.8)
Always use condoms (percent)	91.1	91.1	87.5
If a condom is not handy, I would have sex anyway (percent)	25.3	30.4	37.5
Would not always use a condom if the sex worker:			
Had a good reputation (percent)	8.8	11.4	16.7
Was an acquaintance of mine (percent)	26.6	29.1	41.7
n	80	79	24

NOTE: Table is restricted to unaccompanied male migrants (i.e., single men and married men whose spouses reside in their communities of origin).

men reporting that they would have sex even if condoms were not available, would not use condoms if the sex worker had a good reputation, and would not use condoms if the sex worker were well known to him is much higher among apartment-visiting and street-walking CSW customers than among casa de citas clients.

These differences suggest important variation in the contours of risk across CSW types. CSW use has been shown to be an important mechanism connecting migration and HIV diffusion in several areas of the world (Bronfman and Lopez Moreno 1996; Caldwell, Anarfi, and Caldwell 1997; Carrier, Nguyen, and Su 1997; Jochelson, Mothibeli, and Leger 1991; Singhanetra-Renard 1997). The potential impact

of CSW use among migrant Hispanics is also large, as it represents an important link between high-risk (American sex workers and intravenous drug users) and low-risk (rural Mexican and Central American women) groups. Illuminating the limits of condom use in the CSW setting is thus imperative to designing effective interventions for migrant Hispanics. The CBPR group, in identifying an important distinction among CSWs, allowed us to gather information on this important topic and provided the contextual background necessary to interpret the patterns of association that emerged.

THE IMPORTANCE OF RANDOM SAMPLING TO CAPTURING AT-RISK GROUPS

To reinforce the usefulness of our random sampling design, we simulated the bias that would have resulted had we employed convenience sampling, such as at a health care provider or church. Our data show the Durham Hispanic community to be of very recent arrival to the United States, averaging just over five years of residence in Durham. With a mere 19 percent of all Hispanics (and only 10 percent of Mexicans) surveyed reporting having legal documentation, this population is likely to be particularly wary of local institutions, which are commonly used to access small populations in convenience sampling.

Table 4 reports the characteristics of Hispanic men by whether they attended a health care provider or church in Durham. Results show that collecting a sample in either locale would yield biased results, although in somewhat different directions. There are no statistically significant demographic differences between those who had and had not attended a health care provider in Durham. However, the two groups differ considerably in their migration experience. Those who attended a health care provider are more likely to speak English well, average longer years of experience in the United States and Durham, are more likely to have moved to Durham from another location within the United States, are more likely to be documented, average higher incomes, and, more important, are considerably more likely to be married and living with their wives than men who did not attend a health care provider.

TABLE 4: Comparison of Targeted Random Sample With Simulated Convenience Samples: Men

	Attended a Health Service Provider in Durham		*Attended Church in Durham*	
	Yes	*No*	*Yes*	*No*
Background				
Age (mean)	28.9	28.6	29.2	28.4
(SD)	(6.9)	(7.2)	(7.0)	(7.1)
Years of education (mean)	7.8	7.5	7.6	7.7
(SD)	(2.9)	(3.1)	(2.9)	(3.0)
Married (percent)	63.6	60.0	65.0	59.1
In legal unions	31.8	29.6	34.5	27.3
In consensual unions	31.8	30.4	30.5	31.8
Migration characteristics				
Speaks English well (percent)	10.2	6.1*	9.0	7.5
Years in the United States (mean)	6.7	5.2**	6.5	5.5**
(SD)	(2.9)	(4.2)	(4.6)	(4.4)
Years in Durham (mean)	4.9	3.8**	4.8	4.0**
(SD)	(3.1)	(3.0)	(3.2)	(2.9)
Internal U.S. migrant (percent)	46.9	41.7*	48.4	40.8*
Documented (percent)	21.6	14.7*	17.9	18.6
Hourly wage (mean \$)	10.3	9.5**	10.3	9.5**
(SD)	(3.7)	(2.7)	(3.8)	(2.8)
Spouse in Durham (percent)	70.5	54.3**	64.8	61.0
n	245	230	223	252

*$p < .1$. **$p < .05$.

A different kind of bias emerges from the comparison of those who do and do not attend church. Church attendees are older, are more likely to be married, have been in the United States and Durham for a longer period of time, are more likely to be internal migrants within the United States, and average higher wages than nonattendees.

Differences between women who use medical services or attend church and other women are more modest, in large part because their use is more nearly universal. While roughly half of men report never using medical or church services in Durham, the comparable figures for women are only 11 percent for medical and 5 percent for church services. Several factors account for these differences. The women in our sample are in their prime child-rearing ages and thus often receive prenatal and childbirth services. In addition, most women are

in Durham with their husbands and children, and church attendance is a central family activity. It is important to note that there is wide variation in the places that women receive health care services, with the Duke Hospital emergency room and a community clinic cited most often. Only two women in our sample attended Planned Parenthood services. Thus, surveys conducted among women receiving special health programs need to be aware of the potentially highly selective nature of their samples.

Overall, results corroborate the importance of random sampling and warn researchers about the dangers of relying on convenience samples. For studies on HIV risks, this cannot be overstated. For men, both types of convenience sampling considered would have led to a higher representation of married men with their spouses in Durham, which is precisely the group with the least HIV risk (Organista et al. 1997; Parrado, Flippen, and McQuiston 2004; Viadro and Earp 2000).

THE IMPORTANCE OF PARALLEL SAMPLING AT MIGRANT ORIGIN AND DESTINATION

A central question when dealing with cross-cultural understandings of HIV risks is the extent to which behaviors at the place of destination are an extension of practices prevalent in communities of origin. This information not only helps clarify the role of "culture" in determining health risk behaviors but also illuminates the impact of migration and structural context on social behavior. To illustrate the importance of these considerations, we again draw on data on CSWs. CSW use among Mexican migrants in Durham is relatively high, with 28.1 percent of all men visiting a CSW during the previous year. Rates of CSW use are even higher among unaccompanied male migrants, with 45.8 percent of single men and 39.8 percent of married men migrating without their spouses reporting CSW use in the previous year in Durham. Given that prostitution is legal in some states in Mexico, it is not clear whether CSW use among migrant men is an extension of a behavior common in their communities of origin or whether the practice arises from the experience of migration and U.S. residence. By collecting data in both sending and receiving societies, we are able to address this issue directly.

TABLE 5: Commercial Sex Worker Use at Sexual Initiation and During the Past Year in Mexico and Durham

	In Mexico		*In Durham*		
Sexual initiation with a commercial sex worker	7.6		21.6		
n	650		62		
	Marital Status		*Marital Status*		
	Single/ Seperated/ Divorced	*Married/ In Union*	*Single/ Seperated/ Divorced*	*Married/ In Union*	*Married Partner in Mexico*
Visited a commercial sex worker in the past year	4.8	6.2	54.6	7.8	44.2
n	124	276	119	116	77

Table 5 presents data on CSW use for Mexican men in Mexico and Durham. We first consider sexual initiation. Many men migrate relatively young, resulting in more than 9 percent of Mexican men being sexually initiated in the United States. Among these men, 21.6 percent report being initiated with a CSW, compared to only 7.6 percent among men initiated in Mexico.

Table 5 also reports data on CSW use during the previous year. Results show that CSW use is dramatically more prevalent in the United States than in Mexico. While only 5 percent of single Mexican men visited a CSW in Mexico during the previous year, 55 and 44 percent of single and married men living apart from their wives did so in the United States. While a small minority of married men living with their spouses (6.2 and 7.8 percent in Mexico and Durham, respectively) report CSW use in both contexts, these figures provide strong evidence that high rates of CSW use in Durham are not merely an extension of behavior common in communities of origin. While selective migration to the United States could contribute to these patterns, as more risk-tolerant men are both more likely to migrate and may be more likely to visit CSWs, the dramatic differences across contexts strongly suggest a link between CSW use and migration itself. Being a migrant often entails long periods of family separation

and social isolation and exposes individuals to local contexts in which the social contours of risk—in our case, the highly unbalanced sex ratio—also differ from sending communities. These factors, by adversely affecting men's ability to find noncommercial sexual partners, contribute to HIV risk among migrants.

DISCUSSION

As the U.S. foreign-born population continues its rapid rate of growth, finding new and improved ways to study this population becomes an ever more pressing concern. This article describes a participatory survey research approach, which stresses the importance of community collaboration, targeted random sampling, and parallel sampling in the United States and migrant sending communities to studying migration and social change. Using these techniques, we surveyed a new and rapidly growing Hispanic community in Durham, North Carolina, and four sending communities in Mexico to gain a better understanding of the relationship between gender, migration, and HIV risk behaviors.

Community involvement throughout the project period not only afforded us greater access to the nascent Durham Hispanic community but also led to a greatly enhanced survey instrument and sampling technique; a far better trained, supervised, and committed interview staff; and considerable insight into the interpretation of major research findings and the cultural and contextual factors that undergird them.

The usefulness of community collaboration was illustrated by their extensive knowledge of the CSW industry in Durham. This understanding enabled us to tailor the questionnaire to capture information not registered in standard surveys, even those pertaining to sexuality. We show that the distinctions drawn between types of CSW encounters are highly relevant to HIV risk factors and hold important implications for the design of effective public health interventions.

Moreover, our experience shows that with a flexible design and community interviewers, reticence related to talking about migration and sexual issues among the Hispanic population can be easily

broken down. We were initially concerned that women might be reluctant to be interviewed since there is a generalized perception that Hispanic women do not feel comfortable talking about sex. On the contrary, both men and women seemed glad to be interviewed, particularly in Durham. The high degree of isolation prevalent among migrant men and women seemed to make them appreciative of having someone to talk with and express their concerns. As one interviewer put it, "They were waiting for me to *desahogarse* [loosely translated as "get it off their chests"]. I was the first person in a long time that they could openly talk to and discuss their problems."

While community collaboration enhanced the cultural grounding of our research, random sampling ensured a diverse and representative study population. While obtaining a random sample of the Hispanic population in Durham presents numerous challenges, concentrating on areas of high Hispanic representation allowed us to approximate a random sample while focusing project resources. In the case of Durham, our approach covered a wide cross section of Hispanic migrants. Our estimates indicate that the 13 apartment complexes and blocks in our sampling frame encompass nearly 70 percent of the foreign-born Hispanic population in Durham. Moreover, our simulation of the bias that would result from convenience sampling in the Durham area confirms the importance of approximating a random sample for studying migrant adaptation, particularly with respect to sexual risk behaviors.

And finally, parallel sampling in Mexican sending communities allowed us to disentangle patterns of behaviors and attitudes brought from Mexico from those that are the unique result of migration. We illustrate the importance of binational data, again drawing on information on CSW use. We show that the high rates of CSW use among unaccompanied male migrants are not a continuation of behavior established in Mexico. Rather, rates of CSW use are much higher in the Durham setting, suggesting the importance of family separation and a highly unbalanced sex ratio in engendering CSW use.

Our integration of community collaboration, targeted random sampling, and binational data collection goes beyond other attempts to combine qualitative and quantitative methods. The cyclical nature of CBPR differs from qualitative preliminary or follow-up designs in that community collaboration informed every stage of the research

process, allowing for a reflexive and dialectic approach to knowledge development (Denzin and Lincoln 2000). Moreover, while as researchers, we built on the human capital and knowledge already available in the Hispanic community, the continuous interaction with community members contributed to local resources by increasing the capacity of migrants on an individual, group, and agency level (Flaskerud and Winslow 1998; Israel et al. 2003). Thus, community collaboration not only incorporates an "insider's" point of view into the academic research process but also provides migrants access to firsthand knowledge about their community and increases their capacity as social actors.

In sum, our project, grounded in binational random sample survey methodology in concert with community members as researchers/interviewers, resulted in a culturally competent research strategy for recently migrated Hispanics. While applied to the study of gender and HIV among Hispanic migrants in Durham, this methodology is easily adaptable to other areas of interest and/or diverse migrant groups.

NOTES

1. For those unfamiliar with community-based participatory research (CBPR), it is a research approach that falls under the general rubric of participatory research and accentuates true partnerships between outside researchers and communities to achieve a balance between research and action toward the goal of ending health disparities (Minkler and Wallerstein 2003:7). For a discussion of the spectrum of participatory research frameworks, see Reason and Bradbury's (2001) *Handbook of Action Research.*

2. For instance, to investigate the potential for disease transmission through syringes shared among family members, we included questions about whether and how needles were sterilized between uses. Our original question asked, among other things, if respondents used bleach (*blanqueador*) to clean needles. Members of the CBPR group felt that this term was not widely used in some sending regions and proposed replacing it with the terms *Lavandina* (a popular Mexican brand of bleach) and *Clorox*, which they argued were more often used in conversation than the more technical term. Another example relates to the group's influence on the questions pertaining to religion. We intended to ask questions about religious affiliation and church attendance in the opening section of the survey, with other questions about daily life in Durham. The CBPR group was concerned, however, that questions about religion would make respondents suspicious of the interviewer since it was common for Jehovah's Witnesses and other religious groups to go door to door in the apartment complexes searching for converts. We therefore moved the questions on religious participation to the very end of the survey.

3. The format follows Massey's (1987a) description of the ethnosurvey and includes a series of tables with a fixed attribute on one axis (such as household members, unions formed, or year) and variables across the other axis. The interviewer fills in the cells of the table through the course of a naturalistic conversation with the respondent, soliciting information as needed and using his or her own judgment as to the timing and wording of questions or probes.

4. For instance, Laumann et al.'s (1994:55) study on the social organization of sexuality achieved a response rate of nearly 80 percent, which was "by far the highest of any national sexual behavior survey conducted so far." This sample did not, however, include non-English-speaking Hispanics, a group that is arguably more difficult to reach than the general population. Likewise, in their 2001 review of methodological challenges to conducting sexuality research, Fenton et al. (2005) report that achieving response rates above 80 percent is rare. While response rates are not perfectly comparable to refusal rates since they could include cases not visited by the end of the field period, our refusal rates also compare favorably to recent migration surveys using coethnic interviewers. For instance, Stepick and Stepick (1990) report a 12.9 percent refusal rate in their survey of Haitians in Miami, and DaVanzo et al. (1994) report a 9.0 percent refusal rate at screening *in addition to* a 6.4 percent refusal rate at the main interview among Salvadoran and Filipino immigrants in Los Angeles.

5. The census questionnaire combined all those with less than an eighth-grade education into a single category, while our questionnaire asked for years of completed education.

6. Since our respondents were specifically asked about consensual and legal unions, we do not know whether they would have defined themselves as married given a census-type format. Thus, our formal marriage figures do not directly compare with those in the census since some unknown share of those in consensual unions might define themselves as married if the choice were between "single" and "married."

7. More than 32 percent of women in our sample formed unions in the United States, 72 percent of which were consensual (compared to only 32 percent among those formed in their countries of origin). Only 12 percent of men formed unions in the United States, but they too evidenced a higher prevalence of consensual unions, as 75 percent of unions formed in the United States were consensual compared to 39 percent among those formed in men's countries of origin.

8. The Mexican Migration Project (MMP) is a binational effort, directed by Jorge Durand and Douglas S. Massey, aimed at collecting representative and reliable information primarily about international migration in Mexico. The project was initiated in 1984, and there are currently 93 communities in the MMP data set, which also includes a snowball sample of approximately 20 households residing in the United States from each community. To reduce differences that might arise from changes in period conditions, we limited the MMP sample to the 54 communities surveyed after 1995. The data from the MMP are publicly available at http://mmp.opr.princeton.edu, which also contains more detailed information about the project design.

9. Since migrants could have used the services of more than one type of sex worker during the past year, the sum of percentages exceeds 100.

REFERENCES

Amaro, H. 1995. "Love, Sex, and Power: Considering Women's Realities in HIV Prevention." *American Psychologist* 50:437–47.

Arnold, R., B. Burke, C. James, D. Martin, and B. Thomas. 1995. *Educating for Change*. 4th ed. Ontario, Canada: Between the Lines.

Axinn, William G., Thomas E. Fricke, and Arland Thornton. 1991. "The Microdemographic Community-Study Approach." *Sociological Methods 1141 & Research* 20:187-218.

Bravette, Gordon G. 2001. "Transforming Lives: Towards Bicultural Competence." Pp. 314-23 in *Handbook of Action Research: Participative Inquiry and Practice*, edited by P. Reason and H. Bradbury. Thousand Oaks, CA: Sage.

Brockerhoff, Martin and Ann Biddlecom. 1998. "Migration, Sexual Behavior and HIV Diffusion in Kenya." Policy Research Division Working Papers 111.

Bronfman, Mario. 1998. "Mexico and Central America." *International Migration* 36:609-42.

Bronfman, Mario and Sergio Lopez Moreno. 1996. "Perspectives on HIV/AIDS Prevention Among Immigrants on the U.S.-Mexico border." Pp. 49-76 in *AIDS Crossing Borders: The Spread of HIV Among Migrant Latinos*, edited by M. Shiraz, R. Conner, and J. R. Magana. Boulder, CO: Westview.

Caldwell, John C., John K. Anarfi, and Pat Caldwell. 1997. "Mobility, Migration, Sex, STDs and AIDS: An Essay on Sub-Saharan Africa With Other Parallels." Pp. 41-54 in *Sexual Cultures and Migration in the Era of AIDS: Anthropological and Demographic Perspectives*, edited by G. Herdt. Oxford, UK: Clarendon.

Carrier, Joseph, Bang Nguyen, and Sammy Su. 1997. "Sexual Relations Between Migration Populations (Vietnamese With Mexican and Anglo) and HIV/STD Infection in Southern California." Pp. 225-50 in *Sexual Cultures and Migration in the Era of AIDS: Anthropological and Demographic Perspectives*, edited by G. Herdt. Oxford, UK: Clarendon.

Carter-Edwards, Lori, John T. Fisher, Benjamin J. Vaughn, and Laura P. Svetkey. 2002. "Church Rosters: Is This a Viable Mechanism for Effectively Recruiting African Americans for a Community-Based Study?" *Ethnicity and Health* 7:41-55.

Centers for Disease Control and Prevention (CDC). 2001. *HIV/AIDS Surveillance Report*. Atlanta, GA: CDC.

Cheatham, Ann and Eveline Shen. 2003. "Community-Based Participatory Research With Cambodian Girls in Long Beach, California." Pp. 316-31 in *Community-Based Participatory Research for Health*, edited by M. Minkler and N. Wallerstein. San Francisco: Jossey-Bass.

Conesejo Nacional de Población (CONAPO). 2000. *Migració*n México-Estados Unidos: Presente y futuro. México, D.F.: CONAPO.

DaVanzo, Julie, Jennifer Hawes-Dawson, Robert Otto Burciaga Valdez, Georges Vernez, Christina A. Andrews, Barbara A. Levitan, Joyce E. Peterson, and Robert F. Schoeni. 1994. *Surveying Immigrant Communities: Policy Imperatives and Technical Challenges*. Santa Monica, CA: RAND, Center for Research on Immigration Policy.

Denzin, Norman and Yvonna Lincoln. 2000. *Handbook of Qualitative Research*. Thousand Oaks, CA: Sage.

Deren, Sherry, Michelle Shedlin, W. Rees Davis, Michael C. Clatts, Salvador Balcorta, Mark M. Beardsley, Jesus Sanchez, and Don Des Jarlais. 1997. "Dominican, Mexican and Puerto Rican Prostitutes: Drug Use and Sexual Behaviors." *Hispanic Journal of Behavioral Sciences* 19:202-13.

Erickson, Bonnie H. 1979. "Some Problems of Inference From Chain Data." *Sociological Methodology* 10:275-302.

Fabrega, Horacio. 1989. "An Ethnomedical Perspective of Anglo-American Psychiatry." *American Journal of Psychiatry* 146:588-96.

Fenton, Kevin A., Anne M. Johnson, Sally McManus, and Bob Erens. 2001. "Measuring Sexual Behavior: Methodological Challenges in Survey Research." *Sexually Transmitted Infections* 77:84-92.

Flaskerud, Jacquelyn and Betty Winslow. 1998. "Conceptualizing Vulnerable Populations in Health-Related Research." *Nursing Research* 47:69-78.

Freidenberg, Judith, Michael Mulvihill, and Louis Caraballo. 1993. "From Ethnography to Survey: Some Methodological Issues in Research on Health Seeking in East Harlem." *Human Organization* 52:151-61.

Gamio, Manuel. 1930. *Mexican Immigration to the United States*. Chicago: University of Chicago Press.

Gomez, C. and B. Marin. 1996. "Gender, Culture and Power: Barriers to HIV Prevention Strategies for Women." *Journal of Sex Research* 33:355-62.

Green, S. T. and D. J. Goldberg. 1993. "Female Streetworker-Prostitutes in Glasgow: A Descriptive Study of Their Lifestyle." *AIDS Care* 5:321-36.

Gritz, E. R., B. A. Berman, and G. Bennett. 1992. "Recruitment Through Schools and Churches." Pp. 79-90 in *Health Behavior Research in Minority Populations: Access, Design and Implementation*, edited by D. M. Becker, D. R. Hill, J. S. Jackson, D. M. Levine, F. A. Stillman, and S. M. Weiss. NIH Pub. No. 92-2965. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health.

Heckathorn, Douglas D. 2002. "Respondent-Driven Sampling II: Deriving Valid Population Estimates From Chain-Referral Samples of Hidden Populations." *Social Problems* 49: 11-35.

Herdt, Gilbert. 1997. "Sexual Cultures and Population Movement: Implications for AIDS/ STDS." In *Sexual Cultures and Migration in the Era of AIDS: Anthropological and Demographic Perspectives*, edited by G. Herdt. Oxford, UK: Clarendon.

Israel, Barbara, Amy Schulz, Edith Parker, Adam Becker, Alex Allen III, and Ricardo Guzman. 2003. "Critical Issues in Developing and Following Community-Based Participatory Research Principles." Pp. 53-76 in *Community-Based Participatory Research for Health*, edited by M. Minkler and N. Wallerstein. San Francisco: Jossey-Bass.

Jochelson, Karen, Monyaola Mothibeli, and Jean-Patrick Leger. 1991. "Human Immunodeficiency Virus and Migrant Labor in South Africa." *International Journal of Health Services* 21:157-73.

Karon, John M., Patricia L. Fleming, Richard W. Steketee, and Kevin M. De Cock. 2001. "HIV in the United States at the Turn of the Century: An Epidemic in Transition." *American Journal of Public Health* 91:1060-8.

Laumann, Edward O., John H. Gagnon, Robert T. Micael, and Stuart Michaels. 1994. *The Social Organization of Sexuality: Sexual Practices in the United States*. Chicago: University of Chicago Press.

Magana, J. Raul, Olivia de la Rocha, and Jaime L. Amsel. 1996. "Sexual History and Behavior of Mexican Migrant Workers in Orange County, California." Pp. 77-94 in *AIDS Crossing Borders: The Spread of HIV Among Migrant Latinos*, edited by S. Mishra, R. Conner, and J. R. Magana. Boulder, CO: Westview.

Magis-Rodriguez, Carlos, Aurora del Rio Zolezzi, Jose Luis Valdespino Gomez, and Maria de Lourdes Garcia Garcia. 1995. "Casos de SIDA en el área rural en México." *Salud Pú*blica de México 37:615-23.

Manton, Kenneth I. 1993. "A Bridge Between Cultures: Linked Ethnographic-Empirical Methodology for Culture-Anchored Research." *American Journal of Community Psychology* 21:747-73.

Massey, Douglas S. 1987a. "The Ethnosurvey in Theory and Practice." *International Migration Review* 21:1498-1522.

———. 1987b. *Return to Aztlan: The Social Process of International Migration From Western Migration*. Berkeley: University of California Press.

Massey, Douglas S. and Rene M. Zenteno. 2000. "A Validation of the Ethnosurvey: The Case of Mexico-U.S. Migration." *International Migration Review* 34:766-94.

McQuiston, Chris and Jackie Flaskerud. 2003. "If They Don't Ask About Condoms, I Just Tell Them: A Descriptive Case Study of Latino Lay Health Advisors' Helping Activities." *Health Education and Behavior* 30:79-96.

McQuiston, Chris, Sung Choi-Hevel, and Margaret Clawson. 2001. "Protegiendo Nuestra Comunidad: Participatory Education for HIV Prevention." *Journal of Transcultural Nursing* 12:271-9.

Miller, L., D. Burns, and S. Rothspan. 1995. "Negotiating Safer Sex: They Dynamics of African-American Relationships." Pp. 163-88 in *Gender, Power, and Communication in Human Relationships*, edited by P. Kalbfleisch and M. J. Cody. Hillsdale, NJ: Lawrence Erlbaum.

Minkler, Meredith and Nina Wallerstein. 2003. "Introduction to Community-Based Participatory Research." Pp. 3-26 in *Community-Based Participatory Research for Health*, edited by M. Minkler and N. Wallerstein. San Francisco: Jossey-Bass.

National Alliance of State and Territorial AIDS Directors (NASTAD). 2003. *Addressing HIV/AIDS: Hispanic Perspectives and Policy Recommendations*. Washington, DC: NASTAD.

North Carolina Department of Health and Human Services. 2002. *Health Disparities and Trends in HIV/STD/AIDS*. Raleigh: North Carolina Department of Health and Human Services.

Organista, Kurt and Pamela Organista. 1997. "Migrant Laborers and AIDS in the United States: A Review of the Literature." *AIDS Education and Prevention* 9:83-93.

Organista, Kurt, Pamela B. Organista, Javier Garcia de Alba, Marco Antonio Castillo Moran, and Luz Elena Ureta Carrillo. 1997. "Survey of Condom-Related Beliefs, Behaviors, and Perceived Social Norms in Mexican Migrant Laborers." *Journal of Community Health* 22:185-98.

Parrado, Emilio A. and Chenoa Flippen. 2005. "Migration and Gender Among Mexican Women" *American Sociological Review*, 70:606-632.

Parrado, Emilio A., Chenoa A. Flippen, and Chris McQuiston. 2004. "Use of Commercial Sex Workers Among Migrant Hispanics in the Southeastern United States: Implications for the Diffusion of HIV." *Perspectives on Sexual and Reproductive Health* 36:150-6.

———. 2005. "Migration and Relationship Power Among Mexican Women." *Demography* 42:347-372.

Perez, Miguel A. and Katherine Fennelly. 1996. "Risk Factors for HIV and AIDS Among Latino Farmworkers in Pennsylvania." Pp. 137-56 in *AIDS Crossing Borders: The Spread of HIV Among Migrant Latinos*, edited by S. Mishra, R. Conner, and J. R. Magana. Boulder, CO: Westview.

Reason, Peter and Hilary Bradbury, eds. 2001. *Handbook of Action Research: Participative Inquiry and Practice*. Thousand Oaks, CA: Sage.

Rindfuss, Ronald, Aree Jampaklay, Barbara Entwisle, Yothin Sawangdee, Katherine Faust, and Pramote Prasartkul. 2004. "The Collection and Analysis of Social Network Data in Nang Rong, Thailand." Pp. 175-200 in *Empirical Studies of Networks and HIV: A Handbook for Network Survey Design*, edited by M. Morris. Oxford, UK: Oxford University Press.

Ruggles, S., Matthew Sobek, Trent Alexander, Catherine A. Fitch, Ronald Goeken, Patricia Kelly Hall, Miriam King, and Chad Ronnander. 2004. *Integrated Public Use Microdata Series: Version 3.0* [2000 5 percent census sample]. Minneapolis: Minnesota Population Center.

Shtarshall, Ronny and Varda Soskolne. 2000. *Migrant Populations and HIV/AIDS: The Development and Implementation of Programmes: Theory, Methodology and Practice*. Paris: UNESCO/UNAIDS.

Singer, Audrey. 2004. *The Rise of New Immigrant Gateways*. Washington, DC: Brookings Institute.

Singhanetra-Renard, Anchalee. 1997. "Population Movement and the AIDS Epidemic in Thailand." Pp. 70-86 in *Sexual Cultures and Migration in the Era of AIDS: Anthropological and Demographic Perspectives*, edited by G. Herdt. Oxford, UK: Clarendon.

Stepick, Alex and Carol Dutton Stepick. 1990. "People in the Shadows: Survey Research Among Haitians in Miami." *Human Organization* 49:64-77.

Stratford, Dale, Sandra Chamblee, Tedd V. Ellerbrock, Jonny W. Johnson, Denny Abbott, C. Fordham von Reyn, and C. Robert Horsburgh Jr. 2003. "Integration of a Participatory Research Strategy Into a Rural Health Survey." *Journal of General Internal Medicine* 18:586–8.

Stringer, Ernest. 1999. *Action Research*. Thousand Oaks, CA: Sage.

Thomas, William and Florian Znaniecki. 1918-1920. *The Polish Peasant in Europe and America*. Boston: William Badger.

Tilly, L. and J. Scott. 1987. *Women, Work, and Family*. New York: Routledge Kegan Paul.

Viadro, Claire I. and Jo Anne L. Earp. 2000. "The Sexual Behavior of Married Mexican Immigrant Men in North Carolina." *Social Science and Medicine* 50:723-35.

Watters, John K. and Patrick Biernacki. 1989. "Targeted Sampling: Options for the Study of Hidden Populations." *Social Problems* 36:416-30.

Wingood, Gina M. and Ralph J. DiClemente. 1998. "Partner Influences and Gender-Related Factors Associated With Non-Condom Use Among Young Adult African American Women." *American Journal of Community Psychology* 26:29-50.

Young, Michael and Peter Willmott. 1957. *Family Kinship in East London*. London: Routledge Kegan Paul.

Emilio A. Parrado is an assistant professor of sociology and senior research associate of the Center for Demographic Studies at Duke University. His research focuses on demography and social change in Latin America, international migration, and Hispanic immigrant adaptation. He conducts research on these topics in the United States and Mexico.

Chris McQuiston is an associate professor and director of the Center for Innovation in Health Disparities Research at the University of North Carolina at Chapel Hill School of Nursing. Her research is concerned with cross-cultural and community-based research on health behaviors and HIV among Mexican immigrants in Durham, North Carolina.

Chenoa A. Flippen is a senior investigator at the Center for Demographic Studies at Duke University and an assistant research professor at the University of North Carolina at Chapel Hill School of Nursing. Her research centers on racial and ethnic inequality in the United States with respect to aging, homeownership, and wealth. She also works on topics of Hispanic immigrant adaptation with a particular emphasis on health and HIV risk.