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Does the Sex Risk Quiz Predict *Mycoplasma genitalium* Infection in Urban Adolescents and Young Adult Women?

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Abstract

Background: *Mycoplasma genitalium* (MG) is a common sexually transmitted infection (STI) but there are limited strategies to identify individuals at risk of MG. Previously a sex risk quiz was used to predict STIs including *Chlamydia trachomatis* (CT), *Neisseria gonorrhoeae* (GC), and/or *Trichomonas vaginalis* (TV). The original quiz categorized individuals ≥25 years old as at risk of STIs, but the Centers for Disease Control identifies females <25 years old as at risk of STIs. In this study, the quiz was changed to categorize females <25 years old as high risk. The objective was to determine if the age-modified risk quiz predicted MG infection.

Methods: A cross-sectional analysis of a prospective longitudinal study was performed including female adolescents and young adults (AYA) evaluated in multiple outpatient clinics. Participants completed an age-modified risk quiz about sexual practices. Scores ranged from 0 to 10 and were categorized as low-risk (0–3), medium-risk (4–7), and high-risk (8–10) based upon the STI prevalence for each score. Vaginal and/or endocervical specimens were tested for MG, TV, CT, and GC using the Aptima Gen-Probe nucleic amplification test.

Results: There were 693 participants. Most participants reported having 0–1 sexual partners in the last 90 days (91%) and inconsistent condom use (84%). Multivariable logistic regression analysis controlling for race, education, and symptom status demonstrated that a medium-risk score predicted MG infection among AYA <25 years old (adjusted OR 2.56 [95% CI 1.06–6.18]).

Conclusion: A risk quiz may be useful during clinical encounters to identify AYA at risk of MG.

Short Summary

An age-modified sex risk quiz predicts infection with *Mycoplasma genitalium* among female Adolescents and Young Adults (AYA) <25 years of age.

Introduction

Mycoplasma genitalium (MG) was identified as an “emerging issue” in the most recent Centers for Disease Control and Prevention (CDC) Sexually Transmitted Diseases (STD)

Treatment Guidelines since there is increasing evidence that MG is a common pathogen causing disease in men and women.^{1–11} One recent large multicenter study found the prevalence of MG in females in the United States to be higher than the prevalence of *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (GC) combined, with rates of MG infection varying by geographic locations.² Additionally, a growing number of studies have demonstrated that many female patients infected with MG are symptomatic^{2–4} and have associated urethritis,⁵ cervicitis,^{1,3,5–9,11} and pelvic inflammatory disease (PID).^{1,10,11} The CDC recommends considering treatment of MG in individuals with persistent or recurrent urethritis, cervicitis, and PID.¹ However, the CDC does not recommend routine screening or testing of asymptomatic individuals. The CDC also does not provide guidance on how to identify individuals at risk of MG infection or recommend that symptomatic individuals routinely be tested and treated. Although there is currently no commercial test for MG approved by the Federal Drug Administration (FDA),^{1,12} there is highly sensitive and specific nucleic amplification testing for MG¹² and commercial testing is becoming more widely available^{13–15} at an acceptable cost;¹⁵ and guidance on whom to test is needed.

A limited number of studies evaluating the prevalence of MG indicate that MG infections may disproportionately impact young women^{2,3,9,16–18} and black adolescents and young adults (AYA).^{2,17,19} There is also a higher prevalence of MG infection among individuals with a greater number of sexual partners^{19,20} and recent sexual contact.^{3,21} Individuals with these risk factors may benefit from MG testing and it would be valuable to have additional guidelines to identify patients at risk of MG infection and/or associated complications of infection.

Research is needed to help clinicians identify patients at increased risk of MG infection and to develop targeted screening, treatment, and prevention strategies for this emerging sexually transmitted infection (STI). More recently, a novel sex risk quiz developed by Gaydos and colleagues predicted STIs, including CT, GC, and *Trichomonas vaginalis* (TV), in female patients.²² The aim of this study was to determine whether an age-modified risk quiz predicted MG infection among young female urban AYA seeking routine gynecologic and prenatal care.

Methods

Setting and Population

Pregnant and non-pregnant female patients seeking routine gynecological or prenatal health services in outpatient AYA and Obstetrics and Gynecology clinics within a large, urban academic medical center in the mid-Atlantic United States were recruited for participation in the Women's BioHealth study.²³ Patients aged 13 to 29 years were eligible to participate if they were having testing for CT and GC.²³ The Women's BioHealth Study is a large longitudinal cohort study to determine the prevalence, clinical correlates, and outcomes of MG and TV in urban pregnant and non-pregnant females.²³ Non-English-speaking individuals and persons with cognitive or language impairments that prevented completion of informed consent procedures and the behavioral risk questions were excluded from the study. The study utilized convenience sampling. Clinical providers were asked to refer eligible participants to the trained research assistants. The research assistants were at times

seated with the clinical providers to further facilitate identification of eligible patients. The research assistants obtained study consent. The dates of enrollment were between August 20, 2015 and June 21, 2017. The Johns Hopkins Medicine Institutional Review Board approved this study.

Study Procedures

At enrollment the participants completed a two-sided one-page paper laboratory form containing questions about basic demographic information and symptoms and the age-modified risk quiz (Table 1). The participants were also asked to indicate specifically the STIs they had in the past and the type of sex (vaginal, anal, and/or oral) they had in the last 90 days. The original risk quiz was designed by STI experts based upon research published on sex risk behaviors and the associated risk of STIs.²² The risk quiz contains questions about age, sexual practices, and history of STIs. In the study published by Gaydos and colleagues, the risk quiz was used to facilitate online or mail-in self-assessments for patient-initiated STI testing; patients completed the online quiz requesting mailed STI kits for specimen collection or completed the quiz at home on paper when they received their kit as a part of the IWantTheKit program.^{22,24} In this study, the risk quiz was administered by the trained research assistants during the clinical encounter. The participants either completed the form independently and/or were asked the questions by the research team at the time of enrollment. The quiz was also modified from the original version to categorize females less than 25 years as at risk of STIs consistent with the CDC recommendations for routine annual testing of females less than 25 years for CT and GC.¹

After completing informed consent and enrollment procedures, vaginal or endocervical swabs were either collected by the participants' clinical provider or self-collected (vaginally) by participants during the clinical encounter. The specimens were tested for MG using transcription-mediated amplification with a FDA-cleared Hologic/Gene-Probe analyte specific reagent (San Diego, CA) and TV by Hologic-nucleic acid amplification test (NAAT) (San Diego, CA) in the International STD Research Laboratory (STD Research Lab). CT and GC were tested by Aptima Hologic-NAAT (San Diego, CA) in the academic center's clinical microbiology laboratory or in the STD Research Lab. Testing for MG and TV was performed at no cost to the patient via the study. No other remuneration was provided. All infected participants were informed and counseled to seek treatment. There are concerns about high rates of antibiotic resistance to MG¹ and therefore individuals positive for MG were eligible for re-testing after three months if their baseline MG and/or TV test was positive.

Data Analysis

We performed a cross-sectional analysis of baseline data from the Women's BioHealth Study. Possible risk quiz scores ranged from 0 to 10 (Table 1). As published by Gaydos and colleagues, the scores for question 5 ("How many sex partners have you had in the last 90 days?") and question 6 ("When you have sex, do you use a condom?") were weighted because there is significant prior evidence that condom-less sex increases the risk of STIs.²² The scores were categorized as low-, medium-, or high-risk based upon the distribution prevalence of STIs including CT, GC, TV, and MG for each risk quiz score (Figure 1). A

low-risk score was categorized as a score of 0 to 3. A medium-risk score was categorized as a score of 4 to 7. A high-risk score was categorized as a risk of 8 to 10. Individuals were categorized as symptomatic if they reported having symptoms of excessive vaginal discharge with a foul odor or yellow-green color or bleeding; vaginal itching/irritation; dysuria; dyspareunia; or abdominal pain.

Descriptive analyses were performed to describe participant characteristics and risk quiz scores by infection category. Continuous variables for infection groups were compared with an independent samples t-test. Categorical variables for infection groups were compared using a Pearson's Chi-square test or Fisher's exact test. While the risk quiz is based on a cumulative score, we also evaluated the relationship between responses to each question and the status of MG infection and status of CT, GC, and/or TV infection. Additionally, multiple logistic regressions on the association of the age-modified sex risk quiz score category and STIs were performed on available data from the Women's BioHealth study and then among individuals less than 25 years of age because the CDC identifies this age group as at increased risk of STIs such as CT and GC. For the analysis of individuals less than 25 years of age, data for individuals 25 years of age or older were dropped from the sample. These analyses controlled for factors found by the bivariate analysis of all individuals ages 13 to 29 years to be associated with either MG infection and/or CT, GC, and/or TV infection, except for age because the risk quiz already stratifies the risk of STIs based on age with question 1 ("Are you less than 25 years old?"). Lastly, sensitivity and specificity were calculated and for this analysis medium- and high- risk scores were collapsed into one category of a positive test. A low-risk category was categorized as a negative test. All statistical analyses were performed using STATA data analytic and statistical software version 14 (StataCorp. 2015. Stata Statistical Software: Release 14. College Station, TX: StataCorp LP).

Results

Patient Characteristics

A total of 693 participants were enrolled in the study, of whom 257 (37%) were pregnant (Table 2 and Table 3). Twenty-eight percent of the AYA were positive for any STI (MG, TV, CT, and/or GC). Fifteen percent of individuals in the study were positive for MG infection and 9%, 8%, and 1% of individuals were positive for TV, CT, and GC, respectively. Only 2% of individuals were co-infected with MG and TV and 2% were co-infected with MG and CT. Three participants (0.43%) were co-infected with MG and GC. There was also a limited amount of missing STI results for participants at baseline in the BioHealth study: 5% were missing CT results; 5% were missing GC results; 2% were missing TV results; and 1% was missing MG results. Some clinical providers did not test participants at enrollment for CT and GC. The results of some NAAT CT, GC, TV, and/or MG testing were invalid or equivocal. Additionally, some testing was not performed because of not appropriately labeled specimens or specimen leakage.

Most participants were single (59%), black (82%), and had a high school education or less (64%). The mean age of the sample was 22.3 years (standard deviation [SD] 3.7, range 13–29 [Figure 2]) and the mean risk quiz score was 4.0 (SD 1.4). The majority of participants reported having 0–1 sexual partners in the last 90 days (91%) and most reported inconsistent

condom use (84% reported “sometimes” or “never” using condoms) (Table 4). Approximately 51% of the participants reported a history of STIs.

Examining age as a continuous variable, individuals positive for MG infection were similar in age to individuals negative for MG ($p=0.08$) (Table 2), but individuals positive for MG infection were younger than the individuals without any STI (MG, CT, GC, and/or TV). The mean age for individuals positive for MG was 21.7 (SD 3.5), and the mean age for individuals without any STI was 22.7 (SD 3.7) ($p=0.02$). In contrast, participants with CT, GC, and/or TV infections were younger than individuals negative for CT, GC, and/or TV infections ($p<0.001$) (Table 3). Additionally, there was a statistically significant association between MG infection and black race ($p=0.002$), lower educational attainment ($p=0.02$), and having symptoms ($p=0.02$). There was no statistically significant relationship between MG infection and marital status or pregnancy status. Infection with CT, GC, and/or TV was associated with black race ($p<0.001$) and educational attainment ($p<0.001$) but not marital status, pregnancy status, or having symptoms.

Analysis of the Risk Quiz Questions by Infection Category

The overview of the results for each individual risk quiz question by MG infection category is shown in Table 4 and by CT, GC, and/or TV infection category is shown in Table 5. The response to question four of the risk quiz (“Have you ever been told you had, or been treated for, an STI in the past?”) was associated with MG infection ($p=0.04$) (Table 4) and was statistically associated with having infection with CT, GC, and/or TV ($p=0.004$) (Table 5). The response to questions one (“Are you less than 25 years old?”) and three (“Do you have more than one current sex partner at the present time?”) were also associated with CT, GC, and/or TV infection ($p=0.01$, $p=0.006$, respectively). In contrast, the responses to the other individual risk quiz questions including question 5 (“How many sex partners have you had in the last 90 days?”) and question 6 (“When you have sex, do you use a condom?”) were not associated with MG infection or associated with CT, GC, and/or TV infection. However, dichotomizing condom use as *always* or *inconsistent* (combined “sometimes” or “never” categories) there was an association between condom use and MG infection (8% of participants who reported *always* using condoms were positive for MG vs. 16% of participants who reported *inconsistent* condom use were positive for MG, $p=0.03$) but not CT, GC, and/or TV infection (11% of participants who reported *always* using condoms were positive for CT,GC, and/or TV vs. 17% of participants who reported *inconsistent* condom use were positive for CT,GC, and/or TV, $p=0.14$).

Composite Risk Quiz Results by Infection Category

The mean total risk quiz score was associated with MG infection ($p=0.002$) (Table 2) and CT, GC, and/or TV infection ($p<0.001$) (Table 3). For participants younger than 25 years of age, seven percent of the individuals with a low-risk score on the risk quiz were positive for MG and 18% of participants with a medium-risk score were positive for MG. Only five participants less than 25 years of age scored a high-risk score on the risk quiz but 1 (20%) was positive for MG. Controlling for race, educational attainment, and the presence of symptoms, a medium-risk score was associated with an increased risk of MG infections compared to a low-risk score category among AYA less than 25 years of age (medium-risk

score adjusted OR [aOR] 2.56 [95% CI 1.06–6.18]) (Table 6). The trend for a high-risk score among AYA less than 25 years of age was similar but not statistically significant (aOR 2.79 [95% CI 0.26–29.62]). A medium-risk score and a high-risk score compared to a low-risk score category were associated with CT, GC, and/or TV infection among all individuals ages 13 to 29 years (medium-risk score aOR 2.05 [95% CI 1.12–3.78] and high-risk score aOR 9.49 [95% CI 1.44–62.43]).

Sensitivity and Specificity

Among individuals less than 25 years of age, the risk quiz had a sensitivity of detecting MG of 93% and a specificity, positive predictive value (PPV), and negative predictive value (NPV) of 18%, 19%, and 92%, respectively. Among this same age group of AYA younger than 25 years of age, the sensitivity, specificity, PPV, and NPV of answering “yes” to Question 4 (“Have you ever been told you had, or been treated for, an STI in the past?”) for MG was 59%, 53%, 20%, and 86%. Furthermore, answering “yes” to Question 3 (“Do you have more than one current sex partner at the present time?”) had a low sensitivity for MG of 4% but a high specificity of 96% for MG in this same age group.

Discussion

In this clinic-based sample of urban pregnant and non-pregnant AYA, an age-modified risk quiz predicted having MG infection in AYA less than 25 years of age. To our knowledge, this is the first study to evaluate the use of a risk quiz to guide the diagnosis of MG infection in clinical practice. The score can rapidly inform the testing and treatment for MG and other STIs performed during clinical encounters. The CDC recommends testing females less than 25 years of age annually for CT and GC,¹ and females AYA less than 25 years with a medium-risk score category on the risk quiz are at increased risk of MG. Young women ages 13 to 29 years of age with a medium- or high-risk score category are also at increased risk of CT, GC, and/or TV. Additionally, this analysis shows that a prior STI is a significant risk factor for both MG infection and having CT, GC, and/or TV.

The results of the present study are consistent with the finding of Gaydos and colleagues, which showed that the risk quiz predicted STI infection with CT, GC, and/or TV.²² However, this study newly demonstrates that the risk quiz is also predictive of STIs including CT, GC, TV and MG when the risk quiz is administered during a clinical encounter, as opposed to being completed potentially in private online or via mail-in paper laboratory form. This is an important finding because numerous studies have shown that participant response to questioning can be influenced by the mode of question administration.²⁵ The risk quiz questions are focused and brief and could easily be incorporated into a routine clinical encounter as a pre-visit questionnaire and/or direct provider screen to guide STI screening and/or as a needs assessment to guide risk-reduction counseling for prevention of STIs.

Interestingly, although a lack of condom use has traditionally been considered a risk factor for STIs, an association between condom use and MG infection was found but not between condom use and CT, GC, and/or TV infection. Moreover, the number of sexual partners, was surprisingly not associated with MG or CG, GC, and/or TV infections. It appears that it may be the constellation of risks indicated by the total score that is most predictive of STIs rather

than one individual risk factor. In this population of urban AYA, low perceived risk of STI acquisition and partner concurrency may be a significant risk factor for STI acquisition. Indeed, prior research in this population has demonstrated that female urban AYA have low perceived risk of STIs and low condom use.²⁶ Condom use and perceived risk for STIs varies considerably in the context of relationships and this can potentially impact STI acquisition.²⁶ Urban AYA relationships are dynamic, and successful STI prevention programs may need to incorporate strategies that address known variability in relationship qualities such as trust, commitment, closeness, and perceived partner concurrency.²⁶ Additionally, research by Matson and colleagues has suggested that in communities with limited partners for selection, female urban AYA may be accepting of partner concurrency if their emotional needs are met.²⁷ Clinical providers should consider partner concurrency and the potential for it to increase the risk of STI acquisition in AYA, even though urban AYA report low rates of perceived or known partner concurrency.²⁶

There are several general limitations to the findings from the present study. The sample of urban young women is relatively homogenous and is derived from a population at high risk of STIs, which may limit the generalizability of the study to less urban or low risk populations. Males were not included in this study and the findings do not inform the use of the risk quiz to detect MG in male AYA. The study was further limited because it utilized convenience sampling and recruited from multiple sites within a single academic institution, so it may not represent a probabilistic sample representative of the general population. These sites, however, serve as core sites for primary and tertiary care within the community under study; and there are high community rates of STIs in this population reflecting the importance of this research. While use of a convenience sampling strategy may have missed some individuals, there was high uptake amongst this vulnerable group of patients who were eager to have complete STI testing during visits without any remuneration for participating.

MG and other STIs disproportionately affect minority AYA and those with lower educational attainment. Novel strategies are necessary to help providers further identify those at risk of infection to protect these vulnerable populations. These findings underscore the need for ongoing investigation of the predictors of MG infection and the development of additional tools to predict specific STIs. Clinical correlates of MG infection and the impact on vaginal microbiota are a topic of ongoing investigation,²³ but as shown here and in other studies, MG infection is a prevalent STI.^{2,5,9} The cornerstone of STI prevention is diagnosis and treatment, and this study demonstrates that the use of an age-modified risk quiz may be useful for assessing the need for STI screening, including testing for MG. The risk quiz may also guide critical risk-reduction and safe sex counseling provided by the clinical team. More population-based screening for MG is warranted to expand upon the findings from this work and to guide recommendations for public health control of MG in the community.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Figure 1.
Prevalence of Sexually Transmitted Infections (CT, GC, TV, and/or MG) by Sex Risk Quiz Score.

Figure 2.
Age Distribution of the Participants of the Women's BioHealth Study.

Table 1.

Age-Modified Sex Risk Index.

Questions	Score
1. Are you less than 25 years old?	Yes = 1 point. N = 0 points.
2. Have you had a new sex partner, or multiple partners, in the last 90 days?	Yes = 1 point. N = 0 points.
3. Do you have more than one current sex partner at the present time?	Yes = 1 point. N = 0 points.
4. Have you ever been told you had, or been treated for, an STI in the past?	Yes = 1 point. N = 0 points.
5. How many sex partners have you had in the last 90 days?	10 or more = 3 points. 5–9 = 2 points. 2–4 = 1 point. 0–1 = 0 points.
6. When you have sex, do you use a condom?	Never = 3 points. Sometimes = 3 points. Always = 0 points.

Table 2.

Overview of Patient Characteristics by MG Infection Category.

Characteristic	Category	Number (%)			p
		MG Positive (n=105)	MG Negative (n=578)	Overall (n=693)	
Age (Years)	Mean (SD)	21.7 (3.5)	22.4 (3.7)	22.3 (3.7)	0.08
Race	Black	97 (17)	460 (81)	566 (100)	0.002
	Other and/or Mixed	8 (6)	118 (93)	127 (100)	
Education	12 th grade or GED	68 (15)	371 (83)	445 (100)	0.02
	Some college	32 (20)	128 (78)	164 (100)	
	Bachelor's degree	5 (9)	51 (91)	56 (100)	
	Postgraduate studies	0 (0)	27 (100)	27 (100)	
	Unknown	0	1 (100)	1 (100)	
Marital Status	Single	69 (17)	336 (82)	410 (100)	0.37
	Married	3 (8)	34 (92)	37 (100)	
	Committed relationship	32 (13)	203 (85)	240 (100)	
	Other	1 (17)	5 (83)	6 (100)	
Pregnancy Status	Pregnant	41 (16)	215 (84)	257 (100)	0.71
	Not Pregnant	59 (15)	336 (83)	403 (100)	
	Unknown	5 (15)	27 (82)	33 (100)	
Symptomatic	Yes	52 (19)	218 (80)	272 (100)	0.03
	No	53 (13)	349 (85)	421 (100)	
Risk Quiz Score	Mean (SD)	4.4 (1.2)	3.9 (1.5)	4.0 (1.4)	0.002
Risk Score Category	Low	17 (9)	160 (89)	180 (100)	0.03
	Medium	87 (17)	414 (82)	508 (100)	
	High	1 (20)	4 (80)	5 (100)	

Table 3.

Overview of Patient Characteristics by CT/GV/TV Infection Category.

Characteristic	Category	Number (%)		Overall (n=693)	p
		CT, GC, and/or TV Positive (n=110)	CT, GC, and/or TV Negative (n=549)		
Age (Years)	Mean (SD)	21.1 (3.6)	22.6 (3.6)	22.3 (3.7)	< 0.001
Race	Black	104 (18)	438 (77)	566 (100)	< 0.001
	Other and/or Mixed	6 (5)	111 (87)	127 (100)	
Education	12 th grade or GED	92 (21)	332 (75)	445 (100)	< 0.001
	Some college	16 (10)	138 (84)	164 (100)	
	Bachelor's degree	2 (4)	52 (93)	56 (100)	
	Postgraduate studies	0 (0)	26 (96)	27 (100)	
	Unknown	0 (0)	1 (100)	1 (100)	
Marital Status	Single	69 (17)	322 (79)	410 (100)	0.15
	Married	2 (5)	34 (92)	37 (100)	
	Committed relationship	37 (15)	189 (79)	240 (100)	
	Other	2 (33)	4 (67)	6 (100)	
Pregnancy Status	Pregnant	39 (15)	214 (83)	257 (100)	0.58
	Not Pregnant	64 (16)	311 (77)	403 (100)	
	Unknown	7 (21)	24 (73)	33 (100)	
Symptomatic	Yes	48 (18)	208 (76)	272 (100)	0.25
	No	60 (15)	332 (81)	421 (100)	
Risk Quiz Score	Mean (SD)	4.5 (1.3)	3.9 (1.4)	4.0 (1.4)	< 0.001
Risk Score Category	Low	14 (8)	158 (88)	180 (100)	< 0.001
	Medium	93 (18)	389 (77)	508 (100)	
	High	3 (60)	2 (40)	5 (100)	

Table 4.

Results of Risk Quiz Questions by MG Infection Category.

Infection Category					
Number (%)					
Question	Response	MG Positive (n=105)	MG Negative (n=578)	Overall (n=693)	p
1.Age < 25 Years	Yes	77 (16)	397 (82)	484 (100)	0.35
	No	28 (13)	180 (87)	208 (100)	
2.New/Multiple Partners in the Last 90 Days	Yes	16 (15)	91 (85)	107 (100)	0.89
	No	89 (15)	486 (83)	585 (100)	
3.>1 Current Sex Partner	Yes	4 (14)	24 (83)	29 (100)	1.0
	No	101 (15)	553 (83)	663 (100)	
4.History of STI	Yes	63 (18)	283 (81)	350 (100)	0.04
	No	42 (12)	294 (86)	342 (100)	
5.# Sexual Partners in the Last 90 Days	0–1	95 (15)	527 (83)	632 (100)	0.43
	2–4	9 (16)	46 (84)	55 (100)	
	5–9	1 (50)	1 (50)	2 (100)	
	10 or +	0 (0)	1 (100)	1 (100)	
6.Condom use	Always	9 (8)	96 (89)	108 (100)	0.11
	Sometimes	48 (16)	240 (82)	292 (100)	
	Never	48 (17)	239 (82)	290 (100)	

Table 5.

Results of Risk Quiz Questions by CT,GC, and/or TV Infection Category.

Infection Category					
Number (%)					
Question	Response	CT, GC and/or TV Positive (n=110)	Negative for CT, GC, and TV (n=549)	Overall (n=693)	p
1.Age < 25 Years	Yes	87 (18)	368 (76)	484 (100)	0.01
	No	23 (11)	180 (87)	208 (100)	
2.New/Multiple Partners in the Last 90 Days	Yes	19 (18)	85 (79)	107 (100)	0.64
	No	91 (16))	463 (79)	585 (100)	
3.>1 Current Sex Partner	Yes	10 (34)	18 (62)	29 (100)	0.006
	No	100 (15)	530 (80)	663 (100)	
4.History of STI	Yes	70 (20)	266 (76)	350 (100)	0.004
	No	40 (12)	282 (82)	342 (100)	
5.# Sexual Partners in the Last 90 Days	0–1	97 (15)	502 (79)	632 (100)	0.28
	2–4	12 (22)	42 (76)	55 (100)	
	5–9	1 (50)	1 (50)	2 (100)	
	10 or +	0 (0)	1 (100)	1 (100)	
6.Condom use	Always	12 (11)	90 (83)	108 (100)	0.31
	Sometimes	51 (17)	226 (77)	292 (100)	
	Never	47 (16)	230 (79)	290 (100)	

Table 6.

Multivariable Logistic Regressions on the Association of the Age-Modified Sex Risk Quiz Score Category and STIs Controlling for Race, Education, and Symptoms.

Ag 13–29 Years (n=693)		aOR (95%CI)		
	Risk Quiz Category	MG Positive	CT, GC, and/or TV Positive	Any STI MG, TV, CT, and/or GC
	Low	1.00	1.00	1.00
	Medium	1.61 (0.91–2.85)	2.21 (1.18–4.14)	1.92 (1.21–3.07)
	High	1.80 (0.19–17.36)	9.98 (1.51–66.05)	4.78 (0.75–30.27)
Ages <25 Years (n=487)				
	Low	1.00	1.00	1.00
	Medium	2.56 (1.06–6.18)	2.03 (0.92–4.51)	2.17 (1.15–4.09)
	High	2.79 (0.26–29.62)	9.01 (1.28–63.65)	5.29 (0.80–35.17)