

## UNDERSTANDING SURVEY SAMPLE DEMOGRAPHIC CHARACTERISTICS OF MEN WHO HAVE SEX WITH MEN

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In this study we have addressed the demographic uncertainties surrounding surveys of men who have sex with men (MSM). We examined migration, closetedness, and family structure explanations of demographic profiles of urban MSM using data from the Urban Men's Health Study and the Public Use Microdata Sample (PUMS) of the U.S. Census. The data suggested that the demographic profiles of urban MSM obtained in population based surveys of urban areas are reasonable since MSM in urban areas reflect a large in-migrating white, often young adult, population without children. We concluded that MSM communities are cities within cities with unique demographics that may differ from the general population of the cities in which they live. Although there may be some related sampling bias associated with nondisclosure among ethnic minority MSM population segments, this bias may have little impact on population level estimates. In general the demographic characteristics of urban MSM populations obtained through probability-based sampling methods is judged to be consistent with the observed patterns of migration, closetedness, and childlessness in this population.

### 1. Introduction

Surveys of socially stigmatized and hard-to-reach populations pose considerable challenge to survey scientists. In this regard, probability-based sample surveys of men who have sex with men (MSM) have, therefore, been few in number and often criticized for under-representing various population segments. The high costs of sampling MSM can be lowered (Blair 1999; Catania et al. 1996; Catania et al. 2001; Horvitz 1989; Kalton 1993; Warnecke and Blair 1989), permitting more frequent surveys of this community. However, despite the development of techniques that increase disclosure of MSM (Blair 1999; Catania et al. 1996; Catania et al. 2001); e.g., same-gender interviewers, procedures that enhance anonymity, privacy, and legitimacy), recent applications of these methods continue to yield samples of MSM that appear to be "overly" white, young, and well educated.

The belief that surveys of MSM under-represent important population segments is broadly accepted among many scientists working in areas such as HIV disease, human sexuality, and mental health.

Nevertheless, this belief is hard to substantiate, in part, because the "missing" population is "closeted" and, therefore, not directly available for study. Moreover, because the U.S. Census and the Current Population Survey (CPS) do not inquire about sexual orientation, we do not have a "gold standard" by which to judge the demographic profiles of MSM obtained through probability samples [note: unmarried male couples can be derived from the 1990/2000 census and may represent a segment of gay couples (Binson et al. 1996; Black et al. 2000)].

Although representativeness of probability-based surveys of MSM have been a concern of investigators in the past, this may be of less concern today for MSM sampled from large urban areas. That is, the problem of nondisclosure, which in theory underlies the "under-representativeness" of MSM samples, is likely to have been a substantial issue 40 years ago. However, it has been over 30 years since the Stonewall riots, gay liberation, and the sexual revolution, and sexual mores have changed. Granted we still have homophobia and instances of egregious hate crimes directed towards MSM (and lesbians), but in many large urban centers of the United States there also exists very open, powerful, and cohesive communities of MSM.

Despite these "rational historical" arguments, it remains necessary to offer empirical explanations for why we find sample demographic characteristics of urban MSM that "apparently" look very different from the populations of the cities in which they reside. For instance, it is unclear whether urban MSM probability-based surveys are representative, when these surveys obtain what appear to be unusually large proportions of white men [Urban Men's Health Study, UMHS: 79% White, see Table 2; San Francisco Men's Health Study 87% White; San Francisco Young Men's Health Study 81% White (Osmond et al. 1994; Winkelstein et al. 1987a)]. Ethnic/race distributions among the Urban Men's Health Study respondents, for example, vary substantially from CPS (1996) estimates for adult males (18+ yrs.) in those cities [UMHS Whites: 81% New York and San Francisco, 82% Chicago, 74% of Los Angeles; CPS Whites: San Francisco 52%, New York 48%, Chicago 44%, Los Angeles 42% (U.S. Bureau of the Census 1997)]. Finding relatively large proportions of whites, however, is also common in

opportunistic samples of urban MSM that might be expected to increase nonwhite representation [(e.g., surveys of gay bars in San Francisco (Stall et al. 1990) and gay street fairs in Chicago (Ostrow et al. 1999) yield, respectively, 14% and 26% nonwhite MSM].

Is this “over-representation” of white MSM in past surveys due to nondisclosure by ethnic minority MSM, or is it what we might expect of a population that seeks greater freedom in the MSM enclaves of the large city? The present paper examines this and related issues using empirical data on disclosure, migration, and family structure explanations of MSM sample demographics based on analyses of the Urban Men’s Health Survey, the U.S. Census, and consideration of Public Health data.

## **2. Disclosure Hypothesis**

As stated previously, under-reporting homosexuality, specifically by ethnic minority and low socioeconomic status men, may provide one explanation for the observed ethnic distributions, and the higher than expected levels of education among urban MSM (Black et al. 2000). Ethnic minority MSM (relative to white MSM) may be closeted because of sensitizing experiences with racism or concerns about losing connections to their respective ethnic community. Lower socioeconomic status men may be more closeted for a variety of reasons related to class, power, and socialization (e.g., they may have less perceived personal power or less contact with socializing institutions that foster coming out). Nondisclosure may also influence age distributions for urban MSM. For instance, older gay men grew-up in less “open” times and, therefore, may be more likely to be closeted.

Unfortunately, these enticing disclosure hypotheses are based on a nondisclosure explanation that is typically inferred from sample demographic data (e.g., proportionally fewer urban MSM African Americans than urban African Americans in general) rather than tested directly. A test of this underlying assumption is needed. For instance, if a substantial portion of MSM are unwilling to disclose sexual orientation or participate in surveys, then we might expect that MSM samples would be extremely homogeneous in their degree of closetedness. That is, on measures of disclosure to social network members, the vast majority of study participants might be expected to have uniformly disclosed their sexual orientation to all primary network members (i.e., if “only” noncloseted men participate in surveys). This hypothesis was tested in the present study using data from the UMHS.

Alternatively, if the results indicate that survey respondents are heterogeneous in their disclosure of sexual orientation to network members, we might further ask if this heterogeneity is correlated with the sample demographics. The UMHS sample data may be able to shed light on segments of the MSM population that show relatively high levels of nondisclosure, which in turn, speak to possible sample biases. For instance, if older MSM show evidence of higher levels of nondisclosure than younger MSM, we might conclude that older MSM are being under-represented in MSM surveys. Although we may not know the absolute level of this type of bias, it is still important for scientific and public health purposes to be able to identify population segments that may be more under-represented than others.

Although the survey data provide a test of a “closetedness” hypothesis, the sample cannot provide proof of a “hidden, highly closeted” population of MSM. For this hidden population to be viable, however, it ought to impact something in the observable world that we can measure. In particular, if highly closeted MSM can reasonably be expected, by definition, to be having sex with other men, then it might also be reasonable to assume that their behavior will lead to additional HIV infections in the MSM community not measured by the survey. To examine the “hidden dimension” of closetedness, we report data from a previous publication (Catania et al. 2001) that compared the relationship of sample estimates of HIV disease among MSM to public health record data from San Francisco. San Francisco, as does all of California, seeks to count 95-100% of all AIDS cases occurring within a given county over time. In short, a large hidden population of MSM should lead to significantly different (higher or lower) prevalence levels of HIV derived from the public health record as compared to the survey sample. If the population of fully closeted men is very small in large urban areas and consequently of limited impact, then we ought to find little difference between sample and case-derived HIV-prevalence estimates. This analysis would provide a validity test of the “disclosure conclusions” derived from the UMHS survey.

## **3. Migration Hypothesis**

Although the nondisclosure hypothesis is appealing, other characteristics of urban MSM may also explain sample demographic patterns. Several studies have examined MSM migration streams to large urban areas (Bell and Weinberg 1978; Murray 1992). Bell and Weinberg, for example, found that 90% of MSM in the 1970s were not native to the San Francisco Bay

Area (Bell and Weinberg 1978). Such large MSM migration streams may substantially alter the demographics of the indigenous urban MSM population. For instance, better educated and younger adults have a higher likelihood of migrating (Frey 1978). Further, the bulk of residents outside the major central cities are white (80% of adult males residing outside of central cities are white; CPS, 1996), and, therefore, white MSM may be more likely to be urban in-migrants. The Urban Men's Health Study found that approximately 82% of MSM residing in four large urban areas were in-migrants, and substantially more in-migrants were white, particularly among young adult MSM (Catania et al. 2001). The present analyses extend this prior work to examine how urban in-migration, relative to nondisclosure, may influence age, ethnic and social class distributions for urban MSM.

#### **4. Family Structure Hypothesis**

An additional influence on urban MSM sample demographic patterns is that MSM typically do not have children [approximately 95% of gay couples may be childless (Black et al. 2000)]. All things being equal, people without children may have more time to devote to schooling and job achievement. Given that this relationship is true, then we would expect that MSM would share income and educational profiles with childless heterosexual men more so than with men in general. Further, MSM in domestic partnerships should have greater educational and income comparability to dual income childless heterosexual couples. However, dual income heterosexual couples may have lower household incomes than dual income gay male couples due to gender inequities in the work place (i.e., men are likely to earn more than women).

#### **5. Methods**

In this study, we use data from the Urban Men's Health Study to examine hypotheses concerning migration and closetedness with respect to sample demographic characteristics. As mentioned previously, data from a prior report are used to examine the relationship between case-derived and sample-derived estimates of HIV prevalence (see Results). To test the family structure hypothesis, we compare UMHS education and income profiles to U.S. Census demographic profiles of men across geographic and social contexts. Procedures followed in the UMHS survey and in constructing the UMHS:PUMS comparisons are summarized below.

##### *5.1. UMHS Sampling*

The Urban Men's Health Study was used to examine the migration and closetedness hypotheses.

Methodological details of this study have been published in previous papers (Binson et al. 1996; Blair 1999; Catania et al. 2001; Mills et al. 1998), and are available from the first author. We provide a brief over-view of the study methods here. UMHS was a telephone survey of MSM from San Francisco, Los Angeles, New York, and Chicago. We used disproportionate and adaptive sampling techniques [see (Blair 1999; Capell and Schiller 1989; Catania et al. 1996; Hansen, Hurwitz and Madow 1953; Kalton 1993; Sudman 1976)] to construct a random digit dial (RDD) sample. Cases were weighted to reflect probability of selection, nonresponse, and noncoverage. The sample was adjusted to maintain proportionality between cities based on the estimated MSM population size in each city [New York 44% (n = 1274), Los Angeles 25% (n = 716), San Francisco 23% (n = 657), Chicago 8% (n = 234)].

##### *5.2. UMHS Survey Procedures*

We screened on zip code and number of adult male occupant(s), and, subsequently, on sexual orientation of all adult males (18+ yrs.) [Households screened (zip, gender) = 95,000, with 55,000 eligible households, and 3,700 MSM households]. We randomly selected one MSM for interview and obtained 2,881 completed interviews (Nov. 1996-Feb. 1998; 78% of MSM households). UMHS employed procedures that past studies indicated would increase disclosure of same gender sexual behavior [high numbers of call-backs to resolve unscreened households and use of male interviewers (Capell and Schiller 1989; Catania et al. 1996)]. Further, we screened for MSM by using multiple screener definitions that selected for interview all men reporting same-gender sexual behavior since age 14 years, or who self-labeled as homosexual/gay, or bisexual. These criteria broaden eligibility to avoid excluding potentially important groups (e.g., more closeted men, and less sexually active men). Interviews were conducted in Spanish and English. Measures for the present paper are described in table notes (questionnaire available from the first author). Telephone surveys of adults produce estimates similar to those obtained through in-person face-to-face and self-administered questionnaires for many highly sensitive behaviors including same gender sex, extramarital sex, and high risk sexual behaviors (Binson et al. 1996; Catania et al. 1995; Catania, Canchola and Pollack 1996; Choi, Catania and Dolcini 1994), and similar MSM (Household) screening rates [see (Catania et al. 2001; Cohen 1988; Winkelstein et al. 1987b)].

##### *5.3. UMHS Measures*

The self-disclosure/closetedness items (see Table 3,

Note) were included in a randomized experiment that compared MSM interviewed by either an interviewer (telephone CATI) or by Telephone Audio Computer Assisted Self-Interviewing (T-ACASI). We hypothesized that if closetedness was non-normative and stigmatized, then it would be more frequently reported in the T-ACASI condition. No mode differences were found with respect to proportion of men reporting being completely closeted (to all networks) (T-ACASI, 1.1% vs CATI 2.1%, Chi Square  $p > .10$ ) indicating that further increasing privacy through self-administration techniques did not improve reports of closetedness. Questions on migration and closetedness (Table 1), ethnicity/race and age (Table 2), and education and income (Table 4) are described in table notes. The household income item was used as an index of personal income and was checked by dividing in half the incomes of those MSM in domestic partnerships and comparing the result to income levels for MSM not in domestic partnerships. The resulting distributions were approximately equal, suggesting that indeed we were assessing the total household income to which respondents in domestic partnerships had access.

### 5.3. UMHS/PUMS

We conducted comparisons between UMHS and the 1990 Census unmarried partner data as a test of the childlessness effects on education and income. Comparisons of UMHS distributions to the 1990 Census data were made using data derived from the PUMS (Public Use Microdata Sample). We compared MSM on education and income to heterosexual men 18 years and older from the PUMS of comparable age, ethnicity, and locale, and who were childless. The 1990 census income data are unadjusted and based on different assessment methodologies than those used in the UMHS. Therefore, these comparisons are approximate, but sufficient to show the pattern of increasing education/income when moving from men in general to “heterosexual” men without children. We defined heterosexuality in the PUMS as being married. Marriage is a reasonable proxy for heterosexuality since only a small percentage of men are bisexual (< 1%) (Binson et al. 1996). This definition excludes never married and separated, divorced, and widowed men who are heterosexual, but the problems of separating out MSM from heterosexuals in these population segments makes the alternative preferable. Childlessness was defined as having no children under age 18 in the household, no stepchildren, and the female partner never having had a child. PUMS data were computed for men residing in Chicago, New York, Los Angeles, and Chicago (aggregated across cities) for all males 18 yrs. and older, for

childless married men, for childless married men matched to the UMHS on locale, race/ethnicity, and age, and then for a matched sample of childless married men in dual-income households (Approximately 87% of urban domestic partnered MSM couples in UMHS have dual incomes). Controlling for differences in age and race/ethnicity between the PUMS “heterosexuals” and the UMHS MSM was done by extracting a random subsample of married men 18 yrs. and older from the PUMS data that were matched proportionally to each city (San Francisco, New York, Los Angeles, Chicago), race/ethnicity (White, Black, Hispanic, Other), and age (18-29, 30-39, 40-49, 50+) cross-distribution(s) of the UMHS sample.

## 6. Results

### 6.1. Migration & Closetedness: UMHS Data

Cross tabulations of the demographics with migration and closetedness are presented in Table (1). Tables 2 and 4 present sample distributions, respectively, for race/ethnicity and age, and income and education. We examined the relative relationship of migration and closetedness (see Table 1 for definitions) to dichotomized indices of race (white:nonwhite), education ( $>$  College:  $\leq$  College degree), income ( $>$  \$60K:  $\leq$  \$60K), and age ( $\geq$  40 yrs:  $<$  40 yrs) in logistic regression models. All standard errors were adjusted for the complex sample design.

Migration was a significant correlate, independent of closetedness, of race/ethnicity (OR = 2.40,  $p = .0001$ ) and education (OR = 1.76,  $p = .001$ ), but not age or income ( $ps > .10$ ). Migrants were more likely than indigenous MSM to be white and highly educated (see Table 1), but not younger/older. A closer examination of age differences within the migration group reveals, however, that age distributions may be influenced by migration. Recent in-migrants (85%) (migrated within the last 10 years) were significantly more likely than indigenous (58%) or long-term in-migrant (23%) (migrated 10 or more years ago) MSM to be younger adults ( $<$  40 yrs.) (all  $ps < .01$ ). Recent in-migrants were also the largest segment of the overall MSM population (47%), and were more likely to be white (80%) and highly educated (24%) than indigenous MSM (White = 67% and  $\geq$  College = 18%) (all  $ps < .05$ ).

We examined if the UMHS sample was relatively homogeneous with respect to disclosure or nondisclosure. Approximately 1.6% of UMHS respondents were completely closeted (out to no-one), and approximately 97% reported highly variable/selective disclosure (out to some but not all network members). For instance, among African

American MSM some 27% were not out to neighbors, but only 4% were not out to friends. Table 3 provides a breakdown of fully-closeted MSM by ethnic group and type of network. These findings suggest that disclosure of sexual orientation is heterogeneous in this urban sample.

We also examined the relative contribution of closetedness to the observed demographic patterns as a method of identifying potential “under-represented” MSM population segments. The logistic regression findings indicated that closetedness was a significant correlate, independent of migration, of race/ethnicity (OR = .42,  $p = .02$ ), but not education, income, or age (all  $ps > .10$ ). Nonwhite MSM were more likely to be fully closeted (see Table 1).

Finally, we examined if the closeted MSM were in fact sexually active with men. The majority (68%) of fully closeted men were recently (past 5 years) sexually active with another man. This suggests that the closeted men might contribute to some extent to the pool of HIV infected men in the community (see below).

#### **7. Nondisclosure: UMHS & Public Record Data**

Data (HIV incidence and mortality) from San Francisco allow for a test of the hypothesis that highly closeted nonrespondents cause HIV prevalence to be incorrectly estimated in the UMHS. The San Francisco Department of Public Health reported approximately 25,154 AIDS cases between 1984 and 1998. Approximately 17,753 of these identified cases are deceased, which yields a 69% mortality figure. Incidence values have been estimated by the San Francisco Department of Public Health, as well as health survey data, to have been in the range of 1-2% since the late 1980s. Based on either a 1% or 2% incidence, the HIV prevalence for San Francisco in 1998 is estimated then to have been in the range of 20% to 25% (Final Prevalence=Initial prevalence-Cumulative Mortality+Cumulative Incidence). These estimates include the point estimates obtained in the UMHS for San Francisco which was conducted in the 1996-1998 window [20% HIV prevalence and an adjusted 22% based on additional testing (Catania et al. 2001)]. These data suggest that under-representation of closeted men (or other sources of MSM nonrespondents) did not adversely affect HIV prevalence estimates in the UMHS.

#### **8. Family Structure Hypothesis: UMHS & PUMS Data**

We compared education and income levels of MSM to those for various subgroups of “heterosexuals” in the PUMS (see Table 4). Comparing education and

income across samples, MSM overall show increasing comparability to the PUMS males as we move from all males, to childless married men, and then to childless married men matched on locale, race, and age. With respect to income, the percentage of men with incomes, for example, over \$100,000/year increase from a low of 8% for all men, to 14% for childless married men, to a high of 19% for the matched sample of childless married men. This latter figure is similar to the 18% of MSM (overall) reporting income over \$100,000/year. Thus, childlessness may be associated with higher incomes for MSM, and for childless married men, relative to men in general. Nevertheless, even after matching, MSM relative to childless married men, still have more very low income (< \$20,000/year) individuals (16% vs 9%). However, when MSM are more closely matched to married men, by restricting MSM to those in domestic partnerships and by restricting childless married men to those in dual income households (matched subsample), their respective incomes become increasingly similar (see Table 4). Dual income male-male households have proportionately more high income households than do male-female households (e.g., 44% of domestic partnered MSM households report earning > \$80,000/year vs 36% of male-female childless dual income households).

Educational patterns show similar parallels particularly at the extremes in the distribution (see Table 4). For example, the percentage of men with doctoral or Doctor of Medicine degrees increase from a low of 4% for all men, to 8% for childless married men, to a high of 11% for the matched sample of childless married men (10% for dual income households) which compares to 7% and 8%, respectively, for all MSM and MSM in domestic partnerships.

#### **9. Discussion**

The present study suggests that migration, closetedness, and family structure contribute to the demographic profiles of urban MSM in ways that make MSM urban communities different from the urban populations in which they are imbedded. Also, the study suggests, within its methodological limits, that probability-based samples of MSM provide a reasonable characterization of the demographic groups within the urban MSM population.

Our findings for closetedness indicate that less disclosing men were more likely to be found among ethnic minority, lower SES, and older age groups. However, when controlling for migration effects, closetedness was related significantly only to race/ethnicity. Further, although our measures of

closetedness may be biased in ways that we can not assess, the survey did not produce a large homogeneous population of fully noncloseted men. Most men were highly variable disclosers of their sexual orientation. In addition, our analyses of public health data on HIV disease indicated that the effects of nondisclosure bias may not be sufficient to bias HIV prevalence estimates based on probability-based samples of urban MSM.

Together, these findings suggest that the belief that a substantial portion of MSM are unwilling to disclose sexual orientation or participate in surveys, particularly sensitive health surveys, is incorrect. Furthermore, although nonwhite MSM populations may be under-represented, this under-representation may not be sufficient to impact overall estimates for some health parameters such as HIV prevalence estimates. Extending this conclusion to health outcomes other than HIV and identifying other indicators that might be useful for validating (or determining bias) estimates derived from probability samples of ethnic minority MSM would be an important next step. Geographic differences in disclosure are also in need of study. In general, closetedness may be less in urban, relative to rural, areas given historical changes supportive of gay culture in urban centers.

The migration findings indicate that the substantial majority of urban MSM are in-migrants (82%), consistent with the previously observed positive correlation between city size and MSM prevalence (Binson et al. 1995). In general, in-migrants are more likely to be white, highly educated, but not necessarily younger or wealthier than indigenous MSM populations in large urban areas. However, more recent in-migrants (within the past 10 years), relative to indigenous MSM, are substantially more likely to be younger men. This may represent a shift in migration patterns among MSM, but it also may reflect the differential impact of AIDS-related mortality on the age structure of urban MSM communities (until 1996 approximately 35% of the overall MSM urban population died annually from AIDS, and HIV rates were highest among men 30-50 years of age). The demographic characteristics of the majority of young recent MSM in-migrants (white, highly educated) may be understood, in part, by the possibility that white young adult MSM seek out large cities for early-life career opportunities that compliment the social advantages of living in a gay positive environment. The present study can not test this hypothesis directly, but it is consistent with the social/economic reasons for migration among young adults in general. Overall, migration was found to

have effects on race and education independent of closetedness. In this respect, race/ethnicity stands out as the one demographic characteristic that is significantly influenced by both closetedness and migration, and in ways that increase the proportion of white MSM in surveys.

It is relevant that our migration analyses may be biased if the UMHS sample is biased towards selecting newer residents because these are the most likely to be "out", and, therefore, the most likely to participate. However, comparison of long- and short-term residents did not show differences in being fully closeted (98.3% of short-term vs. 98.4% of long-term residents were not fully closeted,  $p = .94$ ). In addition, one might also argue that recent immigrants are more often under-represented because they hail from recently closeted circumstances. Thus, the proportions of white urban MSM, for instance, might actually be higher than estimated in UMHS.

Our analyses of family structure suggest that this element of MSM life may have an influence on income and education profiles of urban MSM observed in survey studies. Within the limitations of the PUMS (Black et al. 2000), the data suggest that childlessness (and household gender composition) may contribute positively to the economic and educational attainment of MSM. The family structure analyses may help explain why male partnered "MSM" households have lower incomes, but more expensive real-estate holdings than men in general (Black et al. 2000). That is, being childless, some MSM, despite having slightly lower incomes, nevertheless, have more resources to devote to personal material needs. Although childless urban MSM may have an economic advantage, there is also a substantial subgroup of MSM who have very low incomes, as compared to childless married men (respectively, 16% vs 9% with incomes below 20K). Black et al., also found disproportionately more lower SES men in their analyses of never married male partner households, a finding which they attribute to job bias (Black et al. 2000).

In general, the present paper provides data that supports the utility and validity of obtaining representative samples of adult MSM in large urban centers. The data presented here suggest that the demographic profiles observed in surveys of urban MSM reflect a largely in-migrating white, often young (among recent in-migrants), male population of men without children. Further, the present results suggest that it is inappropriate to use the demographic profile of a given city or of adult men in general to characterize the MSM population of a given city. Our data suggest that MSM communities

are cities within cities with their own unique demographic character. In this regard, the expectation that MSM communities should look like the demographic profiles of their parent cities reflects a naïve biological determinism. That is, for a one-to-one correspondence between city demographics and MSM demographics to occur, then MSM should be birthed in a proportionate manner across social groups. This denies historical, social, and cultural contributions to sexual development. In brief, we provide evidence that the demographic profile of urban MSM, rather than being strictly a function of closetedness and related sample bias, is consistent with what one might expect of a heavily in-migrating white male population without children.

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## Tables

*Table 1. MSM demographic patterns by migration and disclosure (closetedness): Urban Men's Health Study*

		Age		Education		Race		Income				
		% Total	% Within	% Total	% Within	% Total	% Within	% Total	% Within			
Migration												
Migrants (n=2169)	older	34	41	higher	22	27	white	68	83	higher	32	39
	younger	48	59	lower	60	72	non-white	14	17	lower	51	61
Indigenous (n=465)	older	7	42	higher	3	18	white	12	67	higher	6	36
	younger	10	58	lower	15	83	non-white	6	33	lower	11	64
Disclosure												
"Out" (n=2590)	older	41	41	higher	25	26	white	79	80	higher	38	38
	younger	58	59	lower	73	75	non-white	20	20	lower	61	62
"Closeted" (n=42)	older	1	48	higher	<1	26	white	1	62	higher	1	33
	younger	1	52	lower	1	74	non-white	1	38	lower	1	67

Percents do not total 100% due to rounding; % Total = % of total sample, % within = % within the subgroup (e.g., migrants) (n sizes vary by demographic by <1%). Migrant = moved to city after age 18 yrs., Indigenous = have resided in city since before age 18 yrs., "Out" = out to some or all of 4 networks (see below), "Closeted" = out to no one in any of the 4 networks. Older = ≥40 yrs., younger = <40 yrs.; Education higher/lower = >college degree/college degree or less; Income higher/lower = >\$60k/≤\$60k.

The residency question asked, "I'd like to start [the interview] by asking you some questions about your life in [City]. How many years, total, have you lived in [city]? [total years do not need to be consecutive years]". To determine migration since age 18 yrs. we subtracted years of residence from respondent's age.

Disclosure of sexual orientation was assessed with the following question separately for each of four social networks (family, friends, co-workers, neighbors): "Men vary in the degree to which they report being "out of the closet" or open about being gay or bisexual to others. I would like you to tell me how "out" you are about your sexual orientation to the following groups of people...About how many of your [friends] are you out to about your sexual orientation at present? Would you say you are out to...[all...almost all...about half...less than half...none; including options for those not having friends, and for don't know/decline to answer]".



*Table 2. Ethnic and age distributions of MSM in the Urban Men's Health Study*

Race	%	Age	%
White	79	18-29	20
African American	4	30-39	39
Hispanic	10	40-49	25
Asian/Pacific Islander	4	50-59	10
Native American	3	60+	6
Other	<1		

N = 2,881

*Note.* Race-General: “What would you say best describes your racial background (list, included “other specify” and more than one could be designated to cover mixed race persons)?” Hispanic ethnicity was assessed separately from other general ethnic/racial categories [Ethnicity-Latino: “Are you of Spanish, Hispanic, or Latino origin? (If yes) What is your primary ethnic background or ancestry? Is it (list, all that apply were recorded, e.g. Mexican, Cuban, Puerto Rican, etc.)”. Race distributions by city vary somewhat: Hispanics were most prevalent in Los Angeles (15%), African Americans in Chicago (6%), and APIs in San Francisco (5%).

*Table 3. Percent of MSM reporting nondisclosure of sexual orientation by ethnic/racial groups*

Ethnicity/Race	Total	Networks			
	%	Friends %	Family %	Neighbors %	Co-workers %
White	1**	2**	11**	17**	12**
African American	2	4	18	27	17
Latino	2	4	12	32	22
Asian/PI	4	7	28	27	25
Native American	9	8	11	25	25

\* $P = .001$ ; \*\* $P = .0001$ .

See Table Note Table 1 for measure of closetedness.

Total: Not “out” to any friends, family, neighbors, or co-workers. Nondisclosure: Out to no one in a given category.

Table 4. Household income and education attainment distributions (%) of MSM in UMHS and married men (18+ years) in 4 UMHS cities<sup>a</sup> from 1990 U.S. Census (PUMS)

	UMHS - MSM		Census - Men	Census - Matched Sample <sup>b</sup>		
	% All	% Domestic Partnered MSM	% All <sup>c</sup>	% Married Childless	% Childless	% Dual Income Childless
Household income (gross)						
< 20 K	16	9	26	15	9	4
20+ to 40 K	26	13	28	24	22	16
40+ to 60 K	20	18	21	22	23	21
60+ to 80 K	13	15	12	16	18	22
80+ to 100 K	8	14	6	8	9	14
> 100 K	18	30	8	14	19	22
Education						
< HS diploma	2	2	31	20	11	8
HS/College degree <sup>d</sup>	73	70	59	62	65	68
Master's degree	18	21	5	10	13	14
Doctoral degree	7	8	4	8	11	10

*Note.* The Domestic Partner item: “Do you have a relationship with a man who you would describe as your domestic partner or spouse”? Education item: “What was the highest grade or year of school you completed? Income: “The next questions are about health care. People have many different ways of making sure their health needs can be paid for. In general, people with larger incomes can more easily get medical care. Tell me when I get to the category that best describes your household income before taxes for all of (1996/1997). Please include the income of everyone in your household who contributed to your household income (list)”.

<sup>a</sup>4 UMHS Cities are Chicago, Los Angeles, New York, and San Francisco; all data are weighted.

<sup>b</sup>Matched on city, race, age to MSM in domestic partnerships, Ns = 1000, 700 respectively.

<sup>c</sup>All Men in Census = all adult males 18+ years old in the 4 cities.

<sup>d</sup>High school/college graduates combined because ambiguities in the education question in the UMHS may overestimate college degrees (likely includes AA degrees).