FIELD PROJECT TITLE PAGE

SENIOR LEVEL NURSING STUDENTS KNOWLEDGE AND ATTITUDES REGARDING SEXUALLY TRANSMITTED INFECTIONS

By Maddison Pontes

A Field Project Submitted in Partial Fulfillment

of the Requirements for

Honor's Project

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Approved:

Sylvia P. Ross PhD, CNM *June 29,2021*
Name, Project Advisor Date

Esperanza Gutierrez, RN MSN June 30, 2021
Name, Committee Chairperson Date

Dr. Sharon Galloway June 29, 2021
Name, Department Chair Date

Senior Level Nursing Students Knowledge and Attitudes Regarding Sexually Transmitted Infections

Maddison S. Pontes

Rhode Island College

Honor's Project

Honor's Project Advisor: Sylvia Ross, PhD, CNM

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Abstract

Sexually transmitted infections (STIs) are a continuous health concern in the United States (United States Department of Health and Human Services [HHS], 2021). Nurses, as health promoters and leaders within the community have a unique role to provide education, screening, and treatment for STIs in all health care settings that could in turn result in a substantial decrease to overall STI rates. Current research indicates STI rates are increasing across the country, and Bungay et al., (2016) asserts that nurses may not be working within their full scope of practice to address this issue. Lack of focused nursing education resulting in varied levels of confidence in knowledge, limited availability of STI services in the community, public resource funding, and continuing education may provide insight into the gaps in professional practice. It is crucial for undergraduate nursing programs to educate nursing students on the topic of STIs sufficiently enough so that future nurses will feel more equipped to combat this health crisis. The following honor's project will explore the knowledge and attitudes among final semester senior level nursing students at Rhode Island College regarding STIs. The goal of the study is to evaluate how much knowledge senior level nursing students have as they prepare to graduate and begin their professional career.

Databases: CINHAL, Google Scholar, PubMed

Keywords: sexually transmitted infections, sexual health, sexually transmitted diseases, prevention, education, nursing

Senior Level Nursing Students Knowledge and Attitudes

Regarding Sexually Transmitted Infections

The increasing prevalence of local and national sexually transmitted infections (STIs) continues to be a major healthcare concern in the United States (US), (HHS, 2021). While efforts have been made nationally to increase prevention and education regarding STIs, sexual health assessment is an area of patient care that often goes unaddressed by health care providers, including professional nurses (Maria et al., 2017). Unemo et al., (2017) upholds that statistics support a gap in the delivery of sexual healthcare that needs to be addressed and researched further. Failures for healthcare providers to consistently address STI screening, education, treatment, and prevention within a given community have the potential to be a significant factor in higher rates of STIs (Maria et al.).

STIs are preventable. The role of the nurse in STI education, prevention, and management is extensive and necessary in order to optimize the health of the community (Bungay et al., 2016). In addition, professional nursing practice ought to include STI screening, early detection and the facilitation of prompt treatment with follow up to prevent the risk of possible long-term health consequences from untreated STIs (Maria et al., 2017). With the help of knowledgeable nurses across all healthcare setting, STI rates have the potential to be substantially reduced, and individuals can be treated promptly and educated appropriately (Patterson, 2017).

According to the CDC (2021), since 2015 there has been a 19% increase in the incidence of Chlamydia and a 56% increase in the incidence of Gonorrhea. Chlamydia remains the highest reported STI with Gonorrhea following as a close second. Primary and secondary Syphilis also had a 74% increase in incidence since 2015, along with congenital Syphilis increasing by an

astounding 279%. Other commonly reported STIs include Herpes Simplex, Human Immunodeficiency Virus (HIV), and Human Papillomavirus (HPV).

Locally within Rhode Island, STIs have been a continual problem that potentially pose a serious health crisis in the state (Rhode Island Department of Health, [RIDOH], 2019). According to recent RIDOH data, prior to 2015 there was a reduction in the number of HIV infections within the state. However, from 2015 to 2019 there was a slight increase in cases with 81 new HIV infections reported in 2017. This directly correlates with the staggering statistics statewide of increases in the Gonorrhea (rising by 421%) and Chlamydia incidence (rising by 64%). Chlamydia, Gonorrhea, and HIV are the most current focus of resources addressing the rise of STIs within the state (RIDOH).

Nationally and locally, the most commonly reported STIs are Gonorrhea and Chlamydia, and both have the potential to cause long term health consequences if not treated appropriately and promptly (Mayo Clinic, 2020). Some of these long-term health consequences include Pelvic Inflammatory Disease, risk of ectopic pregnancy, epididymitis, urethritis, sterility, and infertility (Dela et al., 2019). Individuals who contract STIs such as Chlamydia, Gonorrhea, Herpes, or Syphilis also have an increased likelihood of contracting HIV due to their sexual risk-taking behaviors. If an individual repeatedly engages in unprotected sex and contracts an STI, this puts them at a higher risk of contracting HIV in the future (CDC, 2019). Prevention through education to patients in every health care setting may decrease the risk of patient's enduring long-term health consequences from easily preventable infections. Furthermore, prompt diagnosis and effective treatment of STIs, coupled with education tailored to the individual patient needs leads to best outcomes and reduces possibility of long-term effects associated with untreated infections (Delta et al.).

People of both genders between the ages of 15 to 24 are disproportionally affected by STIs and account for half of new documented STI infections (Healthy People 2030). Young African American men and men having sex with men experience higher incidences of STIs including Syphilis and HIV (CDC, 2021). Other sexual risk-taking behavior can put individuals at an increased risk of contracting an STI such as having sex with multiple partners, illicit drug use, unprotected sex, alcohol use, and having sex in exchange for money (Patterson, 2017). In addition, women who contract STIs are at higher risk than men in regard to factors associated with short- and long-term damage to the reproductive systems that can lead to infertility (Healthy People 2030). Therefore, people with known higher risk factors need more focused education and guidance from nurses and healthcare providers about how to prevent STIs, obtain regular screenings, and when to seek prompt treatment if an STI is suspected (Patterson).

Professional nurses play a critical role in both the education and screening of STIs and can substantially contribute to lowering overall infection rates if consistently providing comprehensive healthcare to all patients (Patterson, 2017). Education in regard to STIs is crucial for individuals to develop an understanding of the risks involved in unprotected sex and the ways to prevent contraction. Brookmeyer et al., (2016) supports the use of behavioral counseling as an aide in identifying and educating patients on their specific sexual risk-taking behaviors. It is essential that all health care providers, particularly nurses who are on the frontlines of healthcare, take the time to reflect upon these sex related behaviors to determine if there is potential to mitigate patient risk by offering healthier solutions for their sexual health. Some of these solutions include encouraging condom use, limiting the number of sexual partners, providing clear explanations of the spread of STIs and providing increased access to community STI screening (Barrow et al., 2020).

Prevention is the focus of lowering overall STI rates which can be achieved through different barrier methods during sexual contact, especially both male and female condom use (Barrow et al., 2020). Nurses should encourage the use of condoms for patients that are engaging in sex as they remain amongst the most effective barrier method when used correctly and consistently at preventing the spread of STIs (Farrington et al., 2016). In some settings, nurses play a critical role in distributing condoms and providing condom education about risk reduction in regard to sexual health. This is a key component of providing alternatives to people at higher risk for sexual risk-taking behaviors and could substantially help to decrease their risk of contracting or spreading an STI (Paterson, 2017).

Although it is clear that condom use can significantly decrease the chances of individuals contracting or spreading STIs, it is evident that people are not consistently using condoms per the rising STI rates local and nationally (Farrington et al., 2016). Self and partner protection against STIs are motivators for many to seek out condom use, however long-term relationships, societal and cultural norms that discourage the use of condoms, and the fear of "reduction in pleasure and enjoyment" while wearing a condom during sex can discourage individuals from using them (Farrington et al.). Another reason specific to young and adolescent males for decreased condom use are skill related such as not knowing how to use a condom correctly (Farrington et al.). This highlights how important preventative education, as well as specific preventive education on condom use by nurses can be for preventing future STIs.

While encouraging education about STIs and the use of condoms remain the priority of preventing infections, early detection of asymptomatic STIs such as Chlamydia and Gonorrhea are also key in reducing long-term health consequences associated with untreated infections (Delta et al., 2019). Many STIs can be asymptomatic during initial contracture and can be easily

spread during sexual contact by individuals who are unaware they have an infection. Therefore, it is important for nurses to fully understand the risk factors for STIs and feel knowledgeable and comfortable with the screening process so that asymptomatic STIs can be detected and treated early with focus on preventive education (Yussman & Urbach, 2018).

Urine screening for individuals at high risk of contracting an STI is a useful tool in detecting asymptomatic STIs (Yussman & Urbach). Nurses are responsible for identifying patients that pose higher risk factors for contracting STIs and play a key role in advocating for high-risk patient's urine screening in all healthcare settings. It is a noninvasive measure that can identify people who may have unknowingly contracted an STI so they can receive prompt diagnosis, treatment, and education to prevent future complications or infections.

At the population health level, the need to decrease overall STI rates is essential at a local level. The health of an entire community can be reflected in the ways that the community itself aims to improve both physical and social environments of its' members by increasing resources and supporting individuals to reach their maximum potential (Healthy People 2030). The current STI rates suggest that healthcare is falling short of providing individuals with the means to reach their maximum potential. Individual communities can be improved by aiming to lower overall STI rates. Giving accurate and timely information on STI prevention, treatment, and potential complications to all patients regardless of age, gender, and sexual orientation will improve the health of the individual client and the community at large (Barrow et al., 2020).

Although nurses play a vital role in the overall reduction of STIs and health promotion within the community, based on the continual rise in new STI cases in the US, it is evident that that nurses and healthcare providers may not be working to their full scope of practice with this issue. Bungay et al., (2016) support that the majority of nurses practicing in the US are not

working to their full scope of practice to implement improved STI care, especially in relation to STI education and prevention. It was discovered that while STI education, condom use, and universal urine screenings are all appropriate ways in reducing and preventing STIs, routine screening is not always a common practice in healthcare settings and local communities (Bungay et al., 2016). Overall nurses have a varied range of knowledge and level of confidence in STI training and education, which affects how comprehensive sexual healthcare is provided (Bungay et al.). In addition, limited availability of STI services, public funding, and continuing education affects the ability of nurses to work within their full scope (Bungay et al.).

Nurses in every practice specialty should have a solid baseline knowledge on STI prevention and management (Maria et al., 2019). Although there is a need for nurses to receive formal training and education on STIs, foundationally at educational institutions and professional development opportunities in healthcare organizations may be falling short in providing sufficient education in this area of healthcare. Bell and Bray (2014), suggest that undergraduate nursing students had improved knowledge and attitudes towards sexual health and STIs when provided sufficient education in the curriculum. A strong foundation in STI and sexual health content allows undergraduate nursing students to enter professional practice as new graduates with enough knowledge on STIs to feel comfortable working within their full scope of care to provide sufficient sexual health care to all patients, regardless of the health care setting. It also would give students the opportunity to dialogue about sexual health issues and, and potentially dispel previous stigmas and beliefs about STIs. This basic foundational knowledge is essential in optimizing the scope of nursing practice, so that nurses across all specialties can communicate effectively with patients in regard to STI screening, education, prevention, and management (Bell & Bray).

Rowniak (2014) asserts that nurses' attitudes towards patients with STIs are critical, especially in vulnerable populations that are at higher risk. All nurses need to be able to communicate effectively about STIs which can be a potentially uncomfortable topic. Remaining nonjudgmental and empathetic, cornerstones of nursing care, may improve patient's willingness to share their personal sexual practices. This potentially allows for nurses to give information that can ultimately reduce the chances a patient will contract an STI (Committee on Gynecological Practice, 2017). While education on STIs is crucial for student nurses, it is also equally important that nurses in professional practice develop skills in how to communicate with patients about their sexual health to reduce barriers to optimal care.

This honors project aimed to investigate the level of knowledge and overall attitudes of STIs among BSN nursing students who were in *N375 Transitions to Professional Practice*, their last semester of school in the Rhode Island College School of Nursing. An online survey was used to focuses on students' knowledge and attitudes, to determine if this particular cohort of students believed they had received adequate formal education on STIs. In addition, syllabi from previous nursing courses were reviewed to see where in the curriculum students would've received education on STIs. The results of the survey, a review of the syllabi and course class schedule of content aimed to determine if the undergraduate nursing students at Rhode Island College School of Nursing might benefit from more of a focused curriculum on STIs and sexual health, or the opposite, the curriculum is addressing the topics sufficiently. If deficiencies in curricular instruction were revealed, recommendations for additional educational tools were suggested to enhance the readiness of graduating nursing students on the topic of STIs. Overall, improving student knowledge on STIs and sexual health will allow for comprehensive nursing practice following graduation, enabling nurses to be a valuable part of the health care team in the

education, prevention, and management of STIs while also improving the health of the overall community.

Theoretical Framework

Nies and McEwen (2015) maintain that an individual must feel empowered to make informed health care decisions. STI education, screening, and prevention are all means of health promotion activities with the aim to reduce or eliminate an individuals' risk of obtaining an infection. Pender's *Health Promotion Model* (1982) focuses on the idea that there are numerous psychosocial factors that play a role in an individual's ability and desire to be empowered to pursue health promotion activities (Nies & McEwen). Some of these factors include perceived benefits of the health promotion action, perceived barriers to action, perceived self-efficacy, and activity-related affect which all contribute to the individual's commitment to a health promoting action (Nies & McEwen). Personal knowledge alone on the topic may not be enough to motivate someone to pursue these behaviors (Nies & McEwen, 2015). Factors such as interpersonal influences including support from others, societal norms, models, and specific situational influences can also play a role in a commitment to a health promotion activity that in turn leads to healthy behaviors (Nies & McEwen, 2015).

STIs in the US are a significant problem that have the potential to cause adverse health outcomes in individuals (HHS, 2021). STIs also are preventable and treatable, and if detected promptly and treated appropriately, can potentially have minimum impact on an individual's overall life (Maria et al., 2017). Individuals that perceive the issue of STIs as having risk, and at the same time are empowered to believe they have the ability to decrease or minimize this risk, may be more likely to willingly participate in STI health promotion activities. These activities could include seeking out education, prevention, screening, and treatment for STIs.

Nurses play a major role in empowering individuals towards altering their perceived beliefs and encouraging health promotion activities in regard to STIs (Nies & McEwen, 2015). In order for nurses to empower others on this topic, it is first important that nurses themselves are educated sufficiently during their undergraduate studies on the topic of STIs (Bungay et al., 2016). This will create nurses who are confident and empowered themselves, so they are more apt to help guide others towards making informed decisions regarding STIs (Bungay et al.). Working towards altering individual perceptions and advocating for more health promotional activities could in turn result in lowering STI rates in individuals.

Methods

The population of interest for this study was senior nursing students at RIC SON. Participants were recruited to take a survey based on a convenience sample of senior level nursing students who were currently in *N375 Transitions to Professional Practice* at Rhode Island College. In order for students to participate in the study, they had to be pursuing a BSN in the Rhode Island College School of Nursing, be in their last semester of nursing school, and currently enrolled in *N375*. In the weeks prior to the release of the online survey to the participants, the student researcher went to a virtual class for each *N375* section, where the research and the survey were briefly discussed, and students were invited to participate. Students were allowed to ask any questions about the study and the survey and were informed they would receive an email with the instructions, an informed consent, and link to the survey.

Once a student agreed to participate, the first two questions of the survey confirmed that they had read and agreed to the informed consent prior to beginning, and that they were a current senior level nursing student currently enrolled in *N375*. A negative answer to either of the beginning questions would cause the survey to be discarded and results not used. Two reliable

survey instruments were used and administered through the online platform, *Qualtrics* to determine the knowledge and attitudes among senior BSN nursing students at Rhode Island College. The students who agreed to participate after reading the informed consent took a 24-item survey on their knowledge and attitudes regarding STIs (see Appendix A).

Data Collection and Instruments

The *Sexually Transmitted Disease Knowledge Questionnaire* (Jaworski & Carey, 2007) is a 27-item questionnaire used to assess basic knowledge of the most relevant STIs such as Herpes, HIV, Chlamydia, Gonorrhea, and HPV. This questionnaire has been often cited in the literature on knowledge regarding STIs and continues to be a frequently useful tool in assessing general knowledge. The questions remain up to date with current STI information. Out of the 27-items in the *Sexually Transmitted Disease Knowledge Questionnaire, after discussion with project advisor,* this student researcher chose 15 of the most relevant true or false questions to include in the survey to the participants. The questions were primarily focused on chlamydia, gonorrhea, and HIV, and were selected as they are the STIs that remain among the most common and concerning in the state of Rhode Island (RIDOH, 2019). With increasing rates of chlamydia and gonorrhea, it can be predicted that there is also an increased likelihood of contracting HIV due to their sexual risk-taking behaviors (CDC, 2019). Therefore, chlamydia, gonorrhea, and HIV are the STIs that are the most concerning in Rhode Island and became the focus of study.

The Enhancing Prevention with Positives Evaluation Center (EPPEC) *Provider Assessment* (2004) was also used to assess the attitudes students in *N375* had regarding STIs. In its initial use, the assessment was created to further understand the current practice of providers with patients diagnosed with HIV, so in turn, new methods of preventing STIs and improving care could be established. This assessment was created to study providers and healthcare workers

attitudes' regarding patients that had HIV to provide insight into what improvements could be made in individual practice, and healthcare facilities. Although this instrument initially focused on HIV, the questions have been applied to other STIs that are spread and prevented in the same manner as HIV such as Chlamydia, Gonorrhea, and Syphilis. The provider assessment is extensive with 11 different sections with multiple questions in each section. These questions were answered based on a scale ranging from strongly agree to strongly disagree. The researcher included five questions from the overall EPPEC assessment that focused on overall STI attitudes (vs HIV specific questions) so the results could be applied to the senior level nursing students knowledge and attitudes. Some questions were changed from being a statement that included "HIV" to all "STIs."

The last two survey questions were developed by the researcher and related to the student's personal experience at Rhode Island College in regard to their perception on their STI education. The final questions of the survey allowed students to express if they felt like they had received adequate STI education, and if so, in which classes they felt they had learned the most. In addition, once the survey was administered to students, the project advisor and the student researcher reviewed all of the syllabi from previous nursing courses taken during a typical plan of study in the Rhode Island College School of Nursing. Once the syllabi were accessed, the class plan, and/or course objectives were reviewed for inclusion of STI content. To fully explore the STI curriculum, individual course leads were then contacted and asked to share if class schedules of content included any explicit plan to educate on STIs during the semester, separate from the syllabus.

Following the release of the survey, student participants were allowed to access the online link for up to one month. The survey reports were analyzed through the online platform,

Qualtrics, where the survey was administered. Statistical analysis including standard deviation, variances, and percentages for each question were calculated and translated into data reports for the researchers review.

Results

The survey was administered to the 81-senior level *N375* nursing students, and of that sample group, 40 students participated in the online survey. The survey results were statistically analyzed through *Qualtrics* and were reviewed by both researchers.

Inclusionary Criteria Results

Each survey was first reviewed to confirm the student matched the inclusionary data for results to be considered. Therefore, a response of "yes" to the first two questions regarding their current enrollment in *N375*, and that they had read the informed consent prior to beginning, indicated that the survey could be included in analysis. All 40 responses matched the inclusionary criteria to be accepted into the results and all responses were further analyzed. Results of the inclusionary criteria is documented in the table 1 below.

Table 1 Inclusionary Criteria Table

QUESTION	YES (Number of participants that answered "yes")	NO (Number of participants that answered "no")
Q1. I have read the informed consent provided via email prior to beginning this survey.	40 (100%)	0
Q2. I am a senior level nursing student currently enrolled in *N375 transitions to professional practice.*	40 (100%)	0

Knowledge-Based Survey Results

Following analysis, there was statistical evidence to suggest that the majority of students that had taken the survey had sufficient knowledge on STIs (chlamydia, gonorrhea, and HPV) to correctly respond to the survey questions. The majority of students, (at least over 60%), were able to identify the correct response. The 7th question of the survey-focused on HIV risk in individual's that already have a prior STI, and many students were divided on their answers (see Appendix D). While it is true that a person that is infected with an STI is at an increased risk for contracting HIV in the future due to sexual risk-taking behaviors, 41.46% of students answered false, 19.51% answered "I don't know," and 39.02% of participants answered true. The results of the knowledge- based portion of the survey taken from the *Sexually Transmitted Disease Knowledge Questionnaire* (Jaworski & Carey, 2007) is shown below in table 2.

Table 2 Knowledge-Based Results Table

QUESTION	TRUE	FALSE	I DON'T KNOW.
Q3. Sexually transmitted infections can lead to health problems that are usually more serious for men than women.	6 (15%)	29 (72.5%)	5 (12.5%)
Q4. There is a cure for gonorrhea.	30 (75%)	5 (12.5%)	5 (12.5%)
Q5. There is a cure for chlamydia.	36 (90%)	2 (5%)	2 (5%)
Q6. Frequent urinary infections can cause chlamydia.	6 (15%)	28 (70%)	6 (15%)
Q7. It is easier to get HIV if a person has another sexually transmitted infection (STI).	16 (39%)	17 (41.4%)	8 (19.5%)

Q8. A woman who has genital herpes can pass the infection to her baby during childbirth.	39 (97%)	1 (2.5%)	0
Q9. A person who has genital herpes must have open sores to give the infection to his or her sexual partner.	15 (37.5%)	24 (60%)	1 (2.5%)
Q10. If a person had gonorrhea in the past, he or she is immune (protected) from getting it again.	0	39 (97.50%)	1 (2.5%)
Q11. Human papillomavirus (HPV) can cause genital warts.	37 (92.5%)	1 (2.5%)	2 (5%)
Q12. The same virus causes all sexually transmitted infections (stis).	0	40 (100%)	0
Q13. A man can protect himself from getting genital warts by washing his genitals after sex.	4 (10%)	33 (82.5%)	3 (7.5%)
Q14. A woman can look at her body and tell if she has gonorrhea.	2 (5%)	32 (80%)	6 (15%)
Q15. Human papillomavirus (HPV) can lead to cancer in women.	40 (100%)	0	0
Q16. A woman can tell by the way her body feels if she has a sexually transmitted infection (STI).	13 (32.50%)	24 (60%)	3 (7.5%)

Q17. Soon after infection with HIV a person develops open sores on his or her genitals (penis or vagina).	3 (7.5%)	31 (77.5%)	6 (15%)

Attitude-Based Survey Results

The attitudes students had on talking with future patients on the topic of STIs varied based on the individual. Many students answered that they were comfortable talking about STIs with future patients, that they were aware talking about STIs with patients was a part of their role as the nurse, and that they were interested in becoming an advocate to patients in the future. However, on the 21st question that asked students if they felt confident that they had been provided adequate education to provide STI prevention counseling to future patients, 25.64% of students said they disagreed, 20.51% said they were unsure, 38.46% said they agreed, and 15.38% responded that they strongly agreed (see Appendix E).

On question 23 when students were asked if they felt they received adequate STI education during their undergraduate study specifically, 33.33% of answered yes, 43.59% answered no and 23.08% answered that they were unsure (see Appendix F). To break that down even further, of the 40 participants, only 13 answered "yes," that they felt they had received enough education on STIs at Rhode Island College. The last survey question asked students to identify specific courses in the nursing program that they felt they learned the most about STIs. Students were not asked to limit their choices to one option and could report multiple if they saw fit. Of the responses, 29 people identified maternity as being the course where they received the most formal STI education. In addition, community health nursing was identified by 10 participants and medical-surgical nursing identified by seven participants. Pediatrics was also

given two responses, and additional responses varied from self-education to that the student didn't know or remember. Table 3 is shown below.

Table 3 Attitude-Based Results Table

QUESTION	STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE
Q18. I am not comfortable talking with my future patients/clients about their sexual practices.	1 (2.5%)	0	0	12 (30.7%)	26 (66.6%)
Q19. Talking about safer sex with my future STI-infected patients/clients is not my responsibility.	1 (2.5%)	0	0	12 (30.7%)	26 (66.6%)
Q20. I do not know how to talk with patients/clients about reducing risk of STIs.	0	1 (2.5%)	6 (15.4%)	19 (48.7%)	13 (33.3%)
Q21. I am confident I have adequate training to provide STI prevention to future patients/clients.	6 (15.3%)	15 (38.4%)	8 (20.5%)	10 (25.64%)	0
Q22. I see myself as a future advocate of patient/clients more than a protector of public health.	7 (17.9%)	18 (46.2%)	13 (33.3%)	1 (2.5%)	0

QUESTION	YES	NO	UNSURE
Q23. Do you feel as though you have received enough education on STIs at Rhode Island College?	14 (33.5%)	17 (43.59%)	9 (23.1%)
Q24. Which courses at Rhode Island College *(if any)* do you feel you learned the most about STIs?	• Maternity (29 responses) • Community (10 responses) • Medical-Surgical/Adult (7 responses) • Pediatrics (2 responses) • Transitions (1 response) • I don't know (1 response)		

- I don't remember (1 response)

Syllabi Review and Class Schedule of Content

Results of the syllabi and class schedule of content review presented findings of what the overall undergraduate curriculum entails on STI education at Rhode Island College. While reviewing the individual syllabi from each course, it was discovered that there was no explicit mention of STIs on the course syllabi. Therefore, induvial course leads were contacted for each nursing course and asked whether the class schedule of content entails any STI education. Following review and response from the faculty in regard to their class schedule of content, it was noted that the class that had the highest amount of STI education in the detailed class schedule was Maternal Newborn Nursing. This class focused on the STI education of pregnant women, with significant focus on TORCH infections and how these STIs can potentially affect a fetus inutero and infant after birth.

Following Maternal Newborn Nursing, Public and Community Health Nursing had brief mention of STI in the form of a small section of the course focusing on communicable diseases. Within this communicable disease section, Chlamydia is the only STI that is focused on, and discussed in class. Overall, these two courses had the most emphasis of STI education in the syllabi and were reported by the course leads to have this content on their class schedule of content. The results of the review correlate with the results of question 24 of the survey where students self-reported Maternity followed by Community as being the courses where they received the most STI education.

The course lead from the Nursing 222, *Introduction to Professional Practice* class reported that the students enrolled in this course have a sexuality unit where STIs are mentioned. Although information about specific STIs is not mentioned, the unit specifically speaks on the nurse's important role in promoting safe sexual health practices including assessments for risk

factors, safe sex, hygiene, and signs and symptoms of possible infections. There is specific emphasis on how to prevent STIs, methods of contraception, and interviewing techniques during an exam focusing on sexual health history. This information is crucial for the development of nurse's that are well equipped to handle these topics with patients, and it is interesting that no students who participated in the survey mentioned this course as providing STI education.

The other nursing courses reported that there was no explicit plan for STI education in the courses. The Pediatric nursing course reported that there may be mention of STIs in relation to adolescents in the textbook, however it is not explicitly gone over during class. In addition, the Adult Health nursing course does not address STIs in class, although there is some information in the textbook on the subject. However, it was also stated by the course lead that there is a significant time spent in class going over HIV, and it was reported that the risk of obtaining other STIs is also discussed. In the Psychiatric/Mental Health course it was also noted that during the class schedule of content that focuses on rape and sexual assault, STIs are briefly mentioned and the importance of screening these individuals is discussed. The results of the syllabi review are shown below in table 3.

Table 3 Syllabi Review Results

Course	**Level**	**Credits**	**Semester/Year Taken**	**Mention of STI education in Syllabi**
Nursing 220, Foundations of Therapeutic Interventions	200	3	Spring, 2018	No
Nursing 222, Introduction to Professional Nursing	200	3	Spring, 2018	No
Nursing 225, Introduction to Writing and Research in Nursing	200	2	Spring, 2018	No
Nursing 223, Fundamentals of Nursing Practice	200	4	Fall, 2018	No

Nursing 224, Health Assessment	200	3	Fall, 2018	No
Nursing 340, Psychiatric/ Mental Health Nursing	300	6	Spring, 2019	No
Nursing 344, Maternal Newborn Nursing	300	6	Spring, 2019	No
Nursing 342, Adult Health Nursing I	300	6	Fall, 2019	No
Nursing 346, Nursing of Children and Families	300	6	Fall, 2019	No
Nursing 372, Adult Health Nursing II	300	6	Spring, 2020	No
Nursing 374, Contemporary Professional Nursing	300	3	Spring, 2020	No
Nursing 370, Public and Community Health Nursing	300	6	Fall, 2020	No
Nursing 375, Transition to Professional Nursing Practice	300	6	Fall, 2020	No

Discussion

Based on the findings, it can be inferred that although the senior level nursing students claim to possess adequate knowledge on STIs, the majority did not feel they had received enough education on the topic. In addition, in relation to the question about increasing risk of contracting HIV when a patient has a previous STI, a majority of the student's failed to recognize the connection between sexual risk-taking behaviors and HIV contraction. This poses an interesting analysis of the student's ability to recognize sexual risk-taking behaviors in individuals that would be at a higher risk in the community for contracting future STIs (CDC, 2019). Both of these findings are critical in understanding the perceived undergraduate educational experience on the topic of STIs at Rhode Island College. Even if students possess the knowledge on STIs as they approach graduation, a lack of confidence in their skills may result in failure to utilize what knowledge they do have once entering professional practice (Bell & Bray, 2014). Bungay et al.

maintains that when nurses have an inconsistent range of knowledge and level of confidence in STI training and education, it can result in a lack of comprehensive education, prevention, screening, and treatment in professional practice. In addition, if senior level nursing students do not feel confident in their STI education at Rhode Island College, there are recommendations for improvements that can be made so that by the time they enter professional nursing practice they feel more confident in providing STI care across all specialties (Bell & Bray, 2014).

The recommendation based on the findings from the researchers are as follows. While the majority of students stated that the Maternal Newborn nursing course was where they received the most specific STI education during their undergraduate studies, this course's focus is on STIs in relation to pregnant women, childbirth and the significance of TORCH infections in the newborn. In turn, when students graduate and enter professional practice, they may be unprepared on how to handle this topic with populations outside of pregnant woman and newborns. Conceivably, disseminating STI content throughout the curriculum may allow students to more fully understand the scope of STI assessment, evaluations and determination of risk factors across all specialty areas. Specific content on STIs related to populations of higher risk individuals such as sex workers, men who have sex with men, and high school and college aged adults are only being sporadically addressed (CDC, 2021).

Courses such as Pediatrics, Adult Health, and Community nursing could acquire a more significant role in teaching students to explore STIs in other high-risk populations. Pediatric nurses have a substantial role in identifying high risk adolescents, and young adults who pose a risk of contracting STIs (Maria et al., 2017). Providing more specific education on particular STIs in this course, in addition to continuing to educate students on the importance of developing therapeutic relationships with adolescents on this topic, will further enhance the comfort students

have on the topic following graduation. Adult Health nursing also involves care for patients from high-risk groups such as people that have sex with multiple partners, illicit drug users, people who engage in unprotected sex, alcohol users, and people who have sex in exchange for money (Patterson, 2017). African Americans are another group of individuals who are affected by STIs at a disproportionate rate and would also be identified as a vulnerable population that she be discussed further in Adult Health Nursing (CDC, 2021). Adding more specific information on STIs during the two semesters of Adult Health nursing or a simulated experience involving specific STIs, will increase student knowledge and build confidence on this topic.

Conclusion

The survey provided student insight into the perceived level of STI education at Rhode Island College throughout the undergraduate nursing program. Although the results of the survey indicate that the majority of students believe they possess adequate knowledge on STIs, at the same time, the survey results indicate that students feel they should have more of a diverse education across the curriculum related to this topic.

For nurses to feel comfortable providing sexual health care for patients, knowledge and attitudes on the topic is essential (Maria et al., 2017). This could be in the form of continuing education once nurses have already entered the professional field or through providing undergraduate nursing students with an adequate STI education throughout their nursing curriculum. This in turn can provide a new generation of nurses that feel equipped in addressing this topic in all areas of healthcare which could contribute to substantially lowering the overall STI rate (Bungay et al., 2016). The education of undergraduate nursing students in knowledge and attitudes surrounding STI is crucial in providing comprehensive care to future patients.

Limitations

The response rate for this study was 49.3% (40 out of the 81 students from the senior level class), which is essentially a slightly low response rate (Corner & Lemonde, 2019). While this was about half of the total students enrolled in *N375,* the results may not accurately represent the total population of graduating senior students. In addition, the survey questions focused primarily on chlamydia, gonorrhea, and HIV. Although this was the researcher's primary interest as they are the STIs most common and concerning to Rhode Island, it may not give a complete picture of overall STI knowledge by the students. On question 24 where students were asked to identify which courses, they felt they received the most undergraduate education, it was not specified whether that education was obtained through the theory or clinical component of the class. This distinction may have had the potential to provide further insight into where students felt they received the most undergraduate education, and how this can be adjusted to provide the best undergraduate STI education.

Nursing Implications

The findings from this project could serve as a foundation for future nursing research, including the students' confidence about their knowledge on STIs as they go forth into professional practice. A more comprehensive commitment to address STIs across all courses in the nursing school curriculum might be considered., Adding a simulation experience to one or two of the courses may also serve as an effective active learning strategy for learning about STIs and sexual health. The overall findings from this research reinforces the importance of undergraduate nursing education in developing professional nurses who feel equipped to prevent, educate, and treat STIs (Bell & Bray, 2014). The importance of the extent this education has on building confidence is crucial to the development of future nurses that will provide comprehensive education, prevention, screening, and treatment of STIs. Overall, this solidifies

the nurse's role as a health promoter in regard to STIs and highlights the importance of primary prevention and health promotion.

References

Barrow, R., Ahmed, F., Bolan, G., & Workowski, K. (2020). Recommendations for providing quality sexually transmitted diseases clinical service. *Center for Disease Control and Prevention.* https://www.cdc.gov/mmwr/volumes/68/rr/rr6805a1.htm.

Bell, A., & Bray, L. (2014). The knowledge and attitudes of student nurses towards patients with sexually transmitted infections: exploring changes to the curriculum. *Nurse Education in Practice 14(5), 512-517.* https://doi.org/10.1016/j.nepr.2014.05.002.

Brookmeyer, K.A., Hogben, M., & Kinsey, J. (2016). The role of behavioral counseling in STD prevention program settings. *National Institute of Health: Sexually Transmitted Diseases 43(1), 102-112.* https://doi:10.1097/OLQ.0000000000000327.

Bungay, V., Handlovsky, I. Phillips, J. C., & Prescott C. (2016). A scoping review of the literature on nursing practices with persons seeking care for sexually transmitted infections. *Journal of Clinical Nursing, 26, 33-48*. http://doi:10.1111/jocn.13561.

Center for Disease Control and Prevention. (2021). *Sexually Transmitted Infections Prevalence, Incidence, and Cost Estimates in the United States.* https://www.cdc.gov/std/statistics/prevalence-incidence-cost-2020.htm.

Centers for Disease Control and Prevention. (2021). *Reported STDs in the U.S. Reach all-time high for 6th consecutive year.* https://www.cdc.gov/std/statistics/2019/default.htm.

Center for Disease Control and Prevention. (2019). *New CDC Report: STDs Continue to Rise in the U.S.* https://www.cdc.gov/nchhstp/newsroom/2019/2018-STD- surveillance-report-press-release.html.

Committee on Gynecologic Practice. (2017). Sexual health. *The American College of Obstetricians and Gynecologists (ACOG).* https://www.acog.org/-

/media/project/acog/acogorg/clinical/files/committee-opinion/articles/2017/07/sexual-health.pdf.

Corner, B., & Lemonde, M. (2019). Survey technique for nursing studies. *Canadian Oncology Nursing Journal, 29(1), 58-60. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6516248/.*

Dela, H., Attram., Behene, E., Kumordije, S., Addo, K.K., Nyarko, E.O., Kyei, N.A., Carroll, J.N., Kwayke, C., Duplessis, C.A., Adams, N., Garges, E., & Letizia, A.G. (2019). Risk factors associated with gonorrhea and chlamydia transmission in selected health facilities in Ghana. *BMC Infectious Diseases, 19 (425).* https://doi:10.1186/s12879-019-4035-y.

Enhancing Prevention with Positives Evaluation Center. (2004). *EPPEC Provider Assessment*. https://prevention.ucsf.edu/sites/prevention.ucsf.edu/files/uploads/tools/surveys/pdf/EPPEC-ProviderAssessment.pdf.

Farrington, E.M., Bell, D.C., & DiBacco, A.E. (2016). Reason's people give for using (or not using) condoms. *National Institute of Health: AIDS Behavior, 20(12), 2850-2862.* https://doi:10.1007/s10461-016-1352-7.

Healthy People 2030. (2020). *Sexually Transmitted Infections Workgroup Objectives.* https://health.gov/healthypeople/objectives-and-data/browse-objectives/sexually-transmitted-infections.

Holt, M., & Warne, T. (2007). The educational and practice tensions in prepping pre-registration nurses to become future health promoters: a small-scale explorative study. *Nurse Education in Practice, 7, 373-380.* https://doi:10.1016/j.nepr.2006.11.009.

Jaworski, B. & Carey, M. (2007). Development and psychometric evaluation of self-administered questionnaire to measure knowledge of sexually transmitted diseases. *AIDs and Behavior, 11, 557 – 574.*

Maria, D., Guilamo-Ramos, V., Jemmott, L.S., Derouin, A., & Villarruel. (2017). Nurses on the front lines: improving adolescent sexual and reproductive health across health care settings. *The American Journal of Nursing, 11(1), 42 – 51.* https://doi:10.1097/01.NAJ.0000511566.12446.45.

Mayo Clinic. (2020). *Sexually transmitted diseases (STD) symptoms.* https://www.mayoclinic.org/diseases-conditions/sexually-transmitted-diseases-stds/in-depth/std-symptoms/art-20047081.

Nies, M., & McEwen, M. (2015). *Community/Public Health Nursing.* Elsevier Saunders.

Patterson, C., Fields, L., & Moxham, L. (2017). Breaking the chain of transmission: nurses' role in preventing STIs. *Australian Nursing and Midwifery Journal, 25, 43.*

Polit, D.F., & Beck, C. T. (2012). *Nursing research: Generating and assessing evidence for nursing practice* (ninth edition). Wolters Kluwer Health.

Rhode Island Department of Health. (2019). *HIV, Sexually Transmitted Diseases, Viral Hepatitis, and Tuberculosis Surveillance Report.* https://health.ri.gov/publications/surveillance/2019/HIVSTD.pdf.

Rowniak, S. (2014). Creating a strategic partnership for educating nurse practitioner students about sexual health*. Scientific Research Publishing Inc., 5, 1377-1382.* http://dx.doi.org/10.4236/ce.2014.515156.

Sznitman, S., Stanton, B.F., Vanable, P.A., Carey, M.P., Valois, R.F., Brown, L.K., DiClemente, R., Hennessy, M., Salazar, L.F., & Romer, D. (2011). Long-term effects of community based STI screening and mass media HIV prevention messages on sexual risk behaviors of African American adolescents. *National Institute of Health: Aids Behavior, 15(8), 1755-1763.* https:// doi:10.1007/s10461-011-9946-6.

Unemo, M., Bradshaw, C.S., Hocking, J. S., De Vries, H. J., Francis, S. C., Mabey, D., Marzzo, J.M., Sonder, G. J., Schwebke, J. R., Hoornenborg, E., Peeling, R. W., Phillip, S. S., Low, N., & Fairley, C. K. (2017). *Sexually Transmitted Infections: Challenges Ahead.* https://www.thelancet.com/commissions/sexually-transmitted-infections.

United States Department of Health and Human Services. (2021). *STI National Strategic Plan 2021 – 2025.* https://www.hhs.gov/programs/topic-sites/sexually-transmitted-infections/plan-overview/toolkit/index.html.

World Health Organization. (2019). *Sexually Transmitted Infections*. https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-(stis).

Yussman, S., & Urbach, K. (2018). Introduction of universal chlamydia and gonorrhea screening in urban based health center. *Journal of Adolescent Health*, 62 (2018), 154.

Appendix A

Knowledge and Attitudes Regarding Sexually Transmitted Infections (STIs) Survey

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Start of Block: 1. Knowledge

Q1 I have read the informed consent provided via email prior to beginning this survey.

- ○ Yes
- ○ No

Q2 I am a senior level nursing student **currently** enrolled in *N375 Transitions to Professional Practice.*

- ○ Yes
- ○ No

Q3 Sexually Transmitted Infections can lead to health problems that are usually more serious for men than women.

- ○ True
- ○ False
- ○ I don't know.

Q4 There is a cure for Gonorrhea.

- ○ True
- ○ False
- ○ I don't know.

Q5 There is a cure for Chlamydia.

- ○ True
- ○ False
- ○ I don't know.

Q6 Frequent urinary infections can cause Chlamydia.

- ○ True
- ○ False
- ○ I don't know.

Q7 It is easier to get HIV if a person has another sexually transmitted infection (STI).

- ○ True
- ○ False
- ○ I don't know.

Q8 A woman who has genital herpes can pass the infection to her baby during childbirth.

- ○ True
- ○ False
- ○ I don't know

Q9 A person who has genital herpes must have open sores to give the infection to his or her sexual partner.

- ○ True
- ○ False
- ○ I don't know.

Q10 If a person had Gonorrhea in the past, he or she is immune (protected) from getting it again.

- ○ True
- ○ False
- ○ I don't know.

Q11 Human Papillomavirus (HPV) can cause genital warts.

- ○ True
- ○ False
- ○ I don't know.

Q12 The same virus causes all sexually transmitted infections (STIs).

- ○ True
- ○ False
- ○ I don't know.

Q13 A man can protect himself from getting Genital Warts by washing his genitals after sex.

- ○ True
- ○ False
- ○ I don't know.

Q14 A woman can look at her body and tell if she has Gonorrhea.

- ○ True
- ○ False
- ○ I don't know.

Q15 Human Papillomavirus (HPV) can lead to cancer in women.

- ○ True
- ○ False
- ○ I don't know.

Q16 A woman can tell by the way her body feels if she has a sexually transmitted infection (STI).

- ○ True
- ○ False
- ○ I don't know.

Q17 Soon after infection with HIV a person develops open sores on his or her genitals (penis or vagina).

- ○ True
- ○ False
- ○ I don't know.

Start of Block: 2. Attitudes

Q18 I **am not** comfortable talking with my future patients/clients about their sexual practices.

- ○ Strongly agree
- ○ Agree
- ○ Neither agree nor disagree
- ○ Disagree
- ○ Strongly Disagree

Q19 Talking about safer sex with my future STI-infected patients/clients is **not** my responsibility.

- ○ Strongly agree
- ○ Agree
- ○ Neither agree nor disagree
- ○ Disagree
- ○ Strongly Disagree

Q20 I **do not** know how to talk with patients/clients about reducing risk of STIs.

- ○ Strongly agree
- ○ Agree
- ○ Neither agree nor disagree
- ○ Disagree
- ○ Strongly Disagree

Q21 I am confident I have adequate training to provide STI prevention counseling to future patients/clients.

- ○ Strongly agree
- ○ Agree
- ○ Neither agree nor disagree
- ○ Disagree
- ○ Strongly Disagree

Q22 I see myself as a future advocate of patients/clients more than a protector of public health.

- ○ Strongly agree
- ○ Agree
- ○ Neither agree nor disagree
- ○ Disagree
- ○ Strongly Disagree

Q23 Do you feel as though you have received enough education on STIs at Rhode Island College?

- ○ Yes
- ○ No
- ○ Unsure

Q24 Which courses at Rhode Island College *(if any)* do you feel you learned the most about STIs?

_____

End survey

Answer Key to Survey Instrument

Q1 through Q2 are answered based on the individual student. For results of an individual survey to be considered, students had to have answered "Yes" to Q1 and "Yes" to Q2.

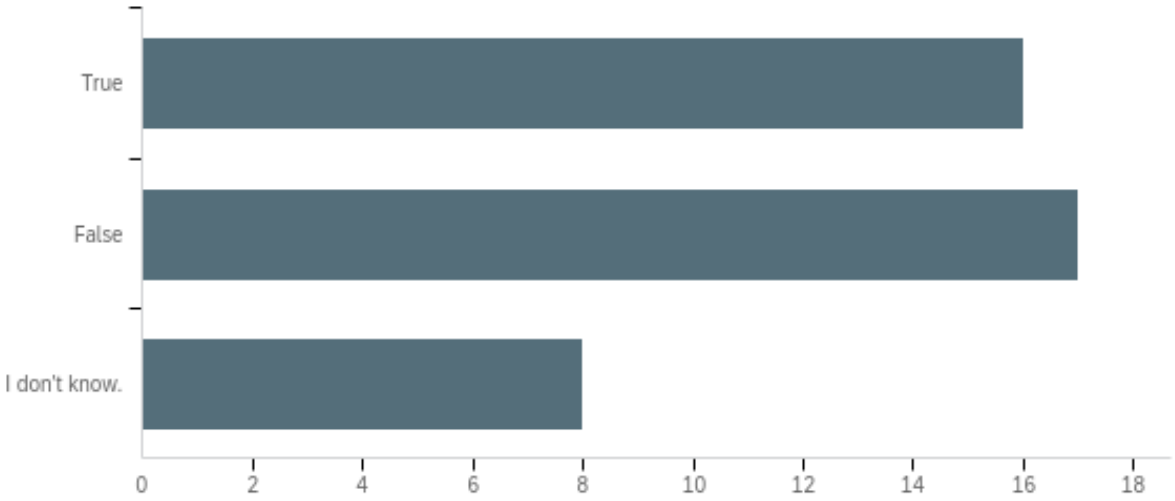
Q3. False
Q4. True
Q5. True
Q6. False
Q7. True
Q8. True
Q9. False
Q10. False
Q11. True
Q12. False
Q13. False
Q14. False
Q15. True
Q16. False
Q17. False

Q18 through Q22 are answered based on the individual student's attitudes regarding STIs and treating future patients that may be diagnosed with an STI.

Q23 and Q24 are also answered based on how the individual student feels about the STI education received while pursuing a BSN at the Rhode Island College School of Nursing.

Appendix B

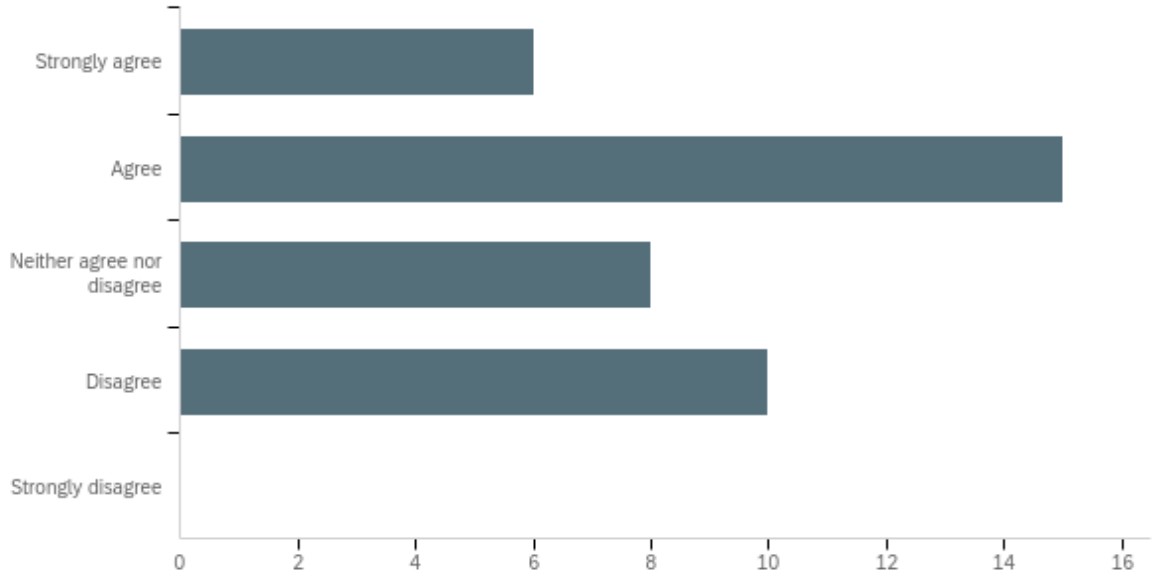
Q7. It is easier to get HIV if a person has another sexually transmitted infection (STI).



Answer	%	Count
True	39.02%	16
False	41.46%	17
I don't know.	19.51%	8
Total	100%	40

Appendix C

Q21. I am confident I have adequate training to provide STI prevention counseling to future patients.

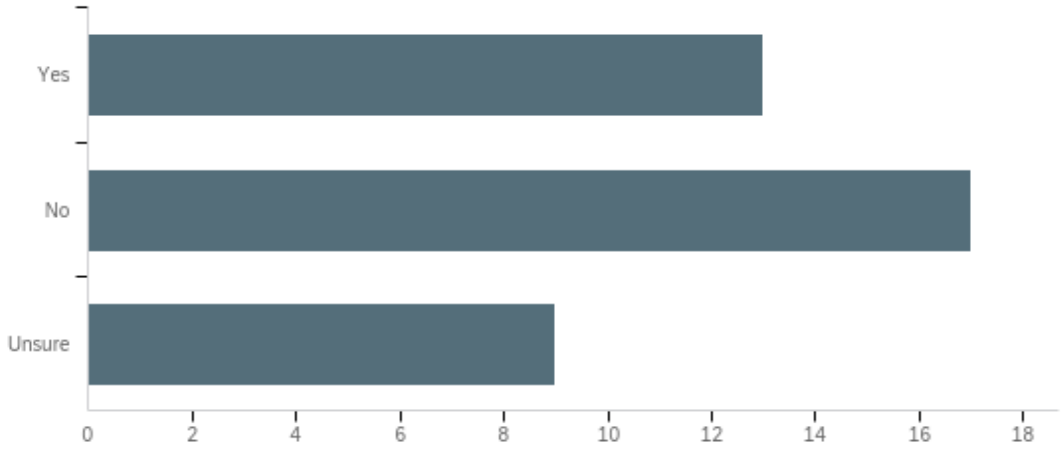


Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
Q21. I am confident I have adequate training to provide STI prevention counseling to future patients/clients.	1.00	4.00	2.56	1.03	1.07	40

Answer	%	Count
Strongly agree	15.38%	6
Agree	38.46%	15
Neither agree nor disagree	20.51%	8
Disagree	25.64%	10
Strongly disagree	0.00%	0
Total	100%	40

Appendix D

Q23. Do you feel as though you have received enough education on STIs at Rhode Island College?



Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
Q23. Do you feel as though you have received enough education on STIs at Rhode Island College?	1.00	3.00	1.90	0.74	0.55	39

Answer	%	Count
Yes	33.33%	13
No	43.59%	17
Unsure	23.08%	9
Total	100%	39