Published in final edited form as:
AIDS Care. 2014 January ; 26(1): . doi:10.1080/09540121.2013.793277.

HIV Testing Practices among Men Who Have Sex with Men in Buenos Aires, Argentina

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Abstract

The objective of the study was to explore HIV-testing practices among MSM in Buenos Aires, Argentina, in light of current international health guidelines that recommend frequent HIV testing for MSM who engage in high-risk behavior. Participants, who were recruited using respondent-driven sampling (RDS), were 500 mostly young, non-gay-identified MSM of low socioeconomic status, high levels of unemployment, living mainly in the less affluent areas surrounding Buenos Aires, and lacking health insurance. They provided blood samples for HIV testing and responded to a Computer Assisted Self Interview. Fifty-two percent had never been tested for HIV, and 20% had been tested only once; 17% were found to be HIV infected, of whom almost half were unaware of their status. Main reasons for never having tested previously were: not feeling at risk, fear of finding out results, and not knowing where to get tested. Among those previously tested, men had been tested a median of 2 times with their most recent test having occurred a median of 2.7 years prior to study enrollment. Of those who had not tested positive before entering the study, only 41% returned for their results. HIV testing was infrequent and insufficient for early detection of infection, entry into treatment, and protection of sexual partners. This was particularly the case among non-gay-identified MSM. Testing campaigns should aim to help MSM become aware of their risk behavior, decrease fear of testing by explaining available treatment resources and decreasing the stigma associated with HIV, and by publicizing information about free and confidential testing locations. Rapid HIV testing should be made available to eliminate the need for a return visit and make results immediately available to individuals who are tested.

Keywords

HIV prevalence; gay; respondent-driven sampling; MSM

Introduction

Regular HIV testing facilitates early detection of infection among at-risk individuals, and early HIV detection is directly associated with improved clinical outcomes and decreased sexual risk behavior (Oberzaucher & Baggaley, 2002; Weinhardt, Carey, Johnson, &

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Bickham, 1999; World Health Organization, 2004). Early and successful treatment of HIV-infected individuals with antiretrovirals (ARVs), significantly decreases the chances of HIV transmission to partners. A study involving mainly heterosexual serodiscordant couples showed that this decrease was 96% (Cohen et al., 2011); to date, no comparable data are available for men who have sex with men (MSM).

The US Centers for Disease Control and Prevention (CDC; 2010; 2011) recommend testing every three to six months for sexually active MSM. Given that large percentages of HIV-infected persons are unaware of their infection (MacKellar et al., 2006; Sifakis et al., 2010), especially among MSM who remain at disproportionate risk of infection (Adam et al., 2009; Sumartojo et al., 2008), frequent testing is important. Although the percentage of MSM who have never tested for HIV is decreasing (Helms et al., 2009), many MSM remain untested or test infrequently (CDC, 2011; Guy et al., 2010; MacKellar et al., 2006; Manning et al., 2007). Likelihood and frequency of testing may be related to demographic characteristics such as sexual identity, age and ethnicity (Nelson et al., 2010; Sifakis et al., 2010; Wei et al., 2011); and to fear of positive results, perceived HIV risk, and beliefs about HIV treatment (Kellerman et al., 2002; Mikolajczak, Hospers, & Kok, 2006; Song et al., 2011).

Most of the research on frequency of HIV testing has occurred in the U.S., Europe, Australia, and China. Little is known about the frequency of HIV testing among Latin American MSM and the factors that facilitate or impede testing among this population. In Argentina, which has an estimated 134,000 HIV-infected individuals (Ministerio de Salud, 2011) and where the government provides free HIV treatment, regular HIV testing among high-risk populations could significantly impact HIV mortality and prevention efforts. MSM, whose HIV prevalence and incidence rates in the city of Buenos Aires are 17.3% and 4.53 per 100 person-years respectively (Pando et al., 2011), could benefit greatly from frequent testing.

We aim to contribute to the understanding of HIV testing among MSM in Latin America by reporting on a sample of 500 demographically diverse MSM from Buenos Aires, Argentina (additional results in Balan et al., 2011; Barreda et al., 2010; Carballo-Diéguez, Ávila, et al., 2011; Carballo-Diéguez, Balan, et al., 2011; Pando et al., 2012; Pando et al., 2011). We explored HIV testing history, patterns, reasons for testing or not, and the association of these variables with demographic characteristics and sexual identity.

Materials and Methods

Ethics Statement

The Institutional Review Boards of the New York State Psychiatric Institute, USA, and la Facultad de Medicina, Universidad de Buenos Aires, Argentina, approved this study.

Participants

Recruitment took place through respondent-driven sampling (RDS; Heckathorn, 1997, 2002) a method for both data collection and statistical inference. In RDS, a few participants (“seeds”) are recruited to participate in the study and to invite three others from their network to enroll as well. Participants give coupons to those they invite who can then also recruit people from their networks until the target number is reached. Participants are offered dual incentives (for participation and for each person they recruit) thus producing chains of referrals that move away from the initial seeds. Participants report the number of people in their network who belong to the target population; this number is used to weight the data. This weighting strategy distinguishes RDS from simple snowball sampling. Although RDS is purportedly better than snowball sampling to reach more representative samples of hidden populations, one drawback is that it tends to cluster cohesive

subpopulations (Goel & Salganik, 2010). Also, by nature, RDS allows for selection bias, as peers invited to participate may screen themselves out without ever making contact with the recruitment staff.

Eligibility criteria for our study were to identify as a man, be at least 18 years old, have had sex with another man or a transgender woman (TGW; male-to-female) in the prior six months, have had sex with a man or TGW at least 10 times in his lifetime (to exclude individuals with infrequent occasions), reside in Buenos Aires or its environs, have received a coupon from a prior participant (not applicable to seeds), and agree to provide a blood sample for HIV and STI testing.

Procedure

A detailed description of the use of RDS in this study has been published elsewhere (Carballo-Diéguez, Balan, et al., 2011). Briefly, 16 socioeconomically diverse seeds were recruited, underwent all study procedures, and were given three coupons (valid for 60 days) to pass on to members of their networks. In total, 500 MSM (our target sample by study design) were recruited from November 2007 through July 2009 and seen at the offices of Nexo Asociacion Civil, our non-governmental organization (NGO) partner. Men who met eligibility criteria provided written consent and answered a password-protected, Web-based, computer-assisted self-interview (CASI) that inquired, among other topics, about demographic information, sexual identity, and HIV testing history. Participants who did not feel comfortable using a computer could ask for assistance from a research assistant who then read the questions verbatim and entered the participant's responses.

Next, blood was drawn for HIV and other STI testing (additional results and prevalence of other STIs appear in Pando et al., 2012). HIV pre-test counseling was provided to all participants, and post-test counseling to those who received their results. Finally, the research assistant administered the Social Network Assessment (described below), handed the participants three coupons, encouraged each participant to "give the coupons to people like you," and took contact information to notify participants when they could redeem compensation for participant referral. Altogether, the interviews lasted from two to three hours, each participant receiving the equivalent of 20 US dollars (price of five movie tickets) as compensation for his time. For each referred acquaintance who qualified for the study, regardless of whether he enrolled or not, participants received US$ 5.

Instruments

Demographics—The structured questionnaire covered age, education, income, work status, residence, civil status and health insurance.

Sexual Identity—Participants indicated whether they considered themselves 1) gay/homosexual, 2) bisexual, 3) transvestite (in Buenos Aires, the term transvestite rather than transgender is frequently used), 4) heterosexual, or 5) other. The study was not designed to include transgender persons; those identifying as such were deemed ineligible to participate.

Social Network—To determine the participant's social network size, we asked: 1) "Approximately, how many men who have sex with other men and/or transvestites do you know personally?" 2) "Of those men, how many do you know by name, who they are, and how to contact them?" 3) "Of those men, how many also know you?" 4) "Of these men, with how many have you been in contact in the past six months? Contact may be face-to-face, by phone, or email." 5) "Of those men, how many live in Buenos Aires?" 6) "Of those men, how many are 18 years or older?" 7) "Of these men, how many might be willing to participate in this study?" 8) "Who gave you the coupon to participate in this study (study

personnel, friend, partner, family member, workmate, someone unknown, other)?" We used question 7 to measure network size for RDS weighting purposes.

HIV testing history—We inquired whether participants had tested for HIV previously, reasons for never testing, assumptions about status among those not tested, reasons for first testing among those tested, and frequency of testing for those with more than one test.

HIV test—HIV diagnosis was assessed using ELISA and agglutination techniques and confirmed by Western Blot at the Centro Nacional de Referencia para el SIDA (CNRS), Facultad de Medicina, Universidad de Buenos Aires.

Statistical analysis

All data have been weighted based on reported network size. The weighting estimator is based on the RDS II estimator (Volz & Heckathorn, 2008). More details on this analytic strategy are reported elsewhere (Carballo-Diéguez, Balan, et al., 2011). Statistical analyses were conducted using PASW Statistics® (SPSS Inc, 2009). Participants were classified by sexual identity and by HIV testing prior to study participation (Y/N). Four- and two-group comparisons were conducted using chi-square tests for dichotomous/categorical variables and t-tests or ANOVAs for continuous variables.

Results

Sample

Of the 500 MSM in the sample, 24.5% identified as gay, 36.2% as bisexual, 21.9% as heterosexual, and 17.4% as other. Those responding as "other" tended to be younger and of lower education level. They provided labels such as "hombre" (man), "macho," and "activo" (active) that did not allow clear assignment to any of the other three categories.

Table 1 presents the demographic characteristics of the sample by sexual identity. Participants' mean age was 30.5 (SD 11.5); almost half of participants were 18-25 years old, with gay-identified men being older on average than non-gay men. Two-thirds had not completed high school; lower levels of education were reported by the non-gay-identified men. Twenty-nine percent had no income; non-gay-identified men earned less than gay-identified men. Almost one-third of participants were unemployed, and a similar proportion only had temporary work (categories could overlap). Twenty-nine percent of participants resided in Ciudad Autonoma de Buenos Aires (Buenos Aires proper, the Capital city), while the majority of participants came from the less affluent suburbs of the West Zone and South Zone. Most participants were single (same sex marriage was legalized in Argentina after recruitment for this study was concluded). Four out of 5 participants had no private or employer-supported health insurance (and probably relied on public hospital services); gays were more likely to have employer-supported health insurance. In sum, this was a sample of young, mostly single, non-gay-identified MSM, of low socioeconomic status (especially among the non-gay-identified), high levels of unemployment, living mainly in the less affluent areas surrounding Buenos Aires, and mainly lacking health insurance.

HIV testing

Table 2 shows the HIV testing history of the sample. About half of participants had never been tested for HIV; one-fifth had been tested only once. Gay-identified men reported the highest rates of HIV testing. There was a significantly higher proportion of tested individuals among those with only one partner in the prior two months than among those with multiple partners (77% vs. 44%, $X^2 = 17.3$, df = 1, $p < .001$). Laboratory results of HIV tests conducted as part of our study showed an overall HIV prevalence of 17%. Fifty-six

percent of individuals who tested HIV positive in the study were already aware of their status, and 4% reported previous AIDS diagnoses. By contrast, 44% of individuals were unaware of their infection until they were tested during our study. Those who had been tested before entering the study had their last test done a median of 2.7 years before (range, 1 month to 27 years). Twelve percent reported being tested in the past year, and an additional 30% reported being tested in the past 2 years. Forty percent reported that their most recent test was 4 or more years ago. The 4 sexual identity groups did not significantly differ on time since last HIV test.

Table 3 shows the reasons for not testing among those never tested before. The most frequent reasons for not testing were low risk perception, fear of learning the results, and/or not knowing where to get tested. More gay than non-gay-identified men reported not knowing where to get tested and cost as a reason for not testing. These gay men were significantly younger and had lower incomes than gay men who had been previously tested.

Table 4 shows the reasons for testing among those tested before joining the study. Almost half of the men claimed their primary reason was simply to know if they were infected; 19% were tested as part of a physical exam. Only 16% reported having been tested because of unprotected sex. Thirteen percent said testing was required by their employers (this was more common among non-gay-identified men). Five percent got tested because they were experiencing symptoms, and all but one of these participants was HIV infected.

Among those tested, the median number of testing occasions was 2 (not shown in the tables). HIV testing confirmed the self-reported HIV status of 89% of individuals with discrepancies in the remaining 11% (7% of participants assumed being HIV-negative but were found to be infected; 4% of participants assumed being infected but were actually uninfected).

Test results were available for participants about two weeks following sample collection. After weighting, 181 (41% of 442) of those who had not previously tested HIV-positive returned to the testing site for their results. Gay men were more likely to return for their results than non-gay-identified men (59% vs. 36%, $X^2 = 16.14$, df = 1, $p < .001$).

Table 5 presents the associations of demographic variables and HIV testing history. No prior HIV testing was associated with younger age, lower education and income, being unemployed (and inversely related to being self-employed or a student), living in the less affluent areas of the city (West and South zones), being single, having no health insurance, and having a smaller network size.

Discussion

In this RDS-recruited MSM sample, HIV testing was infrequent and insufficient for early detection of infection, entry into treatment, and protection of sexual partners. This was particularly the case among non-gay-identified MSM. Almost half of HIV-infected participants were unaware of their status and consequently not in treatment and potentially infectious to partners.

Several measures could be taken to counteract this situation. Testing campaigns could be aimed to help MSM, particularly those not gay identified, to become more aware of the behaviors that put them at risk. Given the observed variations in likelihood and frequency of HIV testing according to sexual identity, HIV testing campaigns should highlight that regardless of sexual or gender identity, individuals who engage in sexual risk behavior should be tested regularly. Furthermore, the finding that only 16% reported having been tested because they had unprotected sex is interesting considering that, as previously

reported (Carballo-Diéguez, Balan, et al., 2011), 88% of participants had had more than one sexual partner in the past two months, with a median of 5.8 (SD 13.13) unprotected anal or vaginal intercourse occasions (range 0-200). This finding suggests low risk perception in this population despite apparently high levels of risk behavior.

Fear of testing could be decreased by disseminating information on currently available treatments for those found to be infected. Publicizing information about free and confidential testing locations may further increase testing, particularly for those concerned about costs; this measure would be particularly important in view of the high percentage of participants without health insurance and who relied instead on public hospitals. Although Argentina offers health coverage to all citizens, services may be uneven, crowded, or lacking resources, which may dissuade some people from seeking HIV testing at a hospital. The availability of dedicated free services, like those provided by an NGO, could facilitate access to testing. Furthermore, including HIV testing in regular physical exams, both in private and public settings, could increase both the number of individuals and the frequency of testing.

Developing campaigns to decrease HIV-associated stigma could facilitate test-seeking behaviors. With its legalization of same-sex marriage, Argentina became a leader in Latin America in its quest to decrease sexual-orientation-based discrimination. Lessons learned through that process should be applied to further erode stigmatization of HIV.

The observation that only 41% of individuals who had not tested positive before returned to the clinic for their test results is in sharp contrast with that of prior studies conducted in Buenos Aires with mainly gay-identified MSM. Pando et al. (2003), reported that in their studies, 96.2% of the participants returned to the NGO for their test results and post-test counseling. Given that participants who had referred other men to the study could collect an incentive when they returned to the testing site, the proportion of participants in our study who received their results could potentially have been even lower in the absence of the incentive. Although none of the participants expressly refused to get their test results, a few said they did not have time or that they would return later, which may have been subterfuges to avoid learning of the results. The failure by many participants to receive HIV test results supports the benefit of using rapid HIV testing so that results can be delivered in the same session (Balán et al., 2011). Currently, rapid HIV tests that can provide results in about 20 minutes are not widely used in Buenos Aires where typically people must wait several days for their test results. Rapid HIV tests should be made available in Buenos Aires promptly.

Finally, the association of lack of prior HIV testing with sociodemographic indicators of social marginalization (lower education and income, unemployment, no health insurance, fewer social connections) indicates an urgent need to promote and facilitate HIV testing among the most disenfranchised sectors of the greater Buenos Aires population.

This study has several limitations. Except for laboratory results, all our data consist of self-reports. Thus, they are subject to inaccuracy due to poor recall and voluntary or involuntary distortion. Furthermore, RDS can perform poorly when traits cluster in cohesive subpopulations, a phenomenon that may be especially acute in the case of infectious diseases (Goel & Salganik, 2010). Our sampling procedure largely failed to attract volunteers from the north (more affluent) zone of Buenos Aires, which is consequently underrepresented in these results. This may be a result of bottlenecks in the network structure of the population (Goel & Salganik, 2009, 2010). Yet, within these constraints the results of this investigation with a diverse sample of 500 MSM provide guidelines for orienting HIV testing efforts that could counteract further spread of the epidemic.

Acknowledgments

This study was supported by the US National Institute of Mental Health through R01-MH073410 (PI: Alex Carballo-Diéguez, Ph.D.) and P30-MH43520 (PI: Anke A. Ehrhardt, Ph.D.).

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Table 1

Demographic characteristics of 500 MSM recruited through RDS (weighted values)

	Total	Gay	Bisexual	Hetero	Other	4-Group[a]		2-Group[a]	
	(N=500)	(n=123)	(n=181)	(n=109)	(n=87)	F/X^2_{df}	p	t/X^2_{df}	p
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)				
Age	30.5 (11.5)	34.7 (12.1)	30.2 (10.9)	29.4 (11.9)	26.6 (9.8)	9.4_3	<.001	-4.7_{493}	<.001
Education[b]	4.3 (1.7)	5.5 (2.1)	4.1 (1.3)	4.0 (1.4)	3.5 (0.9)	37.3_3	<.001	-8.0_{154}	<.001
Monthly income[c]	2.1 (1.0)	2.4 (1.1)	2.0 (0.9)	2.0 (0.8)	2.0 (0.9)	3.9_3	.009	-3.1_{153}	.003
Network size	2.9 (2.0)	3.3 (2.9)	3.0 (1.6)	2.5 (1.6)	2.6 (1.5)	3.8_3	.010	-2.0_{146}	.052
	%	%	%	%	%				
Work status [d]									
Temporary work	32	19	34	38	39	13.7_3	.003	12.5_1	<.001
Unemployed	30	30	24	35	39	7.5_3	.057	0.0_1	.968
Employed by employer	25	42	24	12	21	28.2_3	<.001	22.7_1	<.001
Self employed	22	21	24	19	21	1.2_3	.755	0.0_1	.827
Student	18	31	18	9	11	21.6_3	<.001	17.2_1	<.001
Place of residence[e]									
Ciudad Autónoma de Buenos Aires	29	38	30	24	18	20.2_6	.003	9.3_2	.010
West Zone	54	42	55	64	56				
South Zone	15	16	13	12	25				
North Zone	2	5	3	0	0				
Civil status[f]									
Single	78	83	80	68	81	9.2_3	.026	1.9_1	.165
Married	4	1	8	1	4				
Other	18	16	12	31	16				
Health insurance[g]									
None	79	58	82	92	88	47.1_3	<.001	43.6_1	<.001
Employer-supported	19	36	16	8	11				

	Total	Gay	Bisexual	Hetero	Other	4-Group[a]		2-Group[a]	
	(N=500)	(n=123)	(n=181)	(n=109)	(n=87)	F/X^2_{df}	p	t/X^2_{df}	p
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)				
Private	3	7	2	0	1				

[a] 4-Group statistical tests compare the 4 sexual identity groups using ANOVAs for continuous variables and chi-square tests for categorical variables. 2-Group statistical tests compare the gay identified men to all other participants using t-tests for continuous variables and chi-square tests for categorical variables.

[b] Education measured on a 9-point scale with 3=completed elementary school, 5=completed high school.

[c] Income measured on a 5-point scale with 2=below $ar1000 per month, 3=between $ar1000 and $ar1999 per month

[d] Categories are not mutually exclusive so may sum to more than 100%.

[e] "North Zone" was excluded from the Chi-square tests, due to empty or low N cells.

[f] "Married"/"Other" were compared to "Single" in Chi-square tests.

[g] "Employer-supported"/"Private" were compared to "None" in Chi-square tests.

Table 2

HIV testing history and prevalence by sexual orientation

	Total	Gay	Bisexual	Hetero	Other	4-Group[a]		2-Group[a]	
	(N=500)	(n=123)	(n=181)	(n=109)	(n=87)	F/X^2_{df}	p	t/X^2_{df}	p
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)				
Number of times tested for HIV[b]	2.5 (7.9)	4.3(9.9)	2.2 (8.3)	1.9(6.5)	1.2(4.4)	14.6_3	<.001	-5.7_{174}	<.001
	%	%	%	%	%				
HIV testing history									
Never tested	52	28	56	58	71	45.6_6	<.001	39.1_2	<.001
Tested only once	20	24	18	21	14				
Tested more than once	28	48	26	20	15				
HIV infected per lab results	17	31	14	11	12	21.5_3	<.001	20.8_1	<.001
Among those who tested positive…									
Knew he was HIV infected	56	71	46	50	17	8.5_3	.037	6.4_1	.011
Did not know he was HIV infected prior to this study	44	29	54	50	83				
Previously diagnosed with AIDS	4	10	2	2	1	15.6_3	.001	15.5_1	<.001

[a] 4-Group statistical tests compare the 4 sexual identity groups using ANOVAs for the continuous variable and chi-square tests for categorical variables. 2-Group statistical tests compare the gay identified men to all other participants using t-tests for the continuous variable and chi-square tests for categorical variables.

[b] Data were log-transformed prior to statistical tests due to skewed distribution.

AIDS Care. Author manuscript; available in PMC 2015 January 01.

Table 3

Reasons for not testing among those never tested

	Total	**Gay**	**Bisexual**	**Hetero**	**Other**	**4-Group[a]**		**2-Group[a]**	
	(N=250)	**(n=35)**	**(n=99)**	**(n=60)**	**(n=56)**	**X^2_{df}**	**p**	**X^2_{df}**	**p**
	%	**%**	**%**	**%**	**%**				
Don't feel at risk	32	35	34	33	25	1.7_3	.632	0.2_1	.671
Fear of finding results	30	24	31	28	34	1.2_3	.742	0.9_1	.349
Not knowing where to get tested	20	34	14	30	13	12.0_3	.007	4.9_1	.027
Always using condoms	12	11	7	10	21	7.5_3	.058	0.0_1	.980
Shame to be perceived as homosexual	12	9	11	15	11	1.0_3	.804	0.4_1	.552
Fear of prejudice or discrimination due to requesting the HIV test	11	15	6	13	14	4.0_3	.258	0.6_1	.430
Cost	7	17	6	5	4	7.2_3	.066	6.9_1	.009

[a] 4-Group statistical tests compare the 4 sexual identity groups and 2-Group statistical tests compare the gay identified men to all other participants using chi-square tests.

Table 4

Reasons for testing among those previously tested

	Total	Gay	Bisexual	Hetero	Other	4-Group[a]		2-Group[a]	
	(N=232)	(n=87)	(n=79)	(n=43)	(n=23)	X^2_{df}	p	X^2_{df}	p
	%	%	%	%	%				
Wanting to know if he was infected	46	55	44	41	33	4.7_3	.197	3.8_1	.051
It was part of a physical	19	14	20	25	22	2.7_3	.449	2.3_1	.129
Had had unprotected sex	16	17	14	14	17	0.5_3	.927	0.4_1	.549
It was required by employer	13	8	18	7	30	10.7_3	.013	3.4_1	.065
Found out that a sex partner was HIV-infected	7	7	6	5	9	0.5_3	.921	0.1_1	.818
Accompanied friend to testing site and took courage to get tested	6	7	5	5	9	0.7_3	.874	0.1_1	.808
Had experienced symptoms	5	6	6	0	9	3.2_3	.362	0.1_1	.744

[a] 4-Group statistical tests compare the 4 sexual identity groups and 2-Group statistical tests compare the gay identified men to all other participants using chi-square tests.

Table 5

Demographic differences based on prior HIV testing history

	No prior HIV test (N=250)	Prior HIV test (N=232)	t_{df}/Beta/OR[a]	p
	M (SD)	**M (SD)**		
Age	27.5 (10.9)	34.1 (11.4)	-6.5_{480}	<.001
Education[b]	4.0 (1.4)	4.7 (1.9)	0.18	<.001
Monthly income[c]	1.9 (0.8)	2.3 (1.0)	0.14	.005
Network size	2.6 (1.8)	3.2 (2.1)	0.15	.002
	%[d]	%[d]		
Work status[e]				
Temporary work	32	30	0.91	.655
Unemployed	37	25	0.67	.055
Employed by employer	22	28	1.42	.115
Self employed	17	28	1.59	.047
Student	15	22	0.41	.001
Place of residence[f]			0.68	.046
Ciudad Autónoma de Buenos Aires	22	37		
West Zone	58	48		
South Zone	19	12		
North Zone	1	4		
Civil status[g]			0.78	.290
Single	83	73		
Married	2	6		
Other	15	21		
Health insurance[h]			2.17	.001
None	86	71		
Employer-supported	13	25		
Private	1	4		

[a] Statistical tests are from linear or logistic regressions, adjusting for age (except for age itself, which is a t-test).

[b] Education measured on a 9-point scale with 3=completed elementary school, 5=completed high school.

[c] Income measured on a 5-point scale with 2=below $ar1000 per month, 3=between $ar1000 and $ar1999 per month.

[d] Percentages do not always sum to 100 due to rounding.

[e] Categories are not mutually exclusive so may sum to more than 100%.

[f] Statistical test is West Zone vs. other.

[g] Statistical test is single vs. married/other.

[h] Statistical test is insured vs. not.