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Gender Differences in Sexual Health Knowledge Among Emerging Adults in Acute-Care Settings

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Abstract

Context: Emerging adults (aged 18–25 years) are increasingly seeking evaluation in acute-care clinics for sexual health–related concerns to receive treatment and education.

Objective: To assess the sexual health knowledge of emerging adult patients by gender at acute-care health centers.

Methods: A prospective, self-administered survey was distributed from August 2014 through May 2016 to patients aged 18 to 24 years who presented to 1 of 4 acute-care locations in a university town in a mid-Atlantic state. Analyses included descriptive statistics, as well as χ^2 and Fisher exact test crosstabulations to determine differences between genders.

Results: A total of 388 patients aged 18 to 24 years responded to the survey, with 81% of the sample identifying themselves as students and 64% identifying as female. Women were more likely than men to state that they sought sexual health advice at an urgent-care or walk-in clinic (70.3% vs 52.1%; $P<.05$). Human papillomavirus knowledge among women was significantly greater than among men ($P<.0001$). Open-ended responses were widespread and often incorrect, specifically with regard to the human papillomavirus vaccine and routine testing for sexually transmitted infections.

Conclusion: Women were more knowledgeable about sexual health than men. However, both genders were not as knowledgeable overall on sexual health topics as hypothesized. A stronger emphasis on gender-specific programming for sexual health education via community- and school-based programs throughout adolescence, supplemented with greater emphasis on routine preventive health care during adolescence and emerging adulthood, is encouraged.

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Author Contributions

All authors provided substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data; all authors drafted the article or revised it critically for important intellectual content; all authors gave final approval of the version of the article to be published; and all authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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Keywords

sexual health; sexually transmitted disease; sexually transmitted infection

Sexual health knowledge can have a significant impact on health care-seeking behaviors of adults. The period of life known as *emerging adulthood*—defined as the time between 18 and 25 years of age—is a transitional phase of development when young people typically move from being under the care and guidance of their parents to college or employment.¹ For many individuals, emerging adulthood is a time when they begin to take responsibility for their own health; however, this stage also coincides with a peak in risky behaviors.^{2–4} These behaviors include unprotected sex, engaging in substance use or abuse, and risky driving behaviors, such as driving at high speeds or driving while intoxicated.^{3,4} Approximately 39% of high schoolers report ever having sexual intercourse.⁵ Emerging adult populations who are sexually active are at risk for a variety of sexually transmitted infections (STIs), such as chlamydia, gonorrhea, and syphilis. The CDC estimates that persons aged 15 to 24 years make up just over one-fourth of the sexually active population; however, only 50% report being tested for STIs, even though they account for half of the 20 million new STIs that occur in the United States each year.⁶ The rate of STIs in the United States has increased exponentially from 2013 to 2017.⁷ Reported cases of chlamydia, gonorrhea, and primary and secondary syphilis increased for both sexes in persons aged 15 to 19 years and persons aged 20 to 24 years from 2012 to 2016.⁸ The latest data showed the highest rates of infection ever recorded. In a press release by the CDC, preliminary data show that the number of diagnoses of chlamydia, gonorrhea, and syphilis were collectively up 31% in 2017, and there is concern that gonorrhea is increasingly resistant to antibiotics.⁸

Emerging adults are considered an at-risk population that has historically had the least health care use, and before implementation of the Patient Protection and Affordable Care Act of 2010, this age group had the least health care insurance coverage.² Because emerging adults tend to have less chronic health conditions than older populations, they may be more likely to receive care at acute-care clinics than at a primary care physician's office when using health care services.⁹ Studies have demonstrated that a greater proportion of ambulatory care for emerging adults was delivered in emergency departments, less care was delivered to men than to women, and an even smaller proportion of care was covered by private health insurance.¹⁰ From 2010–2014, a 2.5-fold increase was estimated for visits to urgent care clinics, with a significant increase in STI testing and diagnoses.¹¹ This trend may result in walk-in and urgent care clinicians shouldering the burden of preventive health education, coupled with the provision of acute care for presenting illnesses or injuries during short office visits. The lack of clear preventive care guidelines for patients older than 21 years, other than the American Congress of Obstetricians and Gynecologists (ACOG) Guidelines for young women, is also problematic.¹² Additionally, the United States Preventive Services Task Force has frequently updated its guidelines, with the most recent guideline published in 2018.¹³ Without clear guidelines for emerging adult patients and their physicians, it is possible that these patients are a population with multiple missed opportunities for care.

Additional disparities in health care-seeking behaviors, especially for sexual and reproductive health issues, may exist among genders. Prior literature has shown that women seek preventive medical care more often than men.¹⁴ Emerging adult men are more likely than emerging adult women to report no contact with a health care professional and lack an established source of care.² However, it is unclear whether seeking preventive care correlates with increased medical knowledge and improved health outcomes.¹⁴

If differences in sexual health knowledge and practices exist across genders, this discrepancy may necessitate additional education for emerging adults, especially during their walk-in acute visits. This intervention has the potential to combine preventive medicine with tertiary care, leading to improved patient outcomes in emerging adults' future overall health, in addition to their sexual and reproductive health. Therefore, the purpose of this study was to assess sexual health knowledge of emerging adult patients at acute-care health centers by gender.

Methods

Study Design

We distributed a self-administered survey from August 2014 to May 2016 to patients aged 18 to 24 years who presented to 1 of 4 academic clinical locations in a university town in a mid-Atlantic state: an affiliated hospital emergency department (ED), 2 urgent-care walk-in clinic, and a student health services clinic. This study was reviewed and approved by the university's institutional review board, and written informed consent was obtained from each patient prior to completion of their survey.

Student research assistants enrolled in a university-based public health course available to both undergraduate- and graduate-level students distributed surveys at all 4 locations. Research assistants were responsible for collecting data in 3-hour shifts at the locations and worked closely with nursing staff, advanced practice providers, and physicians to identify eligible patients for the study.

Patients were approached by research assistants in the privacy of their examination rooms before provider evaluation and treatment, while waiting for test results, or before subsequent discharge. On completion, patients were asked to place the survey in a sealed envelope, which was collected by the research assistants to maintain the confidentiality of their responses.

Measurement

The survey was composed of questions related to sexual health knowledge and sexual health behaviors. For the purposes of this study, we focused solely on the knowledge-related questions and their supplemental open-ended questions. Initial demographic questions on the survey asked participants to report their date of birth, gender (female; male; transgender; I prefer not to answer), race, current marital status, highest level of education completed, current employment status, annual household income, and health care location typically sought for medical advice.

Questions regarding sexual health knowledge were adapted from various sources; we used the University of Florida's "GatorWell" health promotion survey, a publically available college health survey, as well as the American College Health Association's annual survey.^{15,16} Sexual health knowledge questions were in the form of statements with yes/no response choices on topics related to STIs, HIV transmission, condom use, birth control, and contraception. We also developed open-ended questions, asking participants to report their knowledge on what a Papanicolaou (pap) test assesses, what the human papillomavirus (HPV) vaccine prevents, how often men and women should do self-testicular and self-breast examinations, and what STIs are tested for during a routine examination.

Statistical Analysis

Descriptive statistics were calculated for all variables relating to demographics and yes/no sexual health knowledge questions. The Fisher exact test was administered to test the association between categorical variables by gender; when the expected sample sizes were large enough, the χ^2 test was used. Differences were considered to be statistically significant at $P < .05$. All analyses were conducted using SUDAAN (Research Triangle Institute) and SAS (IBM) software. Responses to open-ended questions were analyzed using conventional content analysis wherein text responses were coded and then grouped into categories and eventually into emergent themes for each question.

Results

Demographics

From August 2014 through May 2016, a total of 546 patients aged 18 to 24 years were approached by student research assistants at 1 of the 4 clinic locations, 420 (77%) of whom agreed to participate. Of these 420 patients, 32 surveys had less than 50% completion and were thus insufficient for analyses and removed from the sample. The final number of participants included in the analyses was 388 (87%). Surveys were completed at 1 of the 3 ambulatory clinics, with the remainder completed at the ED. Most participants (316 [81%]) identified themselves as students and as white/non-Hispanic (351 [90%]; Table 1). The survey provided an option to self-report other gender identification; however, no participants identified themselves as other than male or female.

Gender Differences

Women represented approximately 64% of the sample ($n=246$). More women (173 [70%]) reported seeking health care advice at an urgent-care or walk-in clinic compared with men (74 [52%]); however, about half of participants representing either gender (approximately 49% men vs 51% women) stated that they would additionally seek this advice from a physician's office (Table 1).

Overall, women were significantly more likely to answer questions about sexual health knowledge accurately compared with men. Table 2 presents survey questions that resulted in statistically significant differences between male and female patients' accurate knowledge of sexual health. Knowledge of HPV among women was significantly higher than among men ($P < .0001$).

Table 3 displays the open-ended survey questions and categorized participant responses. Fifteen men (10.6%) and 56 women (22.8%) knew that a Pap test tests for cervical cancer. Twenty-seven men (19.0%) and 140 women (56.9%) knew that Gardasil (Merck Sharp & Dohme Corp) prevents HPV. There was a wide distribution of answers from both genders regarding what STIs are tested for during a routine test: 51.6% of women (n=127) responded that this test included chlamydia compared with 38.0% of men (n=54). Chlamydia was the most frequently reported STI for this question. About 16% of men (n=23) answered “I don’t know” to this question, compared with about 10% of women (n=24).

Discussion

This study found that emerging adult women were more knowledgeable about certain sexual health issues than their male counterparts. They also reported presenting in significant numbers to urgent-care locations for health evaluation, as opposed to scheduling primary care preventive appointments. Women were more knowledgeable about HPV when compared with men, leading to increased knowledge related to routine Pap tests and prophylactic vaccination. They also were more familiar with routine STI screening guidelines and hormonal birth control options, perhaps stemming from experiences with routine gynecologic visits. The current lack of specific male-directed guidelines may also have accounted for the difference.

The demographic breakdown of the survey respondents in the sample was similar to what has been reported in other large-scale college health surveys, with most participants being white female students who reported heterosexual orientation.¹⁵ When examining the sexual health knowledge questions, women in both our survey and the GatorWell survey were more likely to answer correctly compared with male respondents.¹⁵

Participant responses to the open-ended questions provide further insight into the sexual health knowledge of this emerging adult sample. When asked what a Pap test tests for, a substantial proportion of male respondents (61 [43%]) stated that they did not know, and less than one-fourth of female respondents incorrectly answered “STIs.” However, more consistent, yet incorrect, responses came from women with regard to how frequently women should undergo a Pap test. This lack of knowledge could be due to frequent changes in recommendations from ACOG and the United States Preventive Services Task Force, first noted in 2003, leading to female patients not seeking up-to-date information on the most recent guidelines.¹⁴ If women are unsure of what sexual health screenings and tests are recommended, as well as the timing of these recommendations, it is possible that they may not schedule or attend appointments as a result.

A total of 140 women (57%) and 27 men (19%) were able to correctly identify that the HPV vaccine, Gardasil, prevents HPV. This finding is particularly concerning because of the ongoing efforts of health care professionals and public health programs to provide education on this topic. Both genders also believed that self-breast and self-testicular examinations should occur monthly, even though these self-examinations are no longer recommended; however, physicians do routinely encourage patients to become familiar with their bodies so they will recognize any acute changes.^{17,18}

There was significant variability in responses when patients were asked which STIs are tested for in a routine STI test. The majority of women's responses were across 6 different options: chlamydia, gonorrhea, HIV/AIDS, herpes, syphilis, and HPV/genital warts. Men had a similar spread across responses but were more likely than women to state that they did not know (23 [16%]). This finding may be due to lack of discussion during patient visits, as one study indicated that there is a need for increased training in sexual history taking and STI screening among health care professionals.¹⁹ Each patient visit should be geared toward patient risk factors, gender and sexual orientation, and disease prevalence in that geographic location. The most common answer among most men and women regarding what STIs are typically assessed were chlamydia and gonorrhea, possibly owing to current ACOG recommendations for women.

Implications

The knowledge gained from this study has the potential to influence acute care physician practice in multiple settings, including emergency departments, primary care offices, and urgent-care clinics, as physicians are limited in the time that they can spend with each patient. If physicians are aware that more time may be needed to improve male health care knowledge, discussions could include areas of identified knowledge deficits to improve preventive care overall. One area of focus should be on improving HPV education, especially considering a 2017 report that found 1 in 9 males in the United States has oral HPV, which can lead to oropharyngeal and genital cancers.²⁰

There is also concern that sexual health knowledge may often be obtained from peers and from unreliable internet sources. If physicians can help to provide accurate knowledge at each visit regardless of ambulatory location, emerging adults may be able to make more educated decisions concerning their sexual health. This could lead to safer sex techniques, more effective contraceptive practices, and improved overall health status. Because the men in this study had less knowledge of sexual health than the women, providing more sexual health education to male patients may prompt them to initiate and maintain routine visits for preventive health screenings, leading to decreases in rates of communicable diseases.

Limitations

There are a number of limitations with the present study. First, using a self-report survey as a measurement tool poses its own set of limitations, including whether patients are reporting honestly, whether patients understand the questions being asked of them, and many forms of response bias. Second, our survey was distributed at limited hours of the day depending on the availability of the research assistants to work at the different clinical sites. Although 8 hours were covered on most days during the semesters, evenings and nights were not covered. Third, we included 18- to 24-year-olds in this study to delineate emerging adults; however, other studies consider young adulthood to span different age ranges. Fourth, our sample was quite homogeneous, as no participants identified as transgender and most identified as white. Finally, our results may not be generalizable to emerging adults in other areas of the United States, as data were collected in a single geographical location.

Conclusion

Sexual health knowledge among emerging adults is inadequate among both male and female genders. With the larger disparity more apparent among men, improving men's sexual health knowledge could positively affect the health outcomes of all genders. There is an opportunity to significantly improve both male and female emerging adults' overall health. The largest opportunity to educate these patients may be in the acute-care setting. By increasing efforts to inform patients of sexual health disease prevention, testing, and risks, more timely screenings may occur, which would decrease the potential exposure to others and lasting health detriments. Regardless of location or purpose of visit, physicians may be able to greatly increase patient's sexual health knowledge via thorough discussions. More research should be conducted in this area to adequately explore this issue across the full gender spectrum.

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Table 1.

Demographic Characteristics of Adults Aged 18 to 24 Years Presenting to Acute-Care Settings, Stratified by Gender (N=388)^a

Characteristic	Men	Women
n	142 (36.6)	246 (63.4)
Mean Age, y	20.6	20.1
Race		
White	124 (87.3)	227 (92.3)
Black	8 (5.6)	11 (4.5)
Asian	4 (2.8)	5 (2.0)
Other	3 (2.1)	2 (0.8)
Prefer not to answer	3 (2.1)	1 (0.4)
Current Relationship Status		
Not in a relationship	87 (61.3)	114 (46.7)
In a relationship, not living together	42 (29.6)	90 (36.9)
In a relationship, living together	12 (8.5)	40 (16.4)
Level of Education		
High school	34 (23.9)	62 (25.5)
College	108 (76.1)	184 (74.8)
Current Employment Status		
Employed for wages	35 (24.7)	80 (32.5)
Self-employed	3 (2.1)	1 (0.4)
Student	112 (78.9)	204 (82.9)
Out of work	8 (5.6)	8 (3.3)
Homemaker	0 (0.0)	3 (1.2)
Unable to work	1 (0.7)	0 (0.0)
Location Sought for Health Advice		
Walk-in or urgent-care clinic	74 (52.1)	173 (70.3)
Physician office	72 (50.7)	121 (49.2)
Hospital emergency department	16 (11.3)	27 (11.0)

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Characteristic	Men	Women
Hospital outpatient department	3 (2.1)	5 (2.0)
Military or Veterans Affairs health care facility	1 (0.7)	3 (1.2)
Other	5 (3.5)	10 (4.1)

^aData are given as No. (%) unless otherwise indicated.

Percentage of Adults Aged 18 to 24 Years Answering Sexual Health Knowledge Survey Questions Correctly, Stratified by Gender (N=388)

Table 2.

Question (Answer)	Men, No. (%)	Women, No. (%)	P Value ^a
It is medically riskier for women who smoke heavily to use a hormonal birth control method. (Yes)	112 (79.4)	219 (89.0)	.0099
When used correctly, birth control pills prevent STI transmission. (No)	130 (91.6)	238 (96.8)	.0259
Human papillomavirus (HPV) is considered to be a primary cause of cervical cancer in women. (Yes)	105 (74.5)	225 (93.0)	<.0001
A vaccine exists that helps prevent HPV in humans. (Yes)	99 (70.2)	217 (88.9)	<.0001
Chlamydia is the most common STI among 18–25-year-olds. (Yes)	112 (78.9)	216 (88.2)	.0144
A woman can get pregnant while she's menstruating. (Yes)	82 (58.2)	205 (84.0)	<.0001

^aMantel-Haenszel χ^2 test. Statistical significance was set at $P < .05$.

Abbreviation: STI, sexually transmitted infection.

Categorized Responses to Open-Ended Sexual Health Knowledge Survey Questions by Adults Aged 18 to 24 Years, Stratified by Gender (N=388)

Table 3.

Open-Ended Questions and Response Categories	Male, No. (%)	Female, No. (%)
Total	142 (36.6)	246 (63.4)
What does a Pap smear test for?		
Cervical cancer ^a	15 (10.6)	56 (22.8)
STI	9 (6.3)	59 (24.0)
Cancer (other)	5 (3.5)	31 (12.6)
Abnormalities/irregularities	2 (1.4)	30 (12.2)
HPV	7 (4.9)	20 (8.1)
Bacteria/infection	1 (0.7)	13 (5.3)
General health	3 (2.1)	11 (4.5)
I don't know	61 (43.0)	21 (8.5)
Other	6 (4.2)	11 (4.5)
How often should women get Pap smears?		
Once per year	49 (34.5)	178 (72.4)
Once per year, after particular criterion	1 (0.7)	6 (2.4)
Twice per year	10 (7.0)	15 (6.1)
Every 2 or 3 years	4 (2.8)	18 (7.3)
Every 3 years ^{a,b}	0	0
I don't know	35 (24.7)	9 (3.7)
Other	8 (5.6)	9 (3.7)
What does Gardasil^c prevent?		
HPV ^a	27 (19.0)	140 (56.9)
Cancer	3 (2.1)	19 (7.7)
STI	9 (6.3)	4 (1.6)
Pregnancy	5 (3.5)	5 (2.0)
Infections	4 (2.8)	4 (1.6)

Open-Ended Questions and Response Categories	Male, No. (%)	Female, No. (%)
I don't know	47 (33.1)	19 (7.7)
Other	3 (2.1)	2 (0.8)
How often should a woman do a self-breast examination?		
No longer recommended ^a	0	0
Every day	6 (4.2)	9 (3.7)
Every week	7 (4.9)	13 (5.3)
Every 2 weeks	3 (2.1)	5 (2.0)
Once per month	48 (33.8)	117 (47.6)
Every 2 or 3 months	2 (1.4)	12 (4.9)
Once per year	18 (12.7)	35 (14.2)
I don't know	10 (7.0)	5 (2.0)
Other	11 (7.8)	14 (5.7)
How often should a man do a self-testicular examination?		
No longer recommended ^a	0	0
Every day	6 (4.2)	6 (2.4)
Every week	6 (4.2)	10 (4.1)
Every 2 weeks	0 (0.0)	2 (0.8)
Once per month	42 (29.6)	88 (35.8)
Every 3 months	4 (2.8)	10 (4.1)
Once per year	25 (17.6)	45 (18.3)
Twice per year	9 (6.3)	16 (6.5)
Every 2 years	4 (2.8)	0 (0.0)
I don't know	6 (4.2)	16 (6.5)
Other	15 (10.6)	10 (4.1)
What STIs are tested during a routine STI test?^d		
Chlamydia	54 (38.0)	127 (51.6)
Gonorrhea	43 (30.3)	103 (41.9)
HIV/AIDS	41 (28.9)	49 (20.0)

Open-Ended Questions and Response Categories	Male, No. (%)	Female, No. (%)
Herpes	30 (21.1)	40 (16.3)
Syphilis	18 (12.7)	36 (14.6)
HPV/warts	14 (9.9)	26 (10.6)
Hepatitis	5 (3.5)	9 (3.7)
All	9 (6.3)	15 (6.1)
I don't know	23 (16.2)	24 (9.8)
Other	11 (7.8)	14 (5.7)

^aCorrect answer.

^bThe American College of Obstetricians and Gynecologists recommends cytologic testing alone every 3 years for women aged 21 to 29 years. For women aged 30 to 65 years, co-testing with cytologic and human papilloma virus (HPV) testing every 5 years is preferred, and screening with cytologic testing alone every 3 years is acceptable. Some abnormal results require repeated Papanicolaou test in 12 months.

^cMerck Sharp & Dohme Corp.

^dSexually transmitted infection (STI) tests are patient-specific, based on Centers for Disease Control and Prevention guidelines, which can be accessed at <https://www.cdc.gov/std/g2015/screening-recommendations.htm>.