

Patient knowledge of sexually transmitted disease (STD) testing in an urban clinic: a comparison of patient perceived testing and actual tests performed

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Background

- Sexually transmitted diseases (STDs) are among the most common infectious diseases in the United States, with as many as 1 in 4 people infected^{1,2}
- More than 19 million people are infected with one or more STDs every year, half of which are incurable³
- In the United States, more than 65 million people are currently living with an incurable STD⁴
- In a study by Heather Royer⁵, 40% of women surveyed inaccurately believed that routine STD testing includes screening for Gonorrhea, Chlamydia, Syphilis, Herpes, HIV/AIDS, Human Papillomavirus (HPV), Hepatitis B, Trichomoniasis
- The CDC currently recommends that "all patients should be informed concerning all the STDs for which they are being tested and if testing for a common STD (e.g. genital herpes) is not being performed"⁶
- Despite these recommendations and multiple campaigns in the United States to encourage STD screening in individuals who are sexually active, no known research has been conducted to determine whether patients receiving STD testing actually know which STDs they are being tested for

Objective

- To determine whether patients attending the Paterson Division of Health STD clinic could accurately identify which STDs they were tested for during their visit

Methods

- Patients were recruited by the principal investigator at the end of their visit during the four-week study period and provided with a consent form and nine-item survey; patients were excluded if they had previously participated in the study
- Consent forms and surveys were provided in English and Spanish; Spanish translators were available for Spanish-speaking patients
- Patients were instructed to place completed surveys in a box to ensure anonymity; surveys were then linked to testing data through a number or letter provided to patients during check-in and listed on completed surveys
- Patient medical charts were reviewed to determine actual STD tests performed during visit
- All clinic staff directly involved with patient testing and treatment were not involved in data collection and were blinded to the purpose of the study, survey content, and responses of participants
- Descriptive statistics, frequencies, Pearson's chi-square tests, and ANOVA F-test statistics were calculated using SPSS version 19
- Scores were provided for each participant's tests to determine the agreement between tests believed to have been performed by the patient and those tests actually performed
- Variable recoding was employed; 0 was assigned for tests correctly identified, +1 for tests not known to have been performed, and -1 for tests believed to have been performed but not
- The Institutional Review Board (IRB) at the University of Medicine and Dentistry of New Jersey (UMDNJ), New Brunswick/Piscataway reviewed and approved the study protocol

Figure 1. Participant Demographics

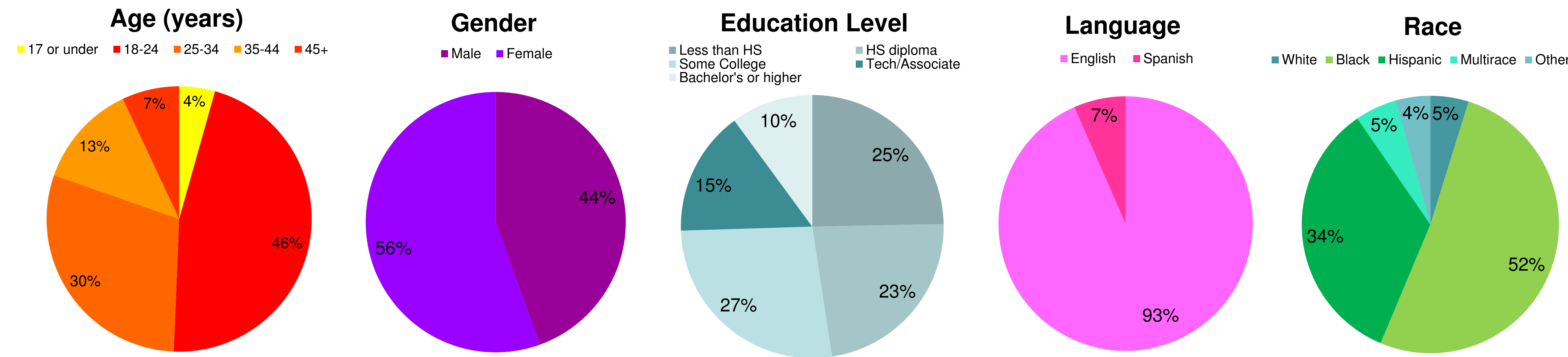


Figure 2. Patient Reported Reason for Visit (n=225)

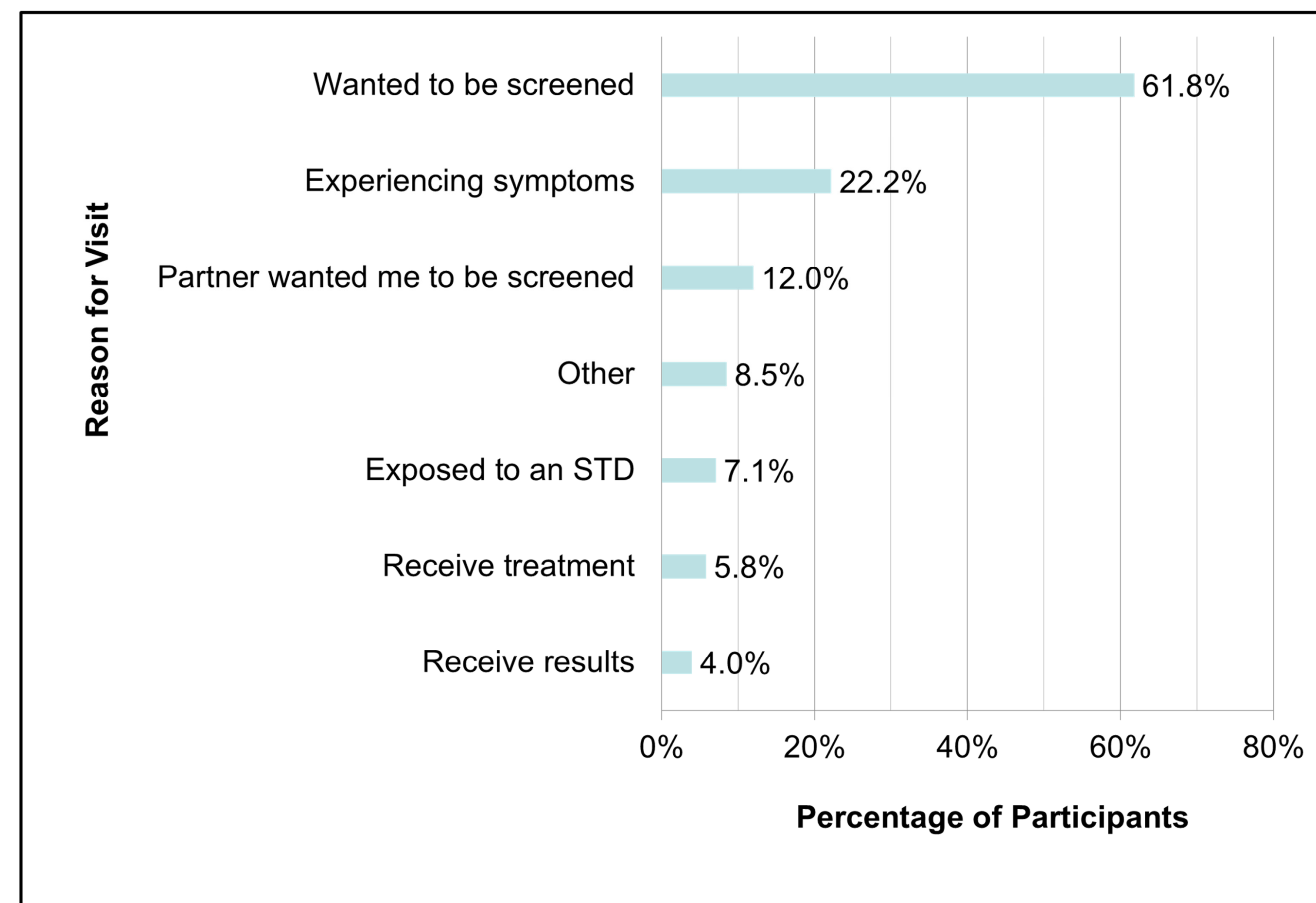


Table 1. Patient Identification of Tests Performed

Sexually Transmitted Disease (STD)	Number of patients tested	Correctly identified that they were tested (%)	Tested but did NOT know that they were (%)	NOT tested but thought that they were (%)
Gonorrhea	198	82.8	17.2	12.9
Chlamydia	193	80.3	19.7	25.0
Syphilis	191	75.4	24.6	21.1
HIV/AIDS	153	79.1	20.9	18.4
Trichomoniasis	58	65.5	34.5	2.9
Herpes	0*	-	-	11.8
HPV	0*	-	-	6.6
Hepatitis B	0*	-	-	5.7

*Testing for this STD was not available at the clinic

Table 2. Average Number of Correct STD Tests Identified by Demographics

		Mean (SD) max n=8
Gender	Male	6.92 (1.24)
	Female	6.77 (1.44)
Language	English	6.88 (1.37)
	Spanish	6.40 (0.91)
Race	White	7.55 (0.82)
	Black	6.79 (1.43)
	Hispanic	6.77 (1.32)
	Multiracial	7.00 (0.95)
	Other	7.00 (1.49)
Age	17 and under	7.10 (0.88)
	18-24	6.75 (1.41)
	25-34	7.07 (1.15)
	35-44	6.59 (1.52)
	45+	6.75 (1.61)
Education Level*	Less than HS diploma	6.41 (1.46)
	HS diploma	6.90 (1.12)
	Technical/Associate degree	6.86 (1.33)
	Some College	6.95 (1.42)
	Bachelor's Degree or higher	7.39 (1.23)
Provider Seen During Visit	#1	6.92 (1.31)
	#2	6.65 (1.47)
	#3	7.07 (1.21)
	#4	6.55 (1.29)
	#5	7.00 (1.41)
Week of Visit*	Week 1	7.19 (1.09)
	Week 2	6.95 (1.35)
	Week 3	6.76 (1.49)
	Week 4	6.49 (1.35)

*Significance p≤0.05

Acknowledgements

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Results

- During 301 total visits, 250 patients completed surveys, of which 214 received testing (85.6%); three patients refused participation
- Participants ages 15-34 years and those identifying as Black were overrepresented in this study compared to the population of Paterson, however, this is consistent with STD clinic patient demographics and current STD trends⁷
- Participants who completed the survey in Spanish (20%) were significantly (p=0.034) more likely to identify having been exposed to an STD as their reason for clinic visit than those who completed surveys in English
- Men were significantly (p=0.039) more likely to state that their partner had requested screening (17%) than were women (8%)
- Participant level of education was inversely proportional to identification of screening as the reason for clinic visit; participants with a bachelor's degree or higher (13.0%) were significantly (p=0.005) more likely to attend the clinic for screening, whereas participants with less than a HS diploma were significantly (p=0.017) more likely to visit the clinic because of symptoms (37.7%)
- Only 43.7% of participants surveyed were able to correctly identify their testing status
- Participants most accurately identified their testing status for Gonorrhea (82.8%)
- Trichomoniasis was the most common STD for which participants did not know that they had been tested (34.5%); Chlamydia was the most commonly misidentified STD for which participants were not tested but believed that they had been (25.0%)
- Testing for Herpes, HPV, and Hepatitis B were not available at the study site, however 11.8%, 6.6%, and 5.7% of participants, respectively, believed that they had received testing

Conclusions

- Participant level of education was inversely proportional to the percentage of patients who came to the clinic to be screened; these findings strongly suggest that individuals with a higher level of education are more likely to understand the importance of screening for asymptomatic infections, supporting the idea that education leads to more preventative behavioral practices
- In contrast to Royer's study, only 22.2% of patients at the Paterson clinic sought STD screening due to presence of symptoms; while the most common response provided (61.8%) was wanting to be screened, most (87.8%) of which were in the absence of reported symptoms; this illustrates a belief amongst patients that STDs may be present in the absence of symptoms and suggests effective education of the public regarding the importance of asymptomatic screening for STDs
- Over one-third (34.5%) of participants who were tested for Trichomoniasis were unaware that they had been tested, a finding which may present significant economic challenges to currently limited STD funding as patients who are unaware that they have been tested may unnecessarily seek additional testing in the future
- One-quarter of participants who received STD testing believed that they had been tested for Chlamydia when they had not, a finding that presents a significant risk to patients in STD testing centers for which patients are only contacted with results if a positive test result is received
- The identification of Herpes as having been the most frequently misidentified STD of which testing was not provided presents a major public health challenge, as Herpes is one of the most common STDs in the United States⁴; this factor may be associated with a lack of asymptomatic screening for Herpes in at-risk populations such as this one, as well as a lack of patient education by providers not offering screening; as identified by previous studies, healthcare providers should not assume that patients understand the STD testing process⁵
- Week of patient visit was included to detect any differences in education of patients by providers that may have occurred as a result of the study itself; a significant difference of which was found based on week of patient visit, a finding possibly due to the clinic staffs' belief that a patient satisfaction survey was being conducted
- The estimates of patient knowledge of STD tests performed during a visit provided here are considered to be conservative estimates based on the following factors:
 - Patient consent forms provided during clinic registration stated which STD screening tests are offered at the clinic
 - Participants who explicitly asked which tests were performed during their visit were provided with such information
 - Patients attending STD clinics may be more informed about STD testing procedures than patients attending a physician's office for an unrelated concern who are subsequently screened for STDs

Implications for Programs, Policy, and Research

- Healthcare providers should conform to current CDC recommendations to inform patients receiving STD testing of all tests performed, as well as those tests for common STDs (e.g. genital herpes) that are not being performed
- Future studies should survey patients at multiple testing sites, including physician offices and health centers not specific to STD screening to determine whether rates of identification differ by location