

Risk Factors and Sexually Transmitted Infections in adolescents at the Mary's Center

By Harriet Waldron



Background Information

- Rates of curable sexually transmitted infections (STIs) are higher in the USA than any developed nation.
- The highest rates of STIs are seen in teenagers and young adults
- An estimated 19 million infections occur in young adults, ages 15-24 each year.¹
- The US healthcare system is estimated to spend 16 billion dollars annually on STIs that go undiagnosed.⁴

High risk populations

The greatest rates of chlamydia and gonorrhea in women are seen in ages 15 to 19 and 20 to 24. Rates of chlamydia in males was lower than women, however the highest rates are also in the 15 to 19 and 20 to 24 year old population. The highest amounts of gonorrhea in men are the 20 to 24 year old population.¹

Certain racial and ethnic groups such as African American and Hispanic have greater rates of STIs compared with the white population.⁴

There have been studies showing a correlation between substance abuse and STIs, where substance use can lead to high risk behavior and the spread of STIs.

Purpose of Study

The purpose of the study was to collect data on sexually transmitted infections (chlamydia, gonorrhea, HIV, syphilis), as well as their risk factors. These risk factors included: sexual activity, substance use, and family planning methods used by the patients.

All types of patients at the Mary's Center ages 13-20 were chosen at random. The data gathered was compared to the actual prevalence of STI diagnoses in the Washington, DC population and to previous research conducted through the Mary's Center in 2014.

Design and How the Data was Analyzed

The data was observed and analyzed using Excel and SPSS Statistics

A series of tests were run to find out percentages and to make the graphs, mainly through looking at the descriptive statistics of the data

The same 500 patients were observed from January 2015 to December 2015 for each category. Some patients were tested more than once.

Study Design

Demographics	Risk Factors	Sexually Transmitted Infections (STIs)
Age	Sexual Activity	Chlamydia
Ethnicity	Substance Use	Gonorrhea
Language	Family Planning Methods	HIV
Race		Syphilis
Gender		

Population Assessed

Gender

Male (250)

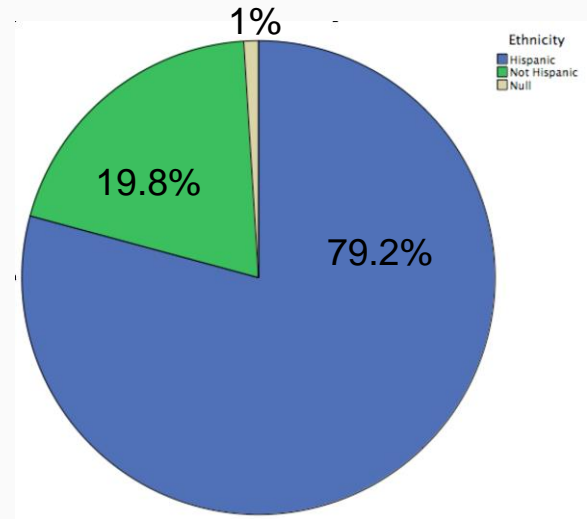
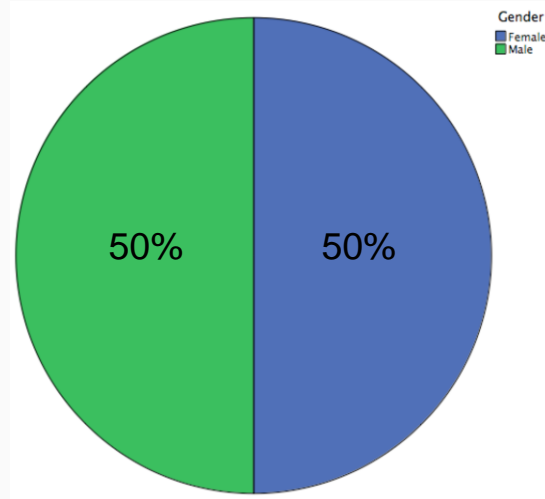
Female (250)

Ethnicity

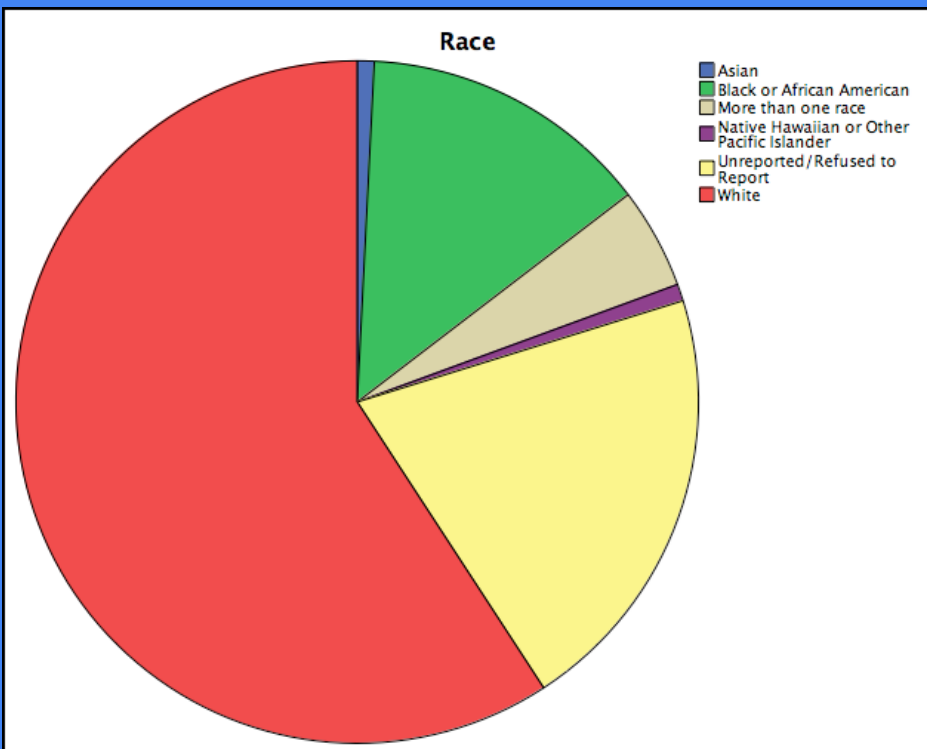
Hispanic

Not Hispanic

Null



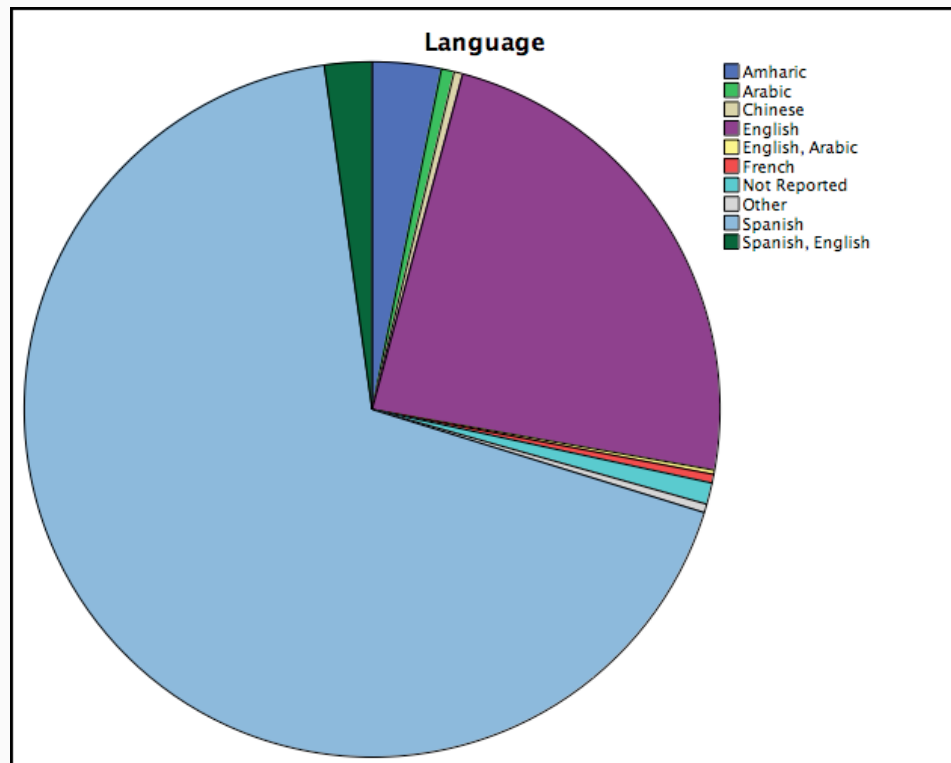
Race



Race	Frequency	Percent
Asian	4	0.8
Black or African American	69	13.8
More than one race	24	4.8
Native Hawaiian or Other Pacific Islander	4	0.8
Unreported/Refused to Report	103	20.6
White	296	59.2

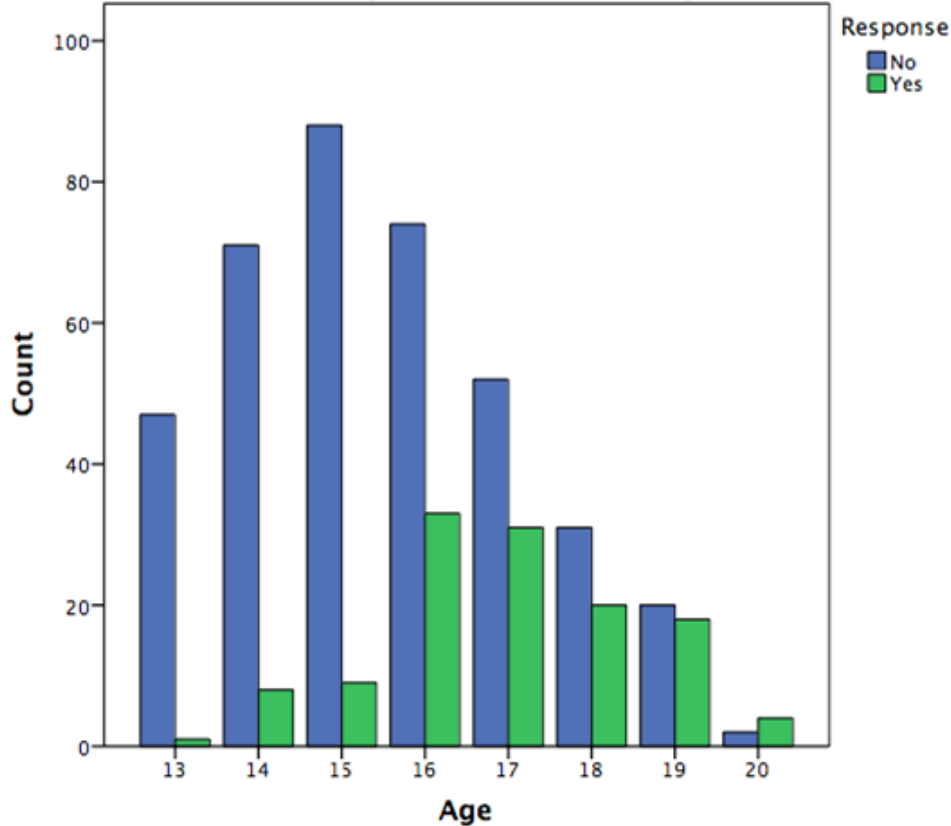
Language

Language	Frequency	Percent
Amharic	16	3.2
Arabic	3	0.6
Chinese	2	0.4
English	118	23.6
English, Arabic	1	0.2
French	2	0.4
Not Reported	5	1
Other	2	0.4
Spanish	340	68
Spanish, English	11	2.2



Risk Factor: Sexual Activity (by age)

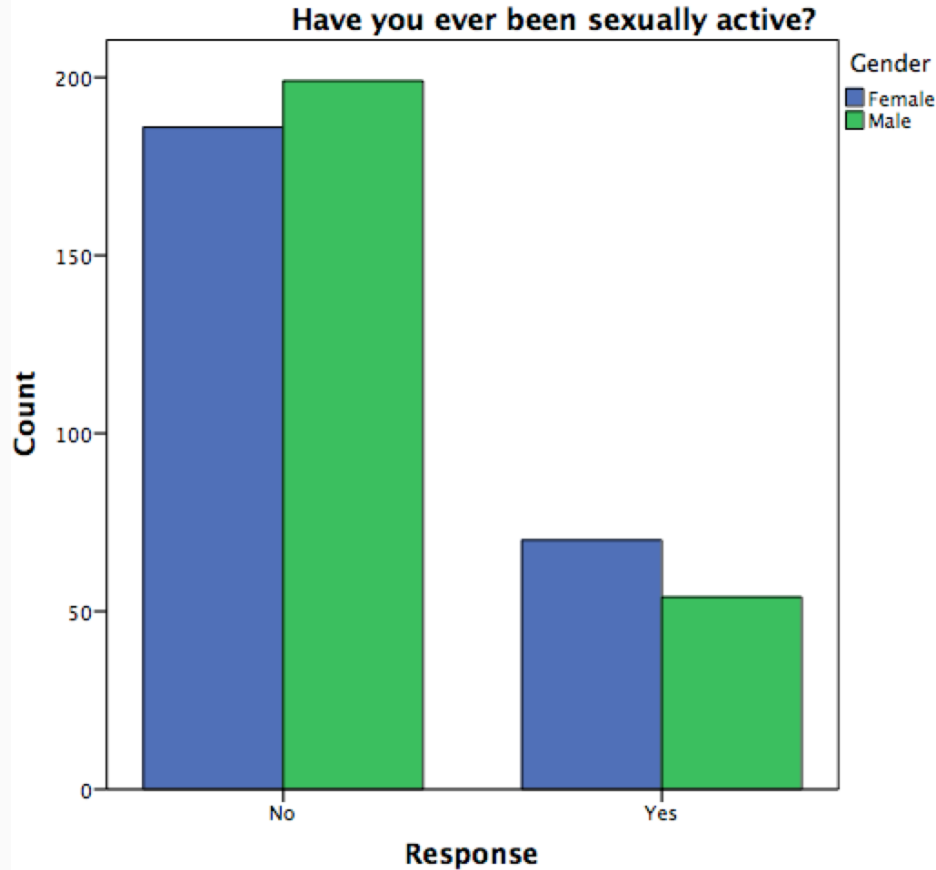
Have you ever been sexually active?



Percentage of responses within age

Age	Percentage, no	Percentage, yes
13	97.9	2.1
14	89.9	10.1
15	90.7	9.3
16	69.2	30.8
17	62.7	37.3
18	60.8	39.2
19	52.6	47.4
20	33.3	66.7
Total	75.6	24.4

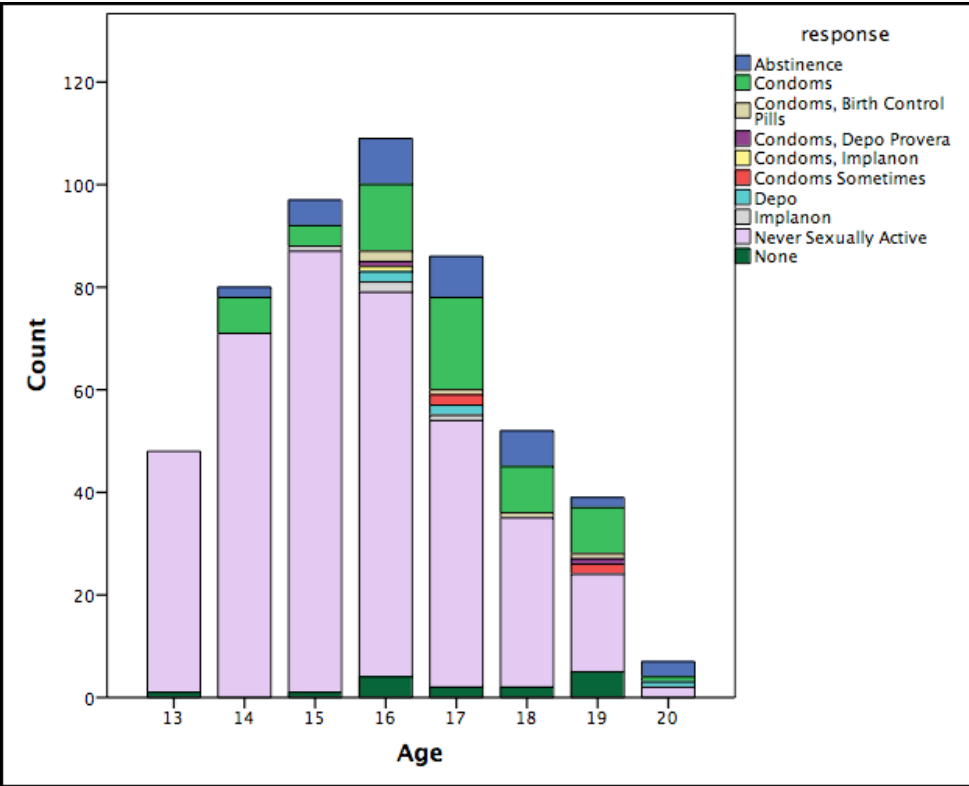
Sexual Activity and Gender



Percentage of responses by gender

Gender	Percentage, no	Percentage, yes
Female	72.7	27.3
Male	78.7	21.3
Percent Total	75.6	24.4

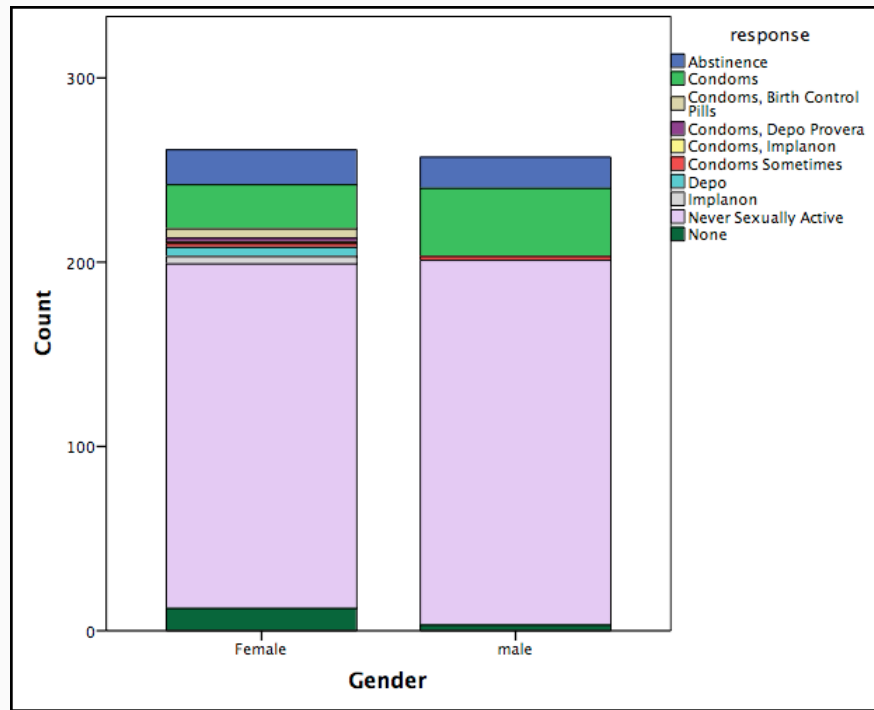
Risk Factor: Family Planning Methods (by age)



Percentage of method used within the age group

	13	14	15	16	17	18	19	20
Abstinence	0	2.5	5.2	8.3	9.3	13.5	5.1	42.9
Condoms	0	8.8	4.1	11.9	20.9	17.3	23.1	14.3
Condoms, Sometimes	0	0	0	0	2.3	0	5.1	0
Condoms, Birth Control Pills	0	0	0	1.8	1.2	1.9	2.6	0
Condoms, Implanon	0	0	0	.9	0	0	0	0
Condoms, Depo Provera	0	0	0	.9	0	0	2.6	0
Depo	0	0	0	1.8	2.3	0	0	14.3
Implanon	0	0	1	1.8	1.2	0	0	0
Never Sexually Active	97.9	88.8	88.7	68.8	60.5	63.5	48.7	28.6
None	2.1	0	1	3.7	2.3	3.8	12.8	0

Family Planning Methods and Gender

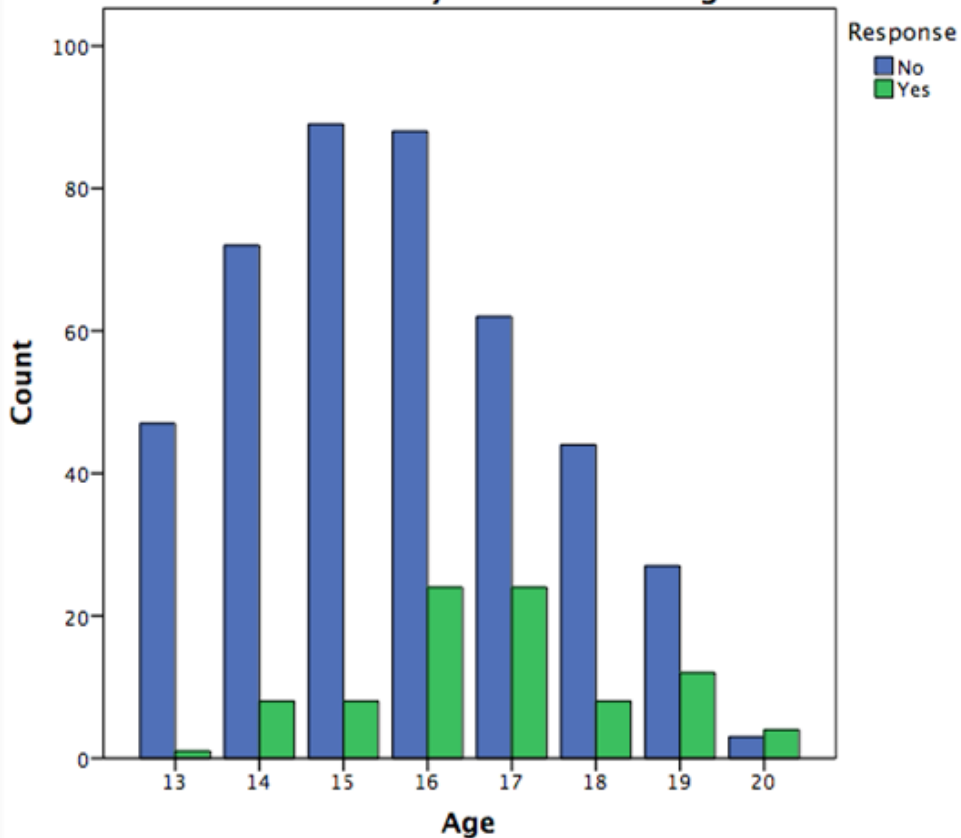


Percentage of method used within gender

	Abstinence	Condoms	Condoms, Sometimes	Condoms, Birth Control Pills	Condoms, Implanon	Condoms, Depo Provera	Depo	Implanon	Never Sexually Active	None
Female	7.3	9.2	0.8	1.9	0.4	0.8	1.9	1.5	71.6	4.6
Male	6.6	14.4	0.8	0	0	0	0	0	77	1.2
Total	36	61	4	5	1	2	5	4	385	15
Percent Total	6.9	11.8	0.8	1	0.2	0.4	1	0.8	74.3	2.9

Risk Factor: Substance Use (by age)

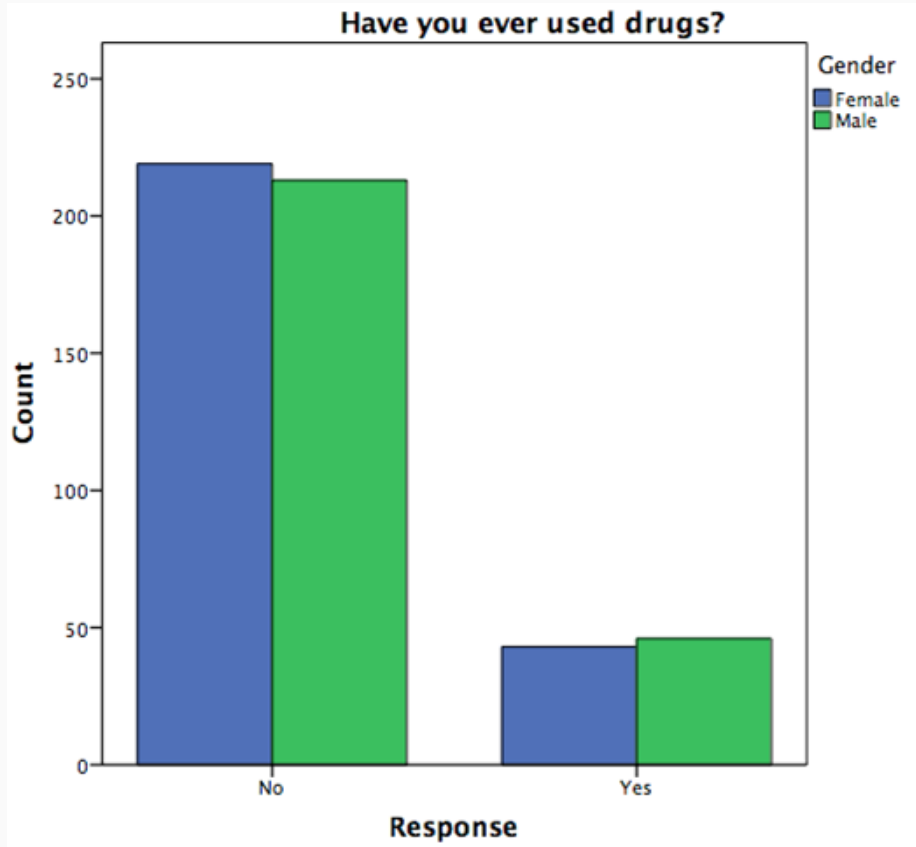
Have you ever used drugs?



Percentage of responses within age

Age	Percentage, no	Percentage, yes
13	97.7	2.1
14	90	10
15	91.8	8.2
16	78.6	21.4
17	72.1	27.9
18	84.6	15.4
19	69.2	30.8
20	42.9	57.1
Total	82.9	17.1

Substance Abuse and Gender



Percentage of responses by gender

Gender	Response, no	Response, yes
Female	83.6	16.4
Male	82.2	17.8
Percent Total	82.9	17.1

Observations

Risk Behavior: Sexual Activity

By Age

Overall, as age increases more patients responded “yes” to being sexually active

In all age groups, except for the 20 year olds, more patients responded “no” to having been sexually active than “yes”

By Gender

More males responded “no” to having been sexually active overall compared to females.

78.7% males said “no”, and 72.7% of females said “no”

Risk Behavior: Family Planning

Most patients responded as never being sexually active (74.3%)

Condoms were reported most frequently as a form of protection (11.8%)

Females used more different modes of protection than males, and more females reported being abstinent than males.

Risk Behavior: Substance Use

By Age

The same pattern was seen when asked “Have you ever used drugs?” as to when the patients were asked “Have you ever been sexually active?”

As age increased, so did the response of “yes” to having used drugs

By Gender

More males responded, “yes” than females to having used drugs

17.8% of males said “yes”, and 16.4% of females said “yes”

Tests Done on Patients and Their Results

Chlamydia and Gonorrhea

L-Chlamydia/GC/vaginal/EC swab NAAT

HIV

L-HIV-2 Antibodies, EIA (Panel 163550)

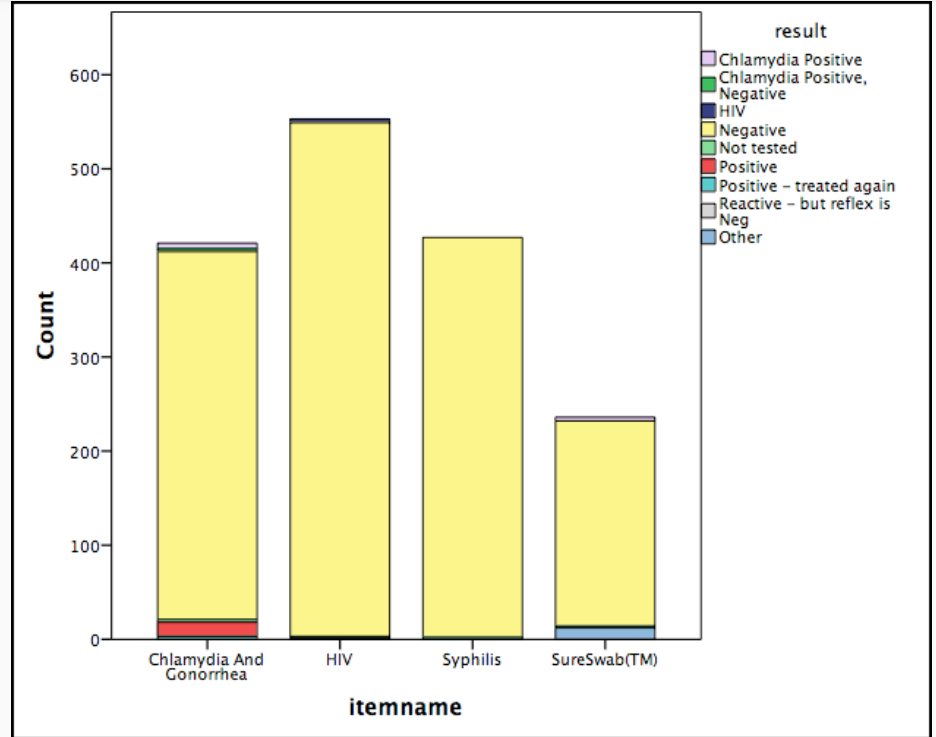
Syphilis

L-RPR, Rfx Qn, RPR/Confirm TP-PA

SureSwab(™) Bacterial Vaginosis

SureSwab(™) CT-NG RNA, TMA

Sexually Transmitted Infections Found



Chlamydia Positive	Chlamydia Positive, Gonorrhea Negative	HIV	Positive (Chlamydia and Gonorrhea)	Positive - treated again	Reactive - but reflex is negative (for HIV)	Other
4	1	1	4	1	1	1

Overall Findings

No correlation between age and those who tested positive for STIs

All STIs found were between the ages 13-19

13 - 1

14 - 4

15 - 2

16 - 2

18 - 2

STIs found in males vs. females

Males

Chlamydia Positive

White, 16 (hispanic)

Black, 14

White, 16 (hispanic)

HIV

Race not reported, 19 (hispanic)

Positive (Chlamydia, Gonorrhea)

Females

Chlamydia Positive

Race not reported, 14

Chlamydia Positive, Negative Gonorrhea

White, 18 (hispanic)

Positive - treated again

White, 14 (hispanic)

Reactive but reflex negative (for HIV)

Findings Compared to Previous Studies at the Mary's Center and the DC population

Mary's Center Research

The prevalence of STIs in this population is 2.6

In previous research the prevalence was 1.23 for ages 13-16 and all STIs were found in females.

Washington, DC

In 2013, 54.9% of high school in DC reported having had intercourse²

Out of the 7,220 cases of chlamydia reported in 2012, 35% were male and 64% were female.⁵

The highest recorded reports of chlamydia were in the 15-19 year old age group.⁵

There were 2,594 cases of gonorrhea in 2012 and were most commonly seen in the 20-24 year old population.⁵

Limitations on the Research

The specifications in the data with positive and negative results in terms of chlamydia and gonorrhea were not very clear.

Some data analyzed had some discrepancies, therefore it appeared not all patients were honest.

Data for an older age group was not able to be pulled.

Future Research

It would be interesting to include an age group that expands to an older population, such as 13-26. This would make it possible to see a possible variation between ages and STIs, while also including the highest risk population for the most common STIs in terms of age.

Include STI education or counseling as a risk factor

Get data on sexual orientation as another risk factor

Consider looking at the financial situation of the patients as a risk factor

Acknowledgments

A big thank you to Bethlehem Muleta for helping me throughout my internship and research experience!

Nathalie Gonzalez for pulling the data for me

Lastly, the Mary's Center for giving me this great opportunity!

References

1. "Adolescents and Sexually Transmitted Infections." *Advocates for Youth*. Advocates for Youth, 2008. Web. 05 June 2016.
2. Cohen, Matt. "Report: DC Has One of the Highest STD Rates in the Country." *DCist*. Gothamist LCC, 25 March 2015. Web. 24 July 2016.
3. "STD Trends in the United States: 2010 National Data for Gonorrhea, Chlamydia, and Syphilis." *Centers for Disease Control and Prevention*. Centers for Disease Control and Prevention, 17 Nov. 2011. Web. 05 June 2016.
4. "Sexually Transmitted Diseases." *Healthy People.gov*. US Department of Health and Human Services, 04 June 2016. Web. 06 June 2016.
5. Gray, Vincent C. "Annual Epidemiology & Surveillance Report." *HIV/AIDS, Hepatitis, STD and TB Administration*. Department of Health, Dec. 2012. Web. 26 July 2016.