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Sexually Transmitted Disease, Human Immunodeficiency Virus, and Pregnancy Testing Behaviors Among Internet and Mobile Dating Application Users and Nonusers, 2016

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Abstract

We examined 2016 United States market research to understand the demographics and sexual health testing behaviors of dating app users. Internet/app users were more likely to be young adults, male, nonwhite, of Hispanic ethnicity, and unmarried. Users also reported greater testing for sexually transmitted disease, human immunodeficiency virus, and pregnancy.

The popularity of Internet websites and geosocial networking mobile applications designed to facilitate sexual and romantic relationships has grown steadily. A 2009 US survey showed a sharp increase in the proportion of heterosexual respondents reporting that they met their current partners online, from almost none in the 1990s to approximately 20%.[1] A nationally representative survey showed more than one third of respondents married between 2005 and 2012 reported meeting their spouses online.[2] In 2015, 15% of American adults reported having used an online dating site or app, up from 11% in 2013.[3] The largest increases were seen among the oldest (55–64 years) and youngest (18–24 years) age groups, at 2- and 3-fold jumps, respectively.

Use of dating sites to seek sex has been well documented among men who have sex with men and is associated with sexually transmitted disease (STD)/human immunodeficiency virus (HIV) risk.[4,5] A recent systematic review found mixed associations between online dating patterns and condom use and sexually transmitted infection status among heterosexuals in the 25 studies assessed.[6] Associations between online dating and STD/HIV

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testing behaviors were not assessed. In this article, we use market survey data to de- scribe STD, HIV, and pregnancy testing behaviors of US adults who report using the Internet/apps for dating (dating app use).

METHODS

We analyzed data from the Scarborough/MARS Healthcare Module.[7] Market research surveys differ from typical public health surveys in that they are designed to gather patterns of individuals' preferences about products rather than to characterize a population or a pattern of behaviors.[8] Market surveys thus often have strong data on populations (albeit sometimes defined differently from those pertinent to STD research), but might not sample across domains of behavior favored in public health research.

The module in these analyses contains data from 2 market research data sets, the Nielsen Company's Scarborough USA and Kantar Media's Multi-Market (MARS) Consumer Healthcare study, Release 1 (February 2015 to April 2016). Data elements from these 2 surveys are combined to make a single dataset, which is weighted and projected to population numbers across the sampled markets. Respondents are 18 years or older. Scarborough data are collected on a continuous basis (48 weeks annually) through random digit dialing; respondents complete a 16-minute telephone interview and survey booklet (with online and mail-in options). The data release comprises a 12-month rolling average and is based on responses from adults in "markets" (selected cities, towns and metropolitan statistical areas) across the United States, including the option of Spanish-language questionnaires in markets where 7.5% or more of the population identify as Hispanic (or if the market area is estimated to have >250,000 people identifying as His- panic). Variables used to weight the data include geography, household size, education, age within gender, race, and Hispanic ethnicity. The MARS data are collected annually, January through March, through a random sample of adults who are mailed or emailed a survey booklet of over 2000 English-only, health behavior and attitude questions.

In this module, 199,308 responses were received, weighted, combined across datasets, and projected to a 2016 U.S. adult population of 197,150,967 people (approximately 80% of the adult US population in 2016). We compared respondents who reported using the Internet/ apps for dating/personal ads in the past 30 days ("users") to those who did not ("nonusers") on demographic variables and STD, HIV, and pregnancy testing practices in the past year.

Analyses

Numeric values in the first row of the table represent population projections. Because Scarborough/MARS data releases reflect population projections, they do not include estimates of variance. Therefore, we could not calculate inferential statistics and confidence intervals. We were further limited to bivariate comparisons (eg, we could look at dating app use separately by age and by gender, but not by age and gender together). Percentages, both as proportions of people using or not using dating apps and as proportions of the projected population, are reported in the results and interpreted in the discussion. When comparing users to nonusers, we report the prevalence ratios (PR).

RESULTS

Dating App Use

Of the 197 million people in the projected sample, 12,184,354(6.2%; 7.0% men; 5.3% women) reported using dating apps in the past 30 days. Rates of dating app use declined with age from 11.4% for 18 to 24 years to 1.5% among those older than 65 years (Table 1). Never-married individuals (11.5%) and separated/divorced individuals (8.4%) reported more dating app use than did married or widowed individuals (both 2.9%). White respondents reported the lowest amount of dating app use at 5.5%, compared with 8.2% to 8.7% of the respondents in the remaining race categories. Respondents reporting Hispanic ethnicity (10.7%) were more likely to report dating app use than non-Hispanic respondents (5.3%).

With respect to the demographic composition of dating app users, 23.4% were between 18 and 24 years, and just over half (50.3%) were younger than 35 years. Although Hispanic or non- white respondents were overrepresented among dating app users, the majority of app users were white and non-Hispanic (67.8%). Finally, among those reporting dating app use, 57.3% had never been married, and 23.8% were married at the time of use. The remainder were separated/divorced (15.7%) or widowed (3.1%).

STD and HIV Testing

Overall, 6.5% of users had been tested for STDs in the past year compared with 4.0% of nonusers (PR = 1.64). Users also reported higher rates of HIV testing (5.9% vs. 3.8%; PR = 1.54). Among 18- to 24-year-olds, however, STD and HIV testing was 14% to 16% *less* common among users, compared to nonusers. Thereafter, dating app users appear more likely to report testing for STD and HIV, with the PRs increasing by age category. Dating app users were more likely than nonusers to report STD and HIV testing in most demographic categories, except Hispanic users tested for STD at similar rates to nonusers (4.9% vs 4.7%), as did Asian American respondents for HIV (3.6% vs 3.8%). Testing rates among never-married respondents did not differ greatly by dating app use (PR = 1.08 STD testing; 1.16 HIV testing).

The STD testing rates were lower for married users (4.5%) than for never-married users (8.1%). Separated/divorced users reported similarly low rates of STD (4.2%) and HIV (4.7%) testing. Prevalence ratios were similar for STD and HIV testing, diverging substantially only for Asian respondents (1.54 vs 0.96).

Pregnancy Testing

Overall, women using dating apps were more likely than nonusers to take pregnancy tests in the past year (PR = 1.57). This overall ratio was reflected among race and ethnicity categories in that women using dating apps were more likely than nonusers to take pregnancy tests. Asian American women were an exception to this pattern, and we found more variation among age categories. Married women using dating apps were almost twice as likely as nonusers to take pregnancy tests (PR = 1.91).

DISCUSSION

During 2015 to 2016, we estimated that 6.2% of adult Americans (over 12 million individuals from all segments of the population) reported using dating apps in the past 30 days. Compared with others, a greater proportion of users were younger and had never been married, which aligns with the ubiquity of technology use among youth and the sexual or romantic purposes of dating apps. Dating app users were also disproportionately male and non- white (although white respondents were the largest racial group among users and nonusers) and almost twice as likely to report Hispanic origin as nonusers. Our conclusions about app use are limited by lack of multivariate analyses to adjust for confounding. For example, if white respondents tended to be older than others, their app use rates could be lower for this reason. Additionally, due to limitations of the Scarborough/MARS data, we were unable to look at certain variables such as sexual orientation status, number of sexual partners, and which dating sites/apps users visited. Further, STD, HIV, and pregnancy testing were all self-reported which may underrepresent true rates among the population.

Overall, those who used online dating sites or apps were more likely to report STD, HIV, and pregnancy testing (among women) in the past year compared to nonusers. Overall, however, only about 1 in 15 app users had been tested, and 1 in 12 18–24 year olds. For many groups, STD testing rates might be this low because testing is not routinely recommended or because the respondent is not sexually active. Among sexually active youth, however, there is acknowledged benefit in STD screening, including recommendations for annual chlamydia and gonorrhea screening among females younger than 25 years.[9] Our finding that STD testing was actually lower among the youngest app users suggests testing patterns might be misaligned with sexual behavior rates (if 18- to 24-year-old app users are more likely to be sexually active than other 18- to 24-year olds). A similar point applies to HIV testing.

Three other points apply to STD, HIV, and pregnancy risk. First, we do not know that all people using dating apps were sexually active, seeking sex or taking risks. Second, married people comprised almost a quarter of app users and were less likely to report STD testing than were their nonmarried counterparts. Married users might have a privacy concern that constrains their willingness to get tested. Lack of testing could increase their vulnerability and risk of transmission to the extent dating app use is skewed to seeking sex. In contrast, married women using dating apps were the most likely of any group to test for pregnancy, which can be done privately. Third, low rates of testing among separated/divorced users might represent some risk among an older population “reemerging” into the dating environment.[10]

Use of technology to find sex and romantic partners will plausibly continue to grow as technology becomes easier to use and social norms more permissive. Market research data cannot provide comprehensive answers to questions of use and risk; however, studies combining the scope of these data with motivations for use, sex behaviors, and sexual health outcomes would provide a better understanding of dating site and app use. Such studies could help shape future prevention efforts.

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TABLE 1.

STD, HIV, and Pregnancy Testing Behaviors Among Dating App Users and Nonusers, 2015–2016

	Demographic Data		STD Test (Past Year)			HIV Test (Past Year)			Pregnancy Test (Past Year)*		
	Dating App Users	Nonusers	Dating App Users	Nonusers	PR	Dating App Users	Nonusers	PR	Dating App Users	Nonusers	PR
N (projected)	12,184,354	184,966,608	790,472	7,330,232		719,917	7,109,289		481,469	5,387,668	
% Respondents	6.2	93.8	6.5	4.0	1.64	5.9	3.8	1.54	8.8	5.6	1.57
Gender											
Female	5.4	94.6	8.0	4.8	1.68	6.4	3.4	1.89	8.8	5.6	1.57
Male	7.0	93.0	5.3	3.1	1.70	5.5	4.3	1.27	na	na	na
Age, y											
18–24	11.4	88.6	8.5	10.1	0.84	4.9	5.7	0.86	15.8	15.3	1.03
25–34	9.6	90.4	8.7	7.4	1.18	6.8	5.9	1.14	13.4	16.4	0.82
35–44	7.6	92.4	6.1	4.2	1.46	6.8	4.7	1.43	6.7	5.6	1.19
45–54	5.5	94.5	3.5	2.5	1.39	5.6	3.6	1.58	1.6	1.3	1.22
55–64	3.3	96.7	3.1	1.5	2.08	5.4	2.8	1.94	1.0	0.4	2.65
65+	1.5	98.6	1.6	0.6	2.61	4.1	1.4	2.90	na	na	na
Marital status											
Never married	11.5	88.5	8.1	7.5	1.08	6.5	5.6	1.16	9.8	8.7	1.12
Married	2.9	97.1	4.5	2.5	1.80	5.2	3.2	1.66	11.0	5.8	1.91
Legally separated or divorced	8.4	91.6	4.2	3.3	1.25	4.7	3.6	1.31	4.5	2.6	1.72
Widowed	2.9	97.1	3.3	1.1	2.83	5.2	1.8	2.83	0.3	0.3	0.98
Race											
Asian	8.5	91.5	8.9	5.8	1.54	3.6	3.8	0.96	0.9	7.7	0.11
Black non-Hispanic	8.7	91.3	9.2	6.7	1.37	8.4	6.5	1.28	9.9	6.2	1.59
White non-Hispanic	5.5	94.5	5.6	3.4	1.67	5.3	3.3	1.58	8.7	5.3	1.64
Other	8.2	91.8	6.8	5.2	1.31	7.3	5.0	1.44	10.6	7.7	1.38
Hispanic origin											
Yes	10.7	89.3	4.9	4.7	1.04	6.8	5.1	1.33	10.4	7.4	1.40
No	5.3	94.7	7.2	3.8	1.87	5.5	3.6	1.54	8.0	5.3	1.52

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Figures in the first 2 columns represent the demographic composition of the projected sample (eg, 5.4% of all female respondents used dating apps in the past 30 days). Figures in the remaining columns represent the proportion of respondents using or not using dating apps who took an STD, HIVor pregnancy test along with the PR based on nonusers in the denominator (eg, 6.5% of dating app users took an STD test in the past 12 months).

*Projections from female respondents only. Overall projected N for females is 101,417,860.