Racial/Ethnic and Gender Differences Among Older Adults in Nonmonogamous Partnerships, Time Spent Single, and Human Immunodeficiency Virus Testing

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Background: A higher frequency of nonmonogamy, due in part to lower marriage prevalence, may contribute to elevated human immunodeficiency virus (HIV)/sexually transmitted disease rates among older blacks.

Methods: To examine race and gender differences in nonmonogamy, time spent single (i.e., not married or cohabiting), and HIV testing in older adults, we analyzed US population-based data from the 2005–2006 National Social Life, Health, and Aging Project for 2825 heterosexual participants ages 57 to 85 years.

Results: Blacks spent greater portions of their adult lives single than did Hispanics or whites and were far more likely to report recent nonmonogamous partnerships (23.4% vs. 10.0% and 8.2%). Among individuals reporting sex in the prior 5 years, nonmonogamous partnerships were strongly associated with time spent single during the period. Control for time spent single and other covariates reduced the association of black race with nonmonogamous partnerships for men, but increased it for women. Less than 20% reported ever testing for HIV; less than 6% had been recommended testing by a provider. Testing rates, highest in black men and white women, differed little by history of nonmonogamous partnerships within gender strata.

Conclusions: Singlehood helps to explain higher nonmonogamous

partnership rates in older black men but not in older black women. Older adults rarely receive or are recommended HIV testing, a key strategy for reducing heterosexual HIV transmission.

Racial/ethnic differences in human immunodeficiency virus/sexually transmitted disease (HIV/STD) risk have been well documented in the general population and persist in older age groups. Higher rates are observed among blacks and Hispanics than among whites and Asians.[1,2] Although overall STD rates are much lower in older than in younger adults, significant racial/ethnic disparities are still observed in persons ages 45 and older.[3] Further, there is growing concern about the incidence and prevalence of STDs and HIV among older adults and the implications of such infections for individual and public health. Overlapping or concurrent sexual relationships are key risk factors for the spread of STDs and are more common among blacks than whites.[4–6] Further, being single and sexually active or having a partner who has other sexual partners have both been associated with high-risk human papillomavirus prevalence in older women.[7] Lower rates of current marriage between black and white adults less than 45 years of age help to explain the elevated rates of overlapping partnerships observed in blacks in this age group.[6,8] However, neither the frequency of overlapping partnerships, nor the role of marital status in its racial distribution have been examined among older adults.

Although their rates of ever marriage differ little from older adults of other groups, older blacks experience higher divorce and age-specific mortality rates.[9] Therefore, a large racial disparity exists in their prevalence of current marriage.[10–12] Nevertheless, an individuals' current status as married or not may be inadequate for assessing the association of marital status with nonmonogamous partnerships in older populations because individuals may be currently unmarried because of recent widowhood or divorce, after having spent most of their of their sexual histories married to a sexual partner.

HIV and other STDs are growing concerns for older adults. New AIDS diagnoses among people older than 55 years have increased 50% in the United States since 1999;[13–15] and Centers for Disease Control and Prevention estimates that 9% of all incident HIV cases in 2006 occurred among those age 50 years and more.[16] Although HIV incidence remains low among people age 60 years and older, those who do become infected in later life are more likely than younger people to go undiagnosed.[17,18] Other STDs are also relatively rare, but less likely to be diagnosed promptly among older than younger adults, resulting in preventable transmission and morbidity.[18–20]

Data are needed to better understand the factors that contribute to potentially risky partnerships in older adults and

to determine which older subpopulations are in greatest need of HIV/STD detection and treatment services. The recent increases in the prevalence and incidence of HIV/AIDS among older adults likely results from multiple factors: (1) HIV treatment advances, (2) rising divorce rates[21] and changing sexual norms,[22,23] and (3) medical advances that prolong healthy life spans and successfully treat sexual dysfunction.[24,25] Although many older adults have spent much of their lives not exposed to STDs because of long-term monogamous relationships, their risk may change as individuals enter into new, potentially riskier partnerships following separation, divorce, or widowhood. Racial differences over time in rates of marriage, divorce, remarriage, and mortality may lead to substantial differences in time spent single/noncohabiting among older adults and play a role in racial/ethnic disparities in exposure to risky partnerships.

The National Social Life, Health and Aging Project (NSHAP), which was designed to examine social relationships, sexuality and health in the United States in later life, provides an opportunity to examine these issues more closely. In this article, we (1) describe racial and gender differences in marital and sexual relationship patterns among older adults, (2) examine correlates of nonmonogamy (i.e., sex with multiple partners over the same time period or sex with someone who has multiple partners), including the influence of differences in marriage patterns on racial/ethnic disparities in its occurrence, and (3) describe racial and gender differences in and assess the degree to which persons in these types of risky relationships are recommended for and obtain HIV testing.

METHODS

Study Population

The 2005–2006 NSHAP enrolled a nationally representative probability sample of community dwelling persons 57 to 84 years of age.[26] Blacks, Hispanics, men, and persons ages 75 to 84 years at the time of screening were oversampled. Of 4017 eligible persons, 3005 (1550 women and 1455 men) were successfully interviewed, yielding a weighted response rate of 75.5%.[26] In-home interviews were conducted in English and Spanish between July 2005 and March 2006. An additional questionnaire was left behind for self-completion and returned through mail by 84% (86%, weighted) of the sample. Further survey details are provided elsewhere.[26] The protocol was approved by the institutional review boards of the University of Chicago and the National Opinion Research Center; this substudy received exempt status from the Charles Drew University and UCLA institutional review boards.

This analysis excludes 62 participants who had missing marriage/cohabitation histories, 19 who reported that either their most recent sexual partner or all of their lifetime partners were of the same sex (numbers too small for subgroup analysis), and 20 whose responses to number of marital sexual partners exceeded their reported number of lifetime sexual partners and could not be reconciled with other data. In addition, we excluded the relatively small number of remaining respondents whose race/ethnicity was other than black, white, or Hispanic (n = 79), resulting in an analytic sample of 2825.

MEASURES

Nonmonogamous Partnerships

Respondents were asked the month and year of their first and last sex for up to 3 sexual partners in the prior 5 years.

Respondents were classified as having nonmonogamous partnerships if they reported (*a*) sexual partnerships in the prior 5 years with overlapping start or end dates or (*b*) having a partner who also had other sexual partners during their relationship (i.e., partner infidelity). Criteria "*a*" included individuals who reported a relationship that ended in the same month that another started. In some instances, there may have been a short gap between theses partnerships.

Due to the interview's modular design, not all participants were asked the same partner fidelity question. A random two-third of the sample was asked: "To the best of your knowledge, how many people other than you has/did (PARTNER) had/have sex with during the course of your relationship?" referring to their 2 most-recent sexual partners in the past 5 years, during the in-person interview. The remaining one-third was asked "To the best of your knowledge, has this person had sex with someone other than yourself during the course of your relationship?" referring only to their current sexual partner(s), in the leave-behind questionnaire.[27] Those responding yes to either partner infidelity question were classified as having nonmonogamous partners. Those responding "no" to the partner infidelity questions or reporting no sexual partners in the prior 5 years were classified as not having nonmonogamous partnerships. In a sensitivity analysis, all 182 persons responding "don't know" or refusing to answer the partner infidelity question were reclassified from missing to having nonmonogamous partners. In all analyses, missing values were assigned to those who had a partner in the last 5 years and received the leave-behind version of the question, but did not answer the question (n = 122) on their partners' monogamy status.

Sociodemographics and Self-Reported Health Status

Gender was assessed by the interviewer. Race/ethnicity was assessed by responses to the questions "Do you consider yourself primarily white or Caucasian, black or African American, American Indian, Asian, or something else?" and "Do you consider yourself Hispanic or Latino." For brevity, we label black/African American and white/Caucasian participants who said no to the Hispanic question as black and white in the text. Furthermore, we describe 3 groups as racial groups because no further information on ethnicity was collected and because the Hispanic category shares many characteristics with racial classifications.[28] Highest level of education was grouped into 4 categories. Responses to the 5-point self-reported physical health scale were grouped into excellent/very good, good, and fair/poor for analysis.

Sexual Attitudes

We also examined a number of attitudinal variables regarding sex and infidelity, including the importance of sex in the respondents' life, the influence of religion on his or her sexual behavior, and the need for love in a sexual relationship. Higher scores indicated greater importance of these factors. Three questions ascertained participants' attitudes about extramarital sex in 3 circumstances: (1) any sex with a person besides the spouse, (2) sex with another person when a spouse has advanced dementia, or (3) sex with another person when a spouse is experiencing long-term physical illness. Response options involved a 4-point scale from "always wrong" to "not at all wrong" with lower levels indicating higher perceived immorality. Except the importance of sex question,

all attitudinal items were assessed on the leave-behind questionnaire.

Number of Partners

The number of sexual partners for the respondent's lifetime and the 5 years before enrollment was also assessed. Details about dates of first and last sex were obtained for the 3 most recent sexual partnerships in the 5-year period. Sex was defined as "any mutually voluntary activity with another person that involves sexual contact, whether intercourse or orgasm occurs."

Partnership Status and Duration

A complete marital and cohabiting history was obtained, including dates of marriage/cohabitation, separation/divorce, and widowhood. We defined years spent cohabiting as the total number of years, between age 18 and the time of study participation, during which respondents reported being married or living in a romantic relationship with a partner. We then estimated the total duration and percentage of adult life and the prior 5 years spent "single" (i.e., unmarried/no cohabiting). We further attributed to "premarriage" the years preceding first marriage, to "divorce" all years following divorce until the next marriage or the interview date, and to "widowhood" all years following death of a spouse until the next marriage or interview date. We summed these time periods in order to estimate, for the respondents' adult lifetimes and for their prior 5 years, the total duration and the percentage of single life attributed to each "single" relationship status.

HIV Testing

Lifetime history of having ever testing for HIV or been recommended for HIV testing by a medical provider was assessed in the leave-behind questionnaire.

Statistical Analysis

We first examined the distribution of sociodemographic characteristics, physical health, and sexual attitudes and behaviors within each of the 6 strata of race and gender. We calculated percentages and 95% confidence intervals (CI) using the Taylor series linearization method. Then, we estimated age-adjusted racial and gender distributions of current marital status, lifetime number of marriages, and percentage of adult life and the prior 5 years spent single.

Next, we examined the predictors of nonmonogamous partnerships among those reporting at least one sexual partner in the prior 5 years. We were specifically interested in the influence of the number of the prior 5 years spent single on having a nonmonogamous partnership and any observed racial disparities in this risk factor. We constructed separate multiple logistic regressions by gender. First, we estimated the association of race with nonmonogamous partnerships while adjusting for age group. Then, we adjusted for the number of the prior 5 years spent single and select covariates based on the literature. These included education, importance of sex, and physical health status.[4,6,8,26]

We examined HIV testing in separate analyses. Within strata of race/ethnicity and gender, we estimated the frequency of having ever received HIV testing or been recommended HIV testing by a medical provider among those reporting and not reporting nonmonogamous partnerships.

We used weights to adjust for differential selection probabilities and nonresponse for all analyses. We computed standard errors with the use of the Taylor series linearization

method,[26] taking into account the stratification and clustering of the sample design. Reported CIs do not include any adjustment for multiple testing. Analyses were performed using SUDAAN statistical software, version 10.0.1 (Research Triangle Park, NC) and SAS 9.2 (Cary, NC).

RESULTS

Sociodemographics, Self-Reported Health Status, and Sexual Attitudes

As shown in Table 1, black and Hispanic participants report lower educational attainment than do whites. In comparison with whites, black and Hispanic respondents were much more likely to report fair or poor health, and women in these 2 groups reported poorer health than men. In contrast to racial and ethnic differences in socioeconomic and health characteristics, attitudes regarding sex were similar across groups. Most individuals agreed that love was necessary for sex and that religion shaped their sexual behaviors. In addition, most indicated that marital infidelity was "wrong" or "almost always wrong." Among blacks and whites, women generally reported more conservative attitudes regarding sex and marital infidelity than did men. In contrast, attitudes among Hispanic men and women were more similar to one another and somewhat more tolerant of extramarital sex.

Number of Partners, Relationship Status

Black men reported a median of 4 lifetime partners compared to 3 partners among white and Hispanic men. The median number of lifetime partners was 2 for white and black women and 1 for Hispanic women. Nearly 1 in 10 (9.5%, 95% CI: 8.2, 11.0) older adults reported at least one new sexual partnership in the 5 years before the survey; however, significant racial variations were observed. Black men and women were much more likely than their Hispanic and white counterparts to report having had new or multiple partners in the prior 5 years. Black women were also more likely than white and Hispanic women to report no sexual partners. More than 23% of blacks reported nonmonogamous partnerships in the prior 5 years compared to less than 11% of whites and Hispanics (Table 1).

The majority of older adults had been married at some point in their lives, including 97.7% of black men and 94.4% of black women. This compares to greater than 98% of white and Hispanic men, and greater than 97% of white and Hispanic women. Blacks, however, were far less likely than Hispanics or whites to be currently married (Table 2). The most dramatic differences were observed among women: black women were 67% and 87% as likely to be married as white or Hispanic women, respectively. By comparison, black men were 82% as likely to be married as were either white or Hispanic men. Blacks were also the least likely to report cohabitation with an unmarried partner. However, Black rates of multiple marriages are similar to whites. Hence, the higher rates of partnership dissolution and widowhood in blacks are not compensated for by higher rates of remarriage or cohabitation.

Black men and women spend respectively 40% and 60% more of their adult lifetimes single than do whites. Hispanic men and women spend approximately 20% more of their adult lifetimes than do whites. The lifetime distribution of single life also differs for blacks and Hispanics compared with whites. Blacks spend relatively larger proportions of their "time spent single" following divorce or widowhood. Hispanics spend relatively lower proportions of their "time spent single" following

TABLE 1. Sociodemographic Characteristics, Physical Health, Sexual Behaviors, and Sex-Related Attitudes by Race/Ethnicity* and Gender, NSHAP 2005–2006

		Race/Ethnicity					
		Black, Non-Hispanic		Hispanic		White, Non-Hispanic	
Characteristic	n	Men % (95% CI)	Women % (95% CI)	Men % (95% CI)	Women % (95% CI)	Men % (95% CI)	Women % (95% CI)
Highest educational level completed							
Less than high school	660	34.3 (24.8, 45.3)	38.0 (30.6, 46.0)	54.6 (35.3, 72.6)	52.0 (34.4, 69.1)	11.8 (9.4, 14.8)	14.7 (12.2, 17.6)
High school	753	22.9 (15.4, 32.5)	23.5 (18.8, 28.9)	11.4 (6.4, 19.6)	12.2 (7.4, 19.4)	25.5 (22.1, 29.2)	32.1 (28.8, 35.6)
Certificate/some college/associate's degree	808	23.0 (19.0, 27.4)	24.8 (18.9, 31.9)	16.1 (10.3, 24.4)	26.2 (16.1, 39.8)	29.1 (25.3, 33.3)	34.3 (30.5, 38.3)
Bachelor's degree or higher	604	19.8 (9.0, 38.3)	13.7 (8.1, 22.2)	17.8 (8.0, 35.1)	9.6 (4.3, 19.9)	33.6 (29.7, 37.7)	18.9 (15.6, 22.8)
Self-reported physical health							
Very good/excellent	1213	37.8 (30.2, 46.0)	23.2 (18.0, 29.4)	35.2 (23.1, 49.6)	24.5 (14.3, 38.7)	49.4 (45.2, 53.6)	49.3 (45.4, 53.3)
Good	841	31.4 (23.7, 40.3)	41.5 (34.1, 49.3)	31.4 (23.7, 40.3)	31.9 (25.1, 39.5)	26.5 (23.4, 29.9)	29.6 (26.3, 33.3)
Fair/poor	759	30.8 (24.3, 38.2)	35.3 (27.4, 44.1)	32.2 (22.4, 43.9)	43.7 (29.2, 59.3)	24.1 (21.0, 27.5)	21.0 (17.9, 24.6)
Sexual attitudes[‡]							
Religion shaped sexual behavior	2277	2.86 (2.68, 3.05)	3.31 (3.16, 3.46)	2.90 (2.73, 3.06)	3.23 (3.04, 3.42)	2.82 (2.74, 2.90)	3.16 (3.09, 3.24)
Love is necessary for sex	2275	2.78 (2.53, 3.02)	3.34 (3.20, 3.48)	3.00 (2.82, 3.18)	3.01 (2.75, 3.27)	2.97 (2.92, 3.02)	3.50 (3.43, 3.56)
Attitudes regarding infidelity[§]							
Morality in general and specific circumstances	2307	1.31 (1.20, 1.42)	1.11 (1.07, 1.16)	1.42 (1.26, 1.58)	1.48 (1.33, 1.64)	1.25 (1.21, 1.30)	1.20 (1.16, 1.25)
No. lifetime sexual partners							
1	1094	24.1 (16.7, 33.4)	30.3 (24.3, 37.1)	36.0 (28.7, 43.9)	64.0 (52.6, 73.9)	29.7 (26.2, 33.4)	49.2 (45.2, 53.2)
2	437	14.8 (9.9, 21.5)	19.7 (14.7, 25.8)	8.7 (4.6, 16.1)	14.5 (10.0, 20.6)	11.9 (9.6, 14.6)	17.9 (15.4, 20.5)
3–5	588	18.6 (14.9, 22.9)	32.6 (26.1, 39.8)	16.9 (10.1, 26.8)	16.6 (9.2, 28.1)	21.5 (19.1, 24.2)	19.6 (17.0, 22.4)
6+	706	42.6 (30.8, 55.3)	17.4 (12.5, 23.6)	38.4 (28.6, 49.3)	4.9 (1.5, 14.7)	36.9 (33.2, 40.8)	13.3 (10.7, 16.5)
Sexual partnerships in the prior 5 y							
Any new	303	30.3 (23.5, 38.0)	11.7 (8.4, 16.0)	11.3 (7.3, 17.0)	3.9 (1.9, 7.8)	10.9 (9.0, 13.0)	6.3 (4.5, 8.7)
No. sexual partners							
0	569	5.8 (2.9, 11.4)	37.1 (30.9, 43.8)	5.8 (3.4, 9.7)	28.2 (23.3, 33.6)	4.6 (3.3, 6.5)	26.1 (23.7, 28.7)
1	2019	69.3 (61.0, 76.6)	59.5 (53.8, 65.0)	87.8 (81.9, 92.0)	69.4 (63.5, 74.7)	89.1 (86.8, 91.1)	71.8 (69.0, 74.4)
2+	165	24.8 (18.9, 31.9)	3.4 (1.4, 7.7)	6.4 (3.0, 13.2)	2.4 (0.9, 6.3)	6.2 (4.7, 8.1)	2.1 (1.4, 3.1)
Any nonmonogamous partnerships[†]	249	23.5 (16.3, 32.6)	23.4 (16.8, 31.6)	10.9 (5.8, 19.8	9.0 (5.9, 13.5)	9.1 (6.6, 12.5)	7.4 (5.7, 9.6)
Any overlapping/concurrent partners	96	13.5 (9.1, 19.6)	3.0 (1.2, 7.4)	3.4 (1.6, 7.1)	1.4 (0.2, 9.9)	3.8 (2.8, 5.3)	0.9 (0.5, 1.8)
Any nonmonogamous partners	170	12.0 (6.7, 20.5)	22.0 (15.4, 30.5)	7.8 (3.8, 15.2)	7.5 (5.3, 10.5)	5.4 (3.3, 8.9)	6.6 (5.0, 8.6)

*Race or ethnic group was determined on the basis of the questions "Do you consider yourself primarily white or Caucasian, black or African American, American Indian, Asian, or something else?" and "Do you consider yourself Hispanic or Latino?"
[†]Nonmonogamous partnerships refers to individuals reporting having in the past 5 years either overlapping/concurrent partnerships themselves or partnerships with people who also had other partners at the same time.
OR indicates odds ratio; CI, confidence interval.
[‡]Mean score reported on a scale ranging from 1 (strongly disagree) to 4 (strongly agree).
[§]Mean score across 3 items reported on a scale ranging from 1 (always wrong) to 4 (not wrong at all).

divorce. Across races, women spend larger proportions of their single adult life as divorced or widowed women than do men. Black men spent 1.3 years of the prior 5 years single compared with less than 0.8 years single for white and Hispanic men. Black women spent 2.7 years single compared with less than 2 years for white and Hispanic women (Table 2).

Multivariate Associations With Nonmonogamous Partnerships

Table 3 presents age-adjusted and multiple logistic regression results examining correlates of nonmonogamous partnerships among participants with at least one sexual partner in the prior 5

TABLE 2. Age-Adjusted Population Distributions of Marital Status and History by Gender and Race/Ethnicity* (Percentages and Approximate 95% Confidence Intervals), NSHAP 2005–2006

	Black, Non-Hispanic % (95% CI)	Hispanic % (95% CI)	White, Non-Hispanic % (95% CI)	B/W Ratio	H/W Ratio
Men					
Current marital status					
Married	66.4 (56.9, 74.8)	81.4 (73.9, 87.1)	81.3 (78.3, 84.0)	0.82	1.00
Living with a partner	1.2 (0.24, 5.9)	1.4 (0.4, 4.8)	2.0 (1.2, 3.1)	0.60	0.70
Separated or divorced	17.4 (12.5, 23.8)	8.2 (4.3, 15.2)	8.1 (6.5, 10.2)	2.15	1.01
Widowed	12.7 (8.4, 18.6)	7.5 (4.8, 11.7)	7.6 (6.3, 9.1)	1.67	0.99
Never married and not cohabiting	2.3 (1.1, 4.8)	1.4 (0.4, 4.4)	1.0 (0.4, 2.1)	2.30	1.40
No. marriages in lifetime					
0	2.3 (1.1, 4.8)	1.4 (0.4, 4.4)	1.1 (0.5, 2.3)	2.09	1.40
1	65.6 (57.2, 73.1)	71.2 (62.3, 78.7)	64.3 (60.0, 68.4)	1.02	1.11
2–3	29.6 (22.5, 37.8)	27.4 (20.3, 35.9)	31.9 (28.2, 35.9)	0.93	0.86
4+	2.5 (1.2, 5.3)	0	2.6 (1.5, 4.5)	0.96	—
Percent of adult lifetime spent single (unmarried/noncohabiting)	27.0 (22.0, 32.1)	22.4 (18.9, 26.0)	19.0 (17.7, 20.2)	1.42	1.18
% of single adult lifetime attributable to					
Premarriage	67.4 (61.6, 73.2)	77.0 (70.8, 83.6)	74.7 (71.1, 78.4)	0.90	1.03
Divorce or separation	24.5 (19.8, 29.2)	17.4 (10.6, 24.1)	20.1 (16.3, 23.9)	1.20	0.85
Widowhood	8.6 (4.8, 12.5)	5.6 (3.2, 8.0)	5.5 (4.6, 6.4)	1.56	1.02
% of the last 5 y spent single (unmarried/noncohabiting)	26.2 (18.3, 34.2)	15.8 (10.2, 21.4)	13.9 (11.8, 16.0)	1.88	1.14

	Black % (95% CI)	Hispanic % (95% CI)	White % (95% CI)		
Women					
Current marital status					
Married	39.8 (32.4, 47.8)	51.9 (44.3, 59.4)	59.4 (56.7, 62.0)	0.67	0.87
Living with a partner	1.6 (0.67, 4.03)	2.9 (1.4, 5.7)	2.4 (1.4, 4.0)	0.67	1.21
Separated or divorced	21.0 (16.9, 25.7)	15.1 (9.3, 23.5)	12.5 (10.2, 15.2)	1.68	1.21
Widowed	32.7 (25.9, 40.4)	28.4 (18.5, 40.8)	25.1 (22.5, 27.9)	1.30	1.13
Never married and not cohabiting	4.8 (3.0, 7.8)	1.8 (0.44, 7.1)	0.70 (0.25, 1.93)	6.86	2.57
No. marriages in lifetime					
0	5.6 (3.6, 8.7)	2.7 (0.78, 9.1)	0.70 (0.25, 1.93)	8.00	3.86
1	68.1 (62.5, 73.2)	72.6 (55.7, 84.8)	71.2 (68.2, 73.9)	0.96	1.02
2–3	25.4 (21.2, 30.2)	24.7 (13.6, 40.4)	24.9 (22.2, 27.8)	1.02	0.99
4+	0.86 (0.21, 3.5)	0.0	3.3 (2.1, 5.0)	0.26	—
Adult lifetime spent single % of single adult lifetime attributable to	34.6 (30.9, 38.2)	27.3 (23.9, 30.7)	22.4 (21.0, 23.8)	1.54	1.22
Premarriage	39.1 (32.4, 45.8)	56.6 (49.5, 63.7)	54.2 (50.8, 57.6)	0.72	1.04
Divorce or separation	31.8 (25.2, 38.3)	22.0 (11.0, 33.1)	24.5 (21.0, 27.9)	1.30	0.90
Widowhood	29.5 (22.2, 36.8)	21.8 (13.6, 29.9)	21.4 (19.2, 23.7)	1.38	1.02
% of last 5 y spent single (unmarried/noncohabiting)	54.3 (47.7, 60.9)	39.3 (32.8, 45.8)	34.9 (32.6, 37.2)	1.56	1.13

*Race or ethnic group was determined on the basis of the questions "Do you consider yourself primarily white or Caucasian, black or African American, American Indian, Asian, or something else?" and "Do you consider yourself Hispanic or Latino?"

years. The number of recent years spent single was positively associated with nonmonogamous partnerships in both genders (odds ratios [ORs] = 1.68, 95% CI: 1.48, 1.90 and OR = 1.26, 95% CI: 1.08, 1.46, respectively). When, in sensitivity analyses, we treated all those answering "don't know" or "refused" to questions regarding the respondents' sexual partner's activities with another partner as "Yeses," the associations of years spent single with nonmonogamous partnerships changed little (OR for men = 1.68, 95% CI: 1.50, 1.89; OR for women = 1.21, 95% CI: 1.08, 1.36). After control for time spent single and the other covariates, the ORs associated with black race decreased among men from 2.97 to 2.04 (95% CI: 1.05, 3.95), but increased among women from 3.14 to 5.63 (95% CI: 3.11, 10.17).

HIV Testing

Across racial groups, fewer than 20% of respondents had ever been tested for HIV and fewer than 6% had ever

been recommended HIV testing (Table 4). Medical providers were more likely to have recommended testing to blacks but not to whites who reported nonmonogamous partnerships. Actual HIV test rates showed almost no association with nonmonogamous partnerships for either group. Having tested for HIV was most common among black men (26.4%) and least common among black and Hispanic women (11.5% and 10.8%). Overall testing rates were somewhat higher among white men (18.4%) than white women (14.4%). Sparse data limit gender comparisons among Hispanics.

DISCUSSION

In this study, marital histories and the frequency of potentially risky relationships differ substantially by race/ethnicity in older adults. Both nonmonogamous partnerships and time spent single are highest among non-Hispanic blacks and

TABLE 3. Age- and Multivariate-Adjusted Prevalence Odds Ratios (ORs) for Nonmonogamous Partnerships in the Past 5 y in Sexually Active Older Males and Females, NSHAP 2005–2006

	Male OR (95% CI)	Female OR (95% CI)
Age-adjusted associations		
Race/ethnicity* (referent = white, non-Hispanic)		
Black, non-Hispanic	2.97 (1.88, 4.69)	3.14 (2.04, 4.84)
Hispanic	1.09 (0.57, 2.10)	1.45 (0.87, 2.44)
Multivariate-adjusted associations		
No. the last 5 y spent single (referent = 1 y change)	1.68 (1.48, 1.90)	1.26 (1.08, 1.46)
Racial/ethnic group (referent = white, non-Hispanic)		
Black, non-Hispanic	2.04 (1.05, 3.95)	5.63 (3.11, 10.17)
Hispanic	1.07 (0.41, 2.74)	1.19 (0.65, 2.18)
Education (referent = less than high school)		
High school	0.75 (0.41, 1.35)	0.86 (0.39, 1.93)
Certificate/some college	0.88 (0.48, 1.61)	0.92 (0.41, 2.05)
Bachelor's degree or higher	0.93 (0.40, 2.15)	0.64 (0.27, 1.50)
Self-rated health (referent = fair/poor)		
Good	0.34 (0.17, 0.69)	0.75 (0.44, 1.27)
Very good/excellent	0.34 (0.15, 0.79)	0.92 (0.56, 1.50)
Importance of sex (Ref = 1 unit change)	1.40 (1.13, 1.73)	0.96 (0.77, 1.19)

*Race or ethnic group was determined on the basis of the questions "Do you consider yourself primarily white or white, black, or African-American, American Indian, Asian, or something else?" and "Do you consider yourself Hispanic or Latino?"
CI indicates confidence interval.

The bivariate associations of attitudes regarding sexual infidelity with race do not support that attitudinal differences account for the observed racial differences in partnership patterns. Instead, it is possible that the factors contributing to nonmarriage and delayed marriage among younger blacks also contribute to marital instability and infidelity among older heterosexual black couples. These are thought to include high rates of male incarceration that disrupt relationships,[29,30] imbalances in the ratios of men to women that may discourage fidelity among black men,[31] un/underemployment of black men, and a greater tendency for black men than black women to partner with other race/ethnicities—resulting in an even smaller pool of available male partners for black women.[32] The greater imbalance in the number of older women to men among blacks than among whites or Hispanics is caused by racial and gender disparities in disease and injury that lead to increased mortality in black men compared to both black women and to men of other race/ethnicities.[11,29] Hence, reductions in the gender/race disparities in life expectancies may not only reduce sex-ratio imbalances but also lower racial disparities in risky relationship patterns in older adults.

This study has several limitations. Although these analyses are based on events occurring over time, the data were collected cross-sectionally and through self-report. Some participants may have been unable to recall accurately all sexual partnerships in the last 5 years or the dates for first and last sex, marriage/cohabitation, divorce/separation, and widowhood. Others may have been unwilling to report having a nonmonogamous partner. To address the latter, we conducted sensitivity analyses, treating as yeses those responding don't know or refused to the question partner infidelity. The resulting multivariate estimates differed little from when these responses were treated as missing. Finally, because sex itself was defined so broadly, some respondents may have included partners with whom they had only engaged in activities posing little-to-no HIV/STD risk. Nevertheless, just 4.6% of NSHAP respondents who reported sexual activity in the prior 12 months, reported never engaging in vaginal intercourse during the time period. Despite these limitations, the NSHAP data provide rare nationally representative data on sexual risk behaviors in a growing at-risk population, making the findings an important addition to the literature on health disparities and HIV/STD risk in older adults.

Our findings point to an important and potentially growing concern for the population, more and more of whom will spend significant periods of their adult lives single. Taboos and misconceptions about later life sexuality may lead health care providers to assume that older people are not at risk, and hence to not consider HIV/STDs in their differential diagnoses or discuss preventive measures and HIV screening with them.[33,34] Older adults are unlikely to have received comprehensive sexual education or risk-reduction training during their formative years and now may lack the skills to practice safer sex or the risk perception to seek out HIV testing.[35,36] The higher rates of illicit drug use in recent than in earlier cohorts of older persons[37] and the small numbers of prevention programs targeting older people[38,39] may also further contribute to increased HIV/STD risk among each "new generation" of older people. Together, these factors highlight the need for increased and tailored services. Our finding that older blacks had fairly low HIV testing rates (although greater than that of whites) is also cause for concern. Although testing rates may increase with Centers for Disease Control and Prevention's current guidelines that health care settings routinely offer opt-out HIV testing to patients ages 13 to 64 years,[40] significant barriers to widespread

lowest among non-Hispanic whites. The greater frequency of multiple and new sex partners among blacks than whites or Hispanics is a further indicator of potentially heightened HIV/STD risk in this subpopulation. This is particularly true for black men who report the highest frequencies of both. Although black men are more likely than other race/gender groups to report having tested for HIV or been recommended an HIV test, testing rates are low across all subgroups, including black men who report nonmonogamous partnerships.

Consistent with research by Adimora et al.,[6,8] we hypothesized that the higher rates of nonmonogamy among blacks would be partially explained by their greater likelihood of not being in a committed relationship for all or part of the assessment period. However, when we controlled for the number of years spent single, attenuation was only observed in the ORs associated with race for males. Conversely, the ORs comparing sexually active black with sexually active white females increased. Given that the nonmonogamous partnerships reported by black females were largely attributed to partner infidelity, it is possible that those black females who spent less time single and more time married had a greater opportunity to either experience or discover partner infidelity.

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TABLE 4. Population Distributions of Being Recommended for and of Having Received an HIV Test by Race/Ethnicity*, Gender, and Self-Reported Nonmonogamous Partnerships Among Sexually Active Older Adults, NSHAP 2005–2006

	Race/Ethnicity	Male Reported NM Partnerships?		Female Reported NM Partnerships?		Total Overall (% Yes)
		Yes	No	Yes	No	
Medical provider ever	Black	18.7 (7.0, 41.3)	1.7 (0.4, 6.4)	5.1 (1.0, 22.3)	2.6 (0.8, 7.8)	4.2 (2.4, 7.0)
recommended an HIV	Hispanic	0[†]	3.1 (0.9, 10.2)	[‡]	6.3 (2.1, 17.3)	5.3 (2.1, 12.7)
test (% yes)	White	2.7 (0.6, 11.0)	2.4 (1.4, 4.0)	1.8 (0.2, 13.4)	2.3 (1.2, 4.3)	2.3 (1.7, 3.2)
	Overall	5.1 (2.1, 11.9)	2.4 (1.5, 3.8)	3.8 (1.2, 11.3)	2.6 (1.6, 4.0)	2.7 (2.0, 3.5)
Ever tested for HIV (% yes)	Black	24.0 (9.6, 48.5)	27.1 (11.3, 51.8)	13.4 (4.2, 35.4)	10.8 (6.8, 16.9)	18.2 (10.8, 29.1)
	Hispanic	0[†]	18.5 (7.8, 37.7)	[‡]	9.4 (3.8, 21.6)	13.7 (6.7, 25.9)
	White	16.4 (8.3, 30.0)	18.6 (15.5, 22.1)	16.4 (7.5, 32.1)	14.2 (11.0, 18.2)	16.4 (14.3, 18.8)
	Overall	16.3 (9.0, 27.7)	19.1 (16.1, 22.4)	16.4 (8.6, 29.0)	13.7 (10.9, 17.1)	16.4 (14.0, 19.0)

*Race or ethnic group was determined on the basis of the questions "Do you consider yourself primarily white or Caucasian, black or African American, American Indian, Asian, or something else?" and "Do you consider yourself Hispanic or Latino?"
[†]Based on fewer than 20 responses.
[‡]Based on fewer than 6 responses.

implementation of these guidelines exists.[41–44] Furthermore, potentially at-risk adults ages 65 years and older may still be missed. Given the differential impact of divorce/separation and partner death among black couples and the greater prevalence of nonmonogamous partnerships, training and resources for enhancing the ability of providers to effectively offer HIV testing to older populations should particularly target those serving significant numbers of older black patients.

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