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Improving Sexually Transmitted Infection Knowledge in Community College Students: A Path to Prevention

Rebecca F. Halford
rgh19a@acu.edu

This doctoral project, directed and approved by the candidate's committee, has been accepted by the College of Graduate and Professional Studies of Abilene Christian University in partial fulfillment of the requirements for the degree

Doctor of Nursing Practice

Nannette W. Glenn, Ph.D.

Dr. Nannette Glenn, Dean of the College of Graduate and ProfessionalStudies

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Doctoral Project Committee:

Dr. Molly Kuhle, Chair

Dr. Cheryl Green

Dr. Lawrence Santiago

Abilene Christian University

School of Nursing

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by

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Dedication

I would like to dedicate this project to my strong and supportive husband, Hunter, who completed this program alongside me, and pushed me not only in the educational field but also in my own health. He has the strength of a lion and an outlook on life that is greater than one can see. His determination and positive attributes contributed to my success. To my son, Eli, who spent many nights asking when we would be done with homework, but always willing to be patient with my husband and myself. To my father, Ray, who pushed me to achieve all my dreams and to never give up. To my mother, Ylma, who continues to be the glue that holds our family together and is always willing to help her children. To my brother, Gilbert, for being my cheerleader throughout life and never giving up on me. Their love, support, and encouragement assisted me in completing a program I did not think I would be able to complete.

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Abstract

This DNP project was conducted to identify gaps in knowledge focusing on sexually transmitted infections within Texas and Region one. The research study gathered data from first-year nursing students who have chosen to participate in a sexually transmitted infection-focused educational module. Participants were first-year nursing students and understood the research study was strictly voluntary with no forms of compensation. Currently, the curriculum in the nursing program at which the study took place does not focus on sexually transmitted infections and is directed to speak minimally on the subject. This is a contributing factor to why the rise in sexually transmitted infections and lack of knowledge in the region is so prevalent. This cross-sectional descriptive correlational study sought to build upon and enhance the student nurse's current knowledge, skills, and self-efficacy in sexually transmitted infections in hopes of decreasing the rise and educating others on sexual health. A total of 45 students in their first semester of an Associate Degree Nursing Program in rural Texas consented to participate in this study. Each participant was educated on the study being conducted in an online format using a proxy and the researcher. An electronic survey was completed by the participants before and after viewing the interactive evidence-based educational module that focused on sexually transmitted infections. The pre-intervention scores were statistically significantly different from postintervention scores ($p < 0.05$), with a higher average of correct scores postintervention (25.6 postintervention compared to 8.4 pre-intervention; Figure 1–2). Two percent of participants received a score of 20 or more pre-educational intervention, compared to 98% of participants posteducational, proving that the educational module was beneficial for those who participated in the study.

Keywords: Sexually transmitted infections, young adults and STIs, lack of knowledge with sexually transmitted disease, and lack of knowledge STIs economic studies

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Chapter 1: Introduction

For more than a decade, sexually transmitted infections (STIs) have continued to capture the attention of state, national, and worldwide populations. Although significant achievements in diagnosis, treatment, and prevention have been realized, STIs continue to remain a global health concern. Studies prior were identified under the diagnoses of sexually transmitted disease (STDs) and not sexually transmitted infections. The reason for the change within the medical community was to identify that not all sexually transmitted infections turn into a disease (El Bcheraoul et al., 2013). Typically, disease symptoms appear; however, with the term *infection*, a person may have no identified symptoms until later (El Bcheraoul et al., 2013). Today, without knowledge of the tragedies experienced in the early years of the epidemics, new generations of Americans face the realities of STIs. The rate of STIs among college-aged individuals in a rural West Texas county is disconcerting at present, as numbers continue to rise. The impact of continued transmission is worrisome as infected individuals may not be aware of their contagion or fear knowing but continue to be sexually active.

Education focusing on prevention is potentially one of the most influential interventions resulting in a reduction in prevalence and incidence of STIs among college-aged students (El Bcheraoul et al., 2013). STI prevention positively impacts every member of the community, from infants to adults, and further promotes healthy lifestyles. Common high-risk populations include men and women between the ages of 18 and 24. In 2017, chlamydia, gonorrhea, and syphilis continued to rise within the area of study. Chlamydia rose from 91,535 to 93,163, gonorrhea from 23,203 to 23,403, and syphilis from 2,733 to 2,976 within the above population (HIV/STD Epidemiology and Surveillance Branch, 2018). Encouragement of abstinence and lack of resources contributes to the rise in numbers. Focusing on college students within the age

group of 18–24 with proper education and resource can possibly decrease the prevalence of the spread of STIs.

Background of the POI

Individuals ages 18–24 make up just over one-quarter of the sexually active population but account for half of the 20 million new sexually transmitted infections that occur in the United States each year, estimated by the CDC (2017). This research project will hopefully lead to the development of a college education module that allows college students to review education related to STIs. The most common STIs within the age group participating in the study are chlamydia, gonorrhea, and syphilis (CDC, 2017). There are different screenings, treatment, and best practices for prevention and providing anonymous resources to assist with funding, education, and other safe acts. The project will evaluate the need for education, awareness, and further knowledge on STIs and the impacts of transmission rates, routine screenings, and treatment of STIs.

Statistical Information

Per the CDC (2017), Texas has primary and secondary syphilis cases that have increased to 30,644 cases which is a 76% increase since 2013. An increase of 54% of cases was determined from 2013-2017 of congenital syphilis (Texas Department of State Health Services, 2016). Chlamydia has the highest increase since the last research completion in 2013, with 1.7 million cases being reported from 2013–2017, which is a 22% increase (Texas Department of State Health Services, 2016). In 2017, 97.4% and 94.2% of all reported chlamydia cases in women and men, respectively, were among those aged 15–44 years (CDC, 2017). In 2017, among women, only 3.8% of chlamydia cases were reported from an STI clinic. A large proportion of cases among women (31.6%) were reported from private physicians/HMOs in

2017 (CDC, 2017). Gonorrhea was also reported from 2013 to 2017 with an increase of 67%, with reported cases of 555,608 (CDC, 2017). With the rise in numbers, the question arises if proper education is being given to those who are more prone to being sexually active. It is important as these numbers rise that we as educators give proper information, locations of testing centers and that each case is private. Again, as reviewed by the CDC, many women are choosing to go to their own primary physicians. Typically, community colleges and universities have clinics on campus that can be utilized by students attending the school. If students fear being seen by others, reaching out to their parents, or having information given to their parents without their knowledge or agreement, this on-campus resource is available to each student.

Demographics

The comparative project of study was collected at a rural community college with a population of less than 14,000 individuals. The community college of choice has a population of less than 7,000 students each semester with online and in-person classes (CDC, 2017). The average age of a community college student is around 21 years of age. The majority of the student population are residents of the rural communities being studied. The average cost of enrollment is less than $3,000 a semester, depending on the major. Each student has access to a course catalog with hours and costs for each major or department of focus.

Impacts on Health

The majority of related health issues regarding sexually transmitted infections involve the female reproductive system and fetuses (Medline Plus Medical Encyclopedia, 2020a). Men are at risk as well in relation to developing health-related issues if the infection is not treated in a timely manner. One complication that is related to sexually transmitted infections in women is cervicitis. Cervicitis is the inflammation of the tissue at the end of the uterus, known as the

cervix (Medline Plus Medical Encyclopedia, 2020a). Although cervicitis cannot cause life-threatening injuries, it can cause pain with sexual intercourse and other complications during intercourse. Women who become infected with chlamydia or gonorrhea and left untreated can develop a disease known as pelvic inflammatory disease (PID). According to the CDC, 10-15% of women will develop PID that can lead to infertility if not treated or found in a timely manner (CDC, 2013). A complication for men with an untreated STI is epididymitis. Epididymitis is the inflammation of the tube that connects the testicles with the vas deferens (Medline Plus Medical Encyclopedia, 2020b). Both infections listed are typically treated with antibiotic therapy with no further complications but can become more severe with no treatment (MedlinePlus Medical Encyclopedia, 2020b).

Financial Strain

As stated above, some health issues related to untreated STIs can become costly (Chesson, 2017). STIs left untreated in women can cause complexities such as pelvic provocative sickness, ectopic pregnancy, baby blues endometriosis, antagonistic pregnancy results, fetus removal, intrauterine demise, and unexpected labor, as well as neonatal and newborn child diseases (Chesson, 2017). These infections, procedures, or diseases can accumulate a substantial amount of debt. Healthcare professionals stress the importance of seeking medical attention immediately once a person is informed of a partner testing positive or the individual starts to have abnormal symptoms that are not common in their everyday life. Untreated STIs can cause financial strain on the individual as well as the healthcare system when complications with a pregnancy, with a child in utero, and when the newborn child is born. An estimated $16.7 billion is related to medical costs when considering STIs and lack of treatment (Chesson, 2017). The population of the study is a vulnerable group due to larger payouts and

financial strain (e.g., being single, uninsured, those on their legal guardian's insurance, the risk that their legal guardian will gain knowledge that they are being tested, treated, or seeking resources to educate themselves on safe sex due to beliefs or standards; Chesson, 2017). Those that go untreated and continue to be sexually active put themselves and others at risk. Being able to educate the high-risk population on resources available can reduce the spread dramatically. The educational program proposed can assist in giving out those free available resources, educate on safe sex, and identify common STIs in their area in hopes of reducing the incidence.

Purpose of the Project

The purpose of the prospective project was to increase knowledge of STIs among college students by piloting an STI education module during their first semester of nursing school. Overall, improving knowledge of STIs among nursing students can have a great impact on the future of the entire population. The main goal was to educate and target individuals that are engaging in sexual activity and provide proper education and awareness of the consequences of STIs. Due to the lack of knowledge of STIs, individuals often do not seek out healthcare or treatment until symptoms are apparent. By providing a crash course on STIs, the hope is to reduce the prevalence of increased STI rates in this rural area. By focusing on first-semester nursing students, the project can target a population within the age ranges noted. This is done in hopes these future nurses will start to educate others, and the growth of STI knowledge can reduce the risk of contracting an STI.

Financial constraints can impede the prevention of STIs. Some individuals are unable to afford the cost of testing, treatment, and education that is available. It is important that those within the lower economic status are aware that there are clinics available free of charge or with a sliding scale that can help with STI education and treatment. Treatments, depending on the

severity, are free, education is free, and contraception is free. Poor treatment management or lack of seeking treatment puts individuals at higher risk making each individual vulnerable to contracting an STI. For example, individuals not receiving care, treatment, are unaware of the pregnancy, or lack of seeking any available resources are vulnerable to further financial strain and complications (CDC, 2017). Each STI carries its own risk factors of nontreatment. No treatment or lack of consistent treatment can become life-threatening to the individual infected with an STI (CDC, 2017). Focusing and educating sexually active college-age individuals could reduce the risk of transmission or the spread of STIs.

Questions Guiding the Inquiry

The PICOT format was used to develop the study questions guiding this project, which focused on identifying a lack of knowledge on sexually transmitted infections. Building the foundation of knowledge, education, and resources was available to assist in further education. There is a lack of knowledge of how easy STIs can be transmitted, spread, and undetected until symptoms are severe. With the increase in STI numbers, the lack of education contributes to this increase and high-risk spread of infections. In this study, I focused on the question of whether an evidence-based educational program (intervention) among first-year nursing students at a rural community college (population) would help to improve knowledge on sexually transmitted infection (outcome), before and after STI education module (Comparison) within the first few months of starting the program (Time).

The specific research questions that guided this study were as follows:

RQ1. Is there a significant relationship between lack of knowledge versus those who have some knowledge with STIs within first-semester nursing students?

RQ2. Will an evidence-based education module increase knowledge in those who participate in the study versus those who do not complete the study?

Significance of POI

Due to the increase of STIs, the infection rate will continue to rise if education is not properly given to those that are engaging in sexual activity. Those age range showing an increase in the spread of STIs include individuals 18–24 years old, including the high school and college-age population (CDC, 2018). The CDC continues to research information on ways to decrease the number of cases but continues to fall short due to those who are sexually active and showing possible signs but not seeking healthcare (CDC, 2017). The stated population continues to engage in sexual activity without treatment or is not worried about infecting others.

With further research, education, resource availability, and proper treatment, it may be possible to reduce the number of STIs cases. The requirement that education is provided is up to date, available, and that information given is correctly obtained. The individual has the desire to seek out assistance when he or she is unsure of what is going on. The focus is nursing students within the community college and will be part of the study.

Nature of the Study

The project is designed to target individuals within the college community and provide the necessary education on sexually transmitted infections. Being knowledgeable about risk factors, consequences, and other related issues is especially important to students. STIs continue to be on the rise as individuals lack knowledge about STIs, are sexually active without protection, and lack the knowledge of the importance of protection (CDC, 2018). Individuals wish to not seek treatment, avoid new and/or abnormal symptoms, and do not honestly disclose how many partners they have had since symptoms started to protect one's own character.

Without STI knowledge and education, the spread of STs will continue to rise. It is important that STI education be taught with proper evidence-based education. This education can reduce the risk of rising STIs.

All participants were informed that the information shared was private and was not disclosed to any individual besides me. Many times, individuals 18 and older are unaware that their guardian does not automatically have access to medical records without consent from the patient. Educating participants that options are available in facilities they choose to seek medical attention, such as free clinics, walk-in clinics, Planned Parenthood, and the local health department.

Research Design

The population of this research study is first-year nursing students at a rural Texas community college. The research design used was comparative pretest and posttest design. Students completed a pretest assessing their knowledge of STIs. As the researcher, a faculty member at the community college, I then educated the students on STIs and prevention. This education included a 30–45-minute interactive PowerPoint presentation focused on common STIs. Finally, students completed the same STI questionnaire to assess their knowledge level after STI education. A proxy was used to prevent any conflict of interest with the students.

Data Collection

The data for this research study were collected using the Sexually Transmitted Disease Knowledge Questionnaire (STD-KQ). The data collection was done online to ensure the privacy of each participant. After the pretest, the participants were directed to a 30–45-minute interactive PowerPoint presentation discussing the most common sexually transmitted infections in their area. The online testing were driven by Survey Monkey and had access to log into the area and

complete the exam. The results were sent to proxy and then sent to myself once all tests were completed. A reminder was sent out to students to ensure that each participant completed the research study in a timely manner. The focus was on syphilis, chlamydia, gonorrhea, and briefly on other STIs that are less common in the community based on statistical data. Once the presentation was completed, the participants completed the posttest, which had the same questions as the pretest.

Data Analysis and Management

The discussion was about early detection, importance of treatment, and the ability to identify any other sex partners. A posttest was given after presentations and pretest had been completed. The posttest identified if the PowerPoint presentation was beneficial or further information was needed. It also identified if there were any areas the subjects felt were weak and needed further in-depth information. The posttest potentially showed any changes within the participants' knowledge from reviewing their pretest and what was lacking in their knowledge prior to the interactive PowerPoint presentation.

Population of Study

The population of the study was first-year nursing students. Each student was identified with numbers to determine whether the number of participants needed was reached to be successful within the study. No personal information was used to identify subjects other than gender, demographics, and number of partners.

Chapter Summary

This chapter focuses on the importance of the study, the development, location, logistics, population of the study, and the desire of the study. As the research study developed, the research focused on the location and the reason or causes of the rise in STIs in the region. The

financial cost within the region ensured the population was cared for and also the focus of the high-risk population group.

Chapter 2 Literature Review

Sexually transmitted infections (STIs) in the United States occur most frequently in ages 18–24 (CDC, 2014). This age group accounts for approximately one-fourth of the sexually active population in the United States, half of the 20 million newly diagnosed STIs occurring every year in the United States (O'Connor et al., 2014). In 2019, Texas ranked fourteenth among the 50 states in the number of new STIs (CDC, 2019). Of the nearly 4,000 Texans in range of age studied, 5% have syphilis, 7% have chlamydia, and 8% have gonorrhea per the department of state and health services (Texas Department of State Health Services, 2015). Due to increasing cases, the Texas Department of State Health Services issued a Syphilis alert for this county to encourage healthcare providers to increase screenings and awareness of syphilis and STIs.

There is a significant need to increase knowledge of STIs among college students due to the rise in numbers and the number of students that come from all over the country to attend the educational facilities offered in the rural West Texas city. The rise in numbers signifies the need for intervention to educate this high-risk population in a rural West Texas town. Failure to treat STIs can lead to devastating consequences, and due to the lack of knowledge, these medical conditions can lead to lethal consequences. Chlamydia left untreated is one of the leading causes of pelvic pain and reproductive morbidity in women. As infertility continues to rise, the risk factors of untreated Chlamydia have brought further awareness (CDC, 2015).

When looking at syphilis, you have possible neurological dysfunctions such as cognitive dysfunction, motor, or sensory deficits, ophthalmic or auditory symptoms, cranial nerve palsies, and symptoms or signs of meningitis or stroke (CDC, 2015). The infant mortality rate has been reported at 40% and higher with pregnant mothers who are untreated (Department of State Health Services, 2014). Most STIs are easily treatable. The knowledge of the importance of

treatment is where young adults and adolescents are lacking. Lack the knowledge of STIs and how easily they can become in contact with an STI. Primary care through disease prevention and health promotion is one way we can assist in reducing the rapid rates of STI escalation (CDC, 2015; Mayo Foundation for Medical Education and Research, 2015). Healthcare providers are aware of the rising incidence of STIs in the at-risk population and are encouraged to educate and provide confidentiality to allow those individuals to speak openly and honestly. When considering the population and location of study, the rural area is small, has certain beliefs, and believes only in abstinence. Providing an educational class within the program can assist in raising awareness of STIs and the fatal potentials that STIs bring with either delayed treatment or no treatment at all.

Literature Search Tools

Two different search engines were used, via the Abilene Christian University Library, EBSCO, and CINAHL host. Search terms included: *STIs, Sexually transmitted infections, young adults and STIs, adult and sexually transmitted disease, young adults and sexually transmitted disease, lack of knowledge with a sexually transmitted disease, and lack of knowledge STIs economic studies.* Articles published not older than 2013 with revisions in 2015, full-text articles, scholarly/peer-reviewed articles, and academic journals. The results were numerous at 44,000 with a narrowed search. When focusing on what articles I would choose, I looked at the detailed material within the article and whether it followed or targeted the focused population. There was a lack of knowledge related to the rise in STIs and what has been done or could be done to reduce the spread.

Theoretical Framework

The health belief model (HBM) is one of the most widely used conceptual frameworks for understanding health behavior. Developed in the early 1950s, the model has been used with great success for almost half a century on health promotion (Health Belief Model, 2012). It was first developed during a free health screening of TB. Very few individuals were involved in the free screening, which drew interest in why those few who came were involved in their care. The health belief model has six areas that are susceptibility the belief of the individual contacting the disease, perceived severity, the view of how severe the infection is and consequences of not being treated, perceived benefits are the individual's view of treatment and success, perceived barriers cost is a large reason why treatment is delayed due to the lack of funding of an individual, cues of action identify the readiness of the individual to receive treatment, and self-efficacy and the confidence in being able to identify the need for treatment and those that might have become infected by the individual (Health Belief Model, 2012).

The health belief model has been applied in a variety of health education topics that include STI education. The health belief model is modified to help motivate individuals to act, whether that be STI prevention, education, treatment resources, or providing educational programs focused solely on STIs. One goal the health belief model focuses on is prevention, focusing again on the prevention of STIs (Health Belief Model, 2012). Another goal is STIs and pregnancy, the rapid spread of STIs, and how prevention can prevent the spread. The health belief model is used to provide programs that allow early detection, treatment management, and retesting after treatment has been provided and completed. The health belief model was used mostly for studies that focused on prevention. When focusing on prevention, the model focused on primary and secondary prevention. The primary focuses was on the use of condoms and

available resources (Health Belief Model, 2012). The secondary focus was on early detection and early treatment to prevent further complications.

STD-KQ Tool

The Sexually Transmitted Disease Knowledge Questionnaire (STD-KQ) includes 27 multiple-choice items used for the pre- and posttesting to assess knowledge of STIs among college students (Jaworski & Carey, 2007). Each item is scored "1" for a correct response and "0" for an incorrect response. The STD-KQ demonstrated internal consistency with a Cochran alpha of .86 and test-retest reliability of .88. Potential scores on this instrument range from 0 to 27, with higher scores indicative of greater STI knowledge (Jaworski & Carey, 2007). The perceived risk of sexually transmitted infection behavior survey is a five-item instrument using a 5-point Likert scale. The survey is reliable with a Cochran alpha of .71 and will be utilized for pre-and posttesting as well. A higher score indicated a higher perceived risk for obtaining an STI (Jaworski & Carey, 2007). The results will be evaluated, and program design will be adjusted based on input. This measure was created from a review of the scientific literature, conducting student focus groups, seeking expert review and evaluation, and subjected the measure of factor analyses as well as tests for its validity and treatment outcome sensitivity (Jaworski & Carey, 2007). One study that utilized the STD-KQ was a study of three physicians and three nurse practitioners that focused on college-age students' knowledge and treatment of STIs (Jaworski & Carey, 2007).

Lack of Knowledge

When reviewing articles for the literature review, it was imperative to find articles that discuss the why of the rise in sexually transmitted infections (STIs). A study completed in Romania showed a steady increase in numbers due to a lack of education in STI prevention (Dan

et al., 2019). Young people in rural and remote regions are at risk of getting STIs as the communities lack basic comprehensive information about safer sex practices and implications. The areas also offer limited access to sexual health services (Garrett et al., 2011). While 80% of sexually active participants in one study had been to their general practitioner or health clinic in the past 12 months, only 58.8% reported discussing sexual health issues with a health practitioner during this time (Garrett et al., 2011). Individuals were either not comfortable discussing STIs, had shame or guilt of what their provider would think, feared lack of confidentiality, and were not knowledgeable enough to discuss what may be going on with their bodies. Due to the lack of knowledge related to STIs, individuals are typically aware of how STIs are spread. They are not aware of the severe consequences for their own bodies, such as serious long-term residual (e.g., infertility, neurological problems, and blindness; Ewing & Bryan, 2020). Women lack knowledge of how untreated STIs could affect fertility (Rosenfield, 2019). Males lack the same knowledge of the high risk of infertility due to not seeking treatment in a timely manner (Rosenfield, 2019). The causes of STI increase are multi-factorial. Experts say that one of the most influential factors is that primary care physicians are not routinizing sexual health discussions as part of general health screenings (Rosenfield, 2019). The rural areas, unfortunately, do not always have funding to provide educational classes, programs, or other assistive resources. Behavioral primary prevention strategies, such as encouraging the use of barrier methods during intercourse among adolescents and young adults, have faded into the background at funding agencies (Ewing & Bryan, 2020). The beliefs are also that abstinence is key. STIs carry a stigma that causes individuals to feel shame and guilt.

The Rise in Sexually Transmitted Infections

The articles gathered all stress the rise in sexually transmitted infections (STIs) within the United States. In 2018, a total of 1,758,668 cases were reported of chlamydia, which has become the most common notifiable condition in the United States and the highest number of cases ever reported to the CDC (Ewing & Bryan, 2020). The prevalence of syphilis is highest in young adults from 20 to 29 years of age, and it is particularly high among homosexual males (Ewing & Bryan, 2020). The African American population showed that 44% of the individuals involved in the study reported recent sexual intercourse with multiple partners (two partners during the past 3 months). This is a well-established risk factor for STIs in young people, further exacerbating low rates of condom use and knowledge. Due to the lack of education and awareness of STIs, the rise in infections will continue. It is suggested that another cause of the rise in STIs is due to physicians sticking too closely to traditional screenings such as urine, vagina, cervix, and urethra sexual activity (Rosenfeld, 2019). Sexually involved individuals engage in other forms of sexual activities such as oral, anal, and other forms that are being missed altogether due to only following traditional screenings (Rosenfeld, 2019). Recent studies show that chlamydia, gonorrhea, and syphilis cases increased in 2017, with nearly 2.3 million cases reported to CDC, surpassing the total reported to CDC in 2016 by more than 200,000 cases (CDC, 2018). Sexually active students that live in residential college campuses numbers vary greatly from those that are an older adult population not living on campus (Garrett et al., 2011). There has been a 36% increase in primary and secondary syphilis among women of reproductive age from 2017 to 2018, directly impacting congenital transmission, which has risen 40% from 2017 to 2018 (Ewing & Bryan, 2020).

Reducing the Epidemic

When reviewing the articles that were chosen, each showed as above the rise in sexually transmitted diseases (STIs) and the lack of knowledge that came with the rise within the age groups being studied. As discussed in other articles, the lack of funding continues to be one of the most significant issues of STI education and prevention. If communities continue to ignore the resurgence of non-HIV STIs, it could potentially reverse the gains we have made in increasing prevention (Ewing & Bryan, 2020). There are various reasons why physicians are not comfortable discussing sexual health, ranging from personal discomfort of how often they see patients, being unfamiliar with patients, and patient feeling targeted (Rosenfeld, 2019). Medical staff is not talking about STIs with their patients until an infection arises to prevent any type of barrier (Rosenfeld, 2019).

This increases the risk of STIs and the need to educate the patients on safe sex. Healthcare workers must be culturally competent in addressing patient sexual behavior that could lead to exposure and screening patients based on answers given (Rosenfeld, 2019). Healthcare workers need to remember the different cultures and beliefs and direct the care in the proper format and build the trust for patients to disclose what symptoms they are having (Rosenfeld, 2019). Each healthcare facility should require a sexual health history at each visit, whether that be a physician and patient discussion or nurse and patient discussion. Once this becomes a discussion at each visit, it becomes part of the assessment. This prevents any patient from feeling singled out, and the conversation becomes part of their routine visit each time they visit (Rosenfeld, 2019).

It is important that healthcare workers ask the patient's family members to step out during this assessment and educate this is part of the assessment and is crucial in the treatment of what

symptoms they may be exhibiting (Rosenfeld, 2019). Education can increase the possibilities of comprehensive care for people. Colleges can represent an open and educational space about sexuality and provide healthy and conscious choices (Petry et al., 2019).

Within a nursing program, students were asked to be part of a study and would remain anonymous. The study involved 40 participants in different sections within the program (Petry et al., 2019). The students that would like to participate left their numbers and address to be contacted for the study. The students chose the time and locations that they would like to be interviewed about their knowledge of STIs. Students were offered the educational program to assist in their lack of knowledge. The study was broken down into three categories 1: First contact with the theme: School/ family; Category 2: Self-care actions: Those who used and those that chose not to use condoms, contraceptive methods, and serologies; Category 3: Knowledge as an influencer of care actions and information disseminator (Petry et al., 2019). The individuals disclosed that some education was given during their grade school career but never discussed the high risk of STIs (Petry et al., 2019). When discussing condoms, these individuals were educated to use condoms to reduce the risk of pregnancy and STIs, but again, no disclosure of the risk of encountering STIs (Petry et al., 2019).

If communities choose not to discuss STIs and offer no education within the household, the schools, and colleges, we cannot reduce the risk of STIs (Pereira & Carmo, 2014). It is the responsibility of medical professionals to ensure proper education is given. Funding is needed to offer resources for individuals, Planned Parenthood, educational pamphlets, educational classes that focus on STIs and the risk factors associated with STIs (Pereira & Carmo, 2014). Applying for grants, seeking out the medical communities that could help with funding, involving the communities in the importance of STI education is the best way to reduce the rise in STIs

(Pereira & Carmo, 2014). Offering an educational program within the nursing program can also assist in in reduction of STIs. Education focusing on the prevention of STIs is potentially one of the most influential interventions resulting in a reduction in prevalence and incidence of STIs among college-aged students (El Bcheraoul et al., 2013). Physicians have incorporated sexual health questions within their assessment, whether the nurse is asking or the physician. The patients answer questions that are asked, and then further detail is discussed with patients to reduce the spread (Rosenfeld, 2019).

Chapter Summary

The chapter focused on the literature and framework of the study. The lack of education, financial resources, and the rise are major factors that impact the region and will continue to impact the region. As we move forward in the study, the goal is to identify where the lack of education and resources is coming from and why the region wishes not to address such a complex situation.

Conclusion

More than a decade has passed, and STIs continue to capture the attention of state, national, and worldwide populations. However, significant achievements in diagnosis, treatment, and prevention have been realized. STIs remain a major population health concern. Today, without knowledge of the tragedies experienced in the early years of epidemics, new generations of Americans face the realities of STIs.

The rate of STIs among college-aged individuals in a rural West Texas county is disconcerting at present. The impact of continued transmission is worrisome as infected individuals may not be aware of their contagion, may fear knowing, but continue to be sexually

active. Prevention of STIs positively impacts every community member, from infants to adults, by promoting healthy lifestyles.

Due to the lack of discussion, individuals are at risk for contracting STIs. Being able to offer programs and resources can assist in reducing the spread. The gap continues as individuals do not seek treatment due to fear of the unknown. Lack of symptom knowledge and identification, being in a rural area that stigma is negative, funding, and proper studies add to the gap between STIs and college-aged individuals (Petry et al., 2019).

After performing a literature review, an appropriate tool is applicable to both scholarly subjects and proven validity and reliability. The Sexually Transmitted Disease Knowledge Questionnaire (STD-KQ) tool fits what the HBM identifies and works with. It is a tool that has been used in previous research. The address is linked below as an identifier of what the questions are and how the evaluations are made. As I have stated above, all tools have strengths and weaknesses, but as we continue to evaluate, study, and educate those who lack the knowledge, perhaps we can adjust the STD-KQ answers and focus on not only all STIs, but the lack of each area in first-year nursing students.

Chapter 3: Methodology

Methodology is the methodical, hypothetical examination of the strategies applied to a field of study. It includes the hypothetical examination of the collection of strategies and standards related to a part of the information (Macha & McDonough, 2012). Techniques used often do not decide to give arrangement, however, it is subsequently not equivalent to a strategy. Instead, an approach offers the hypothetical support for understanding which strategy, set of strategies, or best practices can be applied to a case to offer best practice (Macha & McDonough, 2012).

Project Design

This project was in an online format that was easily accessible to the participants. While coordinating with the college administration and faculty, I conducted a cross-sectional correlational study among student nurses enrolled in their first semester of an associate degree nursing program. An evidence-based educational program designed through Google Forms was delivered electronically to participants using email addresses that they provided voluntarily.

Participants were informed about the project the week of September 21, 2020. It allowed two weeks for the students to prepare and choose if they would participate in the doctoral research study being done. The flyer was formatted by me and was sent out in an email form by the designated proxy. A meeting was held with the proxy so that she understood the study and what she was assisting me with. The flyer detailed what the research study was and what the requirements were for each participant. The flyer gave the designated proxy information, and the participants contacted her to voice their interest and acceptance. The flyer also stated specifically that this was only for first-semester students and was not open to all nursing students. The flyers were posted throughout the nursing building and in designated first-semester areas in hopes of

gathering participants in the first semester. The flyer attracted a good number of participants that were involved and completed the study. The flyer listed the benefits of participating in the study and the focus of why the study was completed. It was important that we sent out reminder emails to participants that the study was private, voluntary, and served as no correlation to their current courses. The flyer provided important dates for each participant. The dates were regularly noted with reminder emails, date of release and completion of the pretest, educational module release date, posttest release date, and completion date.

Due to the participants being in the first semester, the use of a proxy was used to prevent any conflict of interest and to ensure the privacy of each participant. The proxy also eliminated the number of individuals the participants had to notify if they decided not to complete the study or had questions that needed timely or immediate answering. The benefit of the proxy was well noted throughout the study, as I was unable to see which student participated and who did not.

Once the participant sent notification that they wanted to be involved in the study, the proxy sent out an email to each participant with the consent forms, HIPAA forms, reminder dates of when participation was needed, and completion dates. The consents addressed in-depth the research study in lay terms for each participant to understand what they agreed to and will participate in. It was important that consents were signed before study release to use the participants' data during the research study. The consent forms had minimal demographic data needed to identify the participant.

Once consents were signed, the participants were then sent the online formatted pretest that collected data on their current knowledge with sexually transmitted infections and one’s own sexual behaviors. Once the pretest was completed, the participant was directed to an interactive PowerPoint presentation that lasted about 45 minutes. This interactive presentation allowed

participants to be involved in gaining further knowledge and asked questions related to the content presented. Once the PowerPoint presentation was completed, the participant was directed to wait on the email sent by the proxy that contained the posttest, which was the same test as the pretest that was given at the beginning of the study. The posttest was able to identify if the participants gained new information and understood the material that was presented to them. Gathering the data allowed for assistance in completing the study and the validity of the information given.

Methodology

While guaranteeing coordination with the school's organization and the nursing personnel, I will lead a cross-sectional correlational examination among understudy medical students in their first semester of a rural Texas community college nursing program. The researcher is to create and introduce an instructive program to these understudies and assess the impacts of the instructive program by a pretest and posttest overviews controlled electronically to advance ideal support. The posttest would appear if the information introduced was gotten and the understudies have a superior comprehension of the simple transmission of explicitly transmitted contaminations.

Practice Setting for the Project

The community college located in a small rural town in West Texas is home to around 12,500 students annually. The Health Sciences department consists of Physical Therapy Assistant, Surgical Tech, Respiratory Therapy, Paramedic, Vocational Nursing, and Associate Degree Nursing Programs. The average size of each cohort in the Associate Degree Nursing Program is 35–40. The first-year cohort of students who were asked to participate in the study consisted of 60–70 students.

Purpose of the Project

The aim of the program is to increase knowledge of STIs among college students by piloting a policy requiring college students to complete an STI education module during the first semester of the program at the designated college. Overall, improving knowledge of STIs among college students will have a great impact on the future of the individuals and the entire rural population. Being able to target those engaging in sexual activity and provide effective education may reduce the spread. Due to the lack of knowledge, the outcomes of STIs can be life-altering (CDC, 2017). Offering a subject course or crash course on STIs can hopefully reduce the prevalence of increased STI rates. The financial strain continues to play a significant factor in not seeking medical treatment. It is important to educate those within the lower economic status that clinics are available, free of charge. Poor treatment or lack of seeking treatment puts those that are vulnerable at a higher risk. Women who become pregnant in college and become infected with an STI are not receiving prenatal treatment due to economic status, being unaware of the pregnancy, or not seeking any available resources (CDC, 2017). Each situation listed is common in the community that the project is focused on. STIs carry a risk of not being treated that can become life-threatening to the individual. Educating on all available resources and offering a program can reduce the spread.

IRB Approval

The community college does not require IRB approval. However, I spoke with the dean of Health Sciences department, and he signed the approval letter to conduct this educational program as noted in Appendix A. The IRB process was completed and approved through ACU before research or data collection (see Appendix C).

Interprofessional Collaboration

When reviewing information on interprofessional collaboration, we look at the college and the programs I utilized to complete my dissertation. The community college and nursing program I was involved with offered a free class called “Sex in the Dark.” This free course is completed on campus within the humanities department that offers minimal courses on sex education. The health and wellness clinic on campus was also another resource that allowed for collaboration that assisted me with data collection on sex education on campus.

Feasibility and Appropriateness

When focusing on feasibility and appropriateness, we look at what the subject matter is and the lack of knowledge and education that is given to these individuals. Within a small rural town in Texas with heavy beliefs of abstinence, this does not allow for proper education and safety for everyone who is sexually active. Sexually transmitted infections continue to be on the rise due to a lack of knowledge and education. Continuing the education and offering a program to assist in addressing those difficult discussions can decrease the rise of STIs and increase the prevalence of STIs.

Target Population

After receiving IRB approval through ACU and attaining the signed letter from the dean of Health Sciences granting permission to perform this project online and allow students to participate, all first semester student nurses were given the voluntary opportunity to participate in the additional education. The community college’s Associate Degree Nursing Program is a total of four semesters long. For the surveys, the target population was first-semester nursing students accepted in their first years of nursing. Participants were included from two different cohorts if necessary.

Risk to Participants

Involvement in this study put the students at minimal risk. Each student could gain knowledge in practicing safe sex. However, the risk to students may include anxiety related to disclosing such intimate information through the survey. It was of utmost importance that confidentiality was maintained, so students felt safe sharing their personal information. The research did not conduct any form of high risk for the participants involved.

Benefit of Participation

Each participant within the study came out with further knowledge of sexually transmitted infections. The cohorts selected and those that chose to participate were able to openly speak and ask questions regarding uncomfortable questions that they may have or not fully comprehend due to the lack of knowledge. The research project focused on those individuals in a rural area with strong beliefs and cultures that did not discuss any type of sexual discussion. This, in turn, put each participant at risk because of the lack of knowledge and offered this educational program to assist in lowering the number of cases.

Instrument Measurement Tool

The Sexually Transmitted Disease Knowledge Questionnaire (STD-KQ) by Jaworski and Carey (2007) includes 27 questions focusing on knowledge. This will be used as the pre- and posttesting. The goal is to assess knowledge of STIs among college students (Jaworski & Carey, 2007). Each item is scored “1” for correct responses and “0” for incorrect responses. The STD-KQ demonstrated internal consistency with a Cochran alpha of .86 and test-retest reliability of .88. Potential scores on this instrument range from 0 to 27, with higher scores indicative of greater STI knowledge.

Data Collection and Management

Each participant was given a pretest and posttest. This was completed electronically through each participant's provided email. Each participant was also educated that this is not a required educational program and did not have to participate if they did not feel comfortable. It educated that all information provided was confidential and only information shared amongst each other was given and all other information was secured. The pretest gave a baseline of the knowledge behind sexually transmitted infections within their previous education. Once the educational portion was completed, we then did a posttest and viewed what information was gathered and retained, what subjects may need further information and understanding based on the posttest information. The questions focused on the subject matter and the knowledge or lack of knowledge that was gathered.

Timeline

A timeline of events (see Table 1) illustrates the coordination and planning with the first-semester nursing program that was necessary to ensure the successful implementation and completion of the DNP project.

Table 1

DNP Project Timeline of Events

Date of activity	Project activity
September 2019	Completed the NIH Human Subjects Protection Training
October 2019	Permission to use the survey tool received
	Presented project idea to key administrators at the study site
January 2020	Created a DNP committee for recommendations
February 2020 – April 2020	Created a project team
	Completed chapters 1-3
April 2020	Mini-Proposal submitted and approved
May 2020	Project 1 class
August 2020	IRB Approval
September 2020	Flyer Posted
September 2020	Informed Consent Posted
October 2020	Pretest Posted
November 2020	Evidence-Based Education Module Posted
December 2020	Posttest Posted
March 2021	Exempt Study Data Inactivated by ACU IRB

Data Analysis

Student demographic data, knowledge acquisition, and perceived risk of STIs were evaluated through the utilization of two instruments with a pre-and posttest survey, with the results following module completion. Data were collected among first-year nursing students. A paired *t* test was utilized to evaluate the effectiveness of the education module and the effect of student knowledge and to evaluate the effectiveness of the program. An analysis of variance (ANOVA) was used to compare changes in knowledge and the perceived risk between the students scoring above 90% or scoring less than 90% on the pretest. After completing module

training and then being directed to the posttest. The pretest and posttest of each candidate were evaluated and reviewed on knowledge either being gained or continuing to lack. Mixed regression was utilized to evaluate demographic factors that potentially contribute to the baseline level of knowledge and acceptance of the knowledge. Correlation tests were completed to evaluate pre- and posttesting and identify a correlation between students' perceived risk of STIs and knowledge.

Chapter Summary

More than a century later, STIs continue to capture the attention of state, national, and worldwide populations. Although significant achievements in diagnosis, treatment, and prevention have been realized, STIs remain a significant population health concern. Today, without knowledge of the tragedies experienced in the early years of the epidemics, new generations of Americans face the realities of STIs. The rate of STIs among college-aged individuals in Lubbock County is disconcerting at present. The impact of continued transmission is worrisome as infected individuals may not be aware of their contagion, may fear knowing, but continue to be sexually active. Therefore, education focused on the prevention of STIs is potentially one of the most influential interventions resulting in a reduction in prevalence and incidence of STI's among college-aged students (El Bcheraoul et al., 2013). Prevention of STIs positively impacts every community member, from infants to adults, further promoting healthy lifestyles.

Chapter 4: Findings

The objective of this DNP project was to quantify knowledge regarding STIs in a population of first-semester nursing students. An educational intervention was carried out on the topic of STIs, and data were gathered with a pre-and postintervention to assess the impact of the intervention on overall student knowledge of STIs. A thorough analysis of the data collected electronically in the pretest and posttest surveys are presented in this chapter.

A total of 45 participants involved in the study were a group of first-semester nursing students. Each participant received an invitation via email, multiple flyers, and a presentation via Zoom to encourage participation in the study. Each participant completed the pre-and postassessments as well as the educational module. The educational module focused on building knowledge on sexually transmitted infections, contact, treatment, and resources available to assist in management.

Reliability and Validity

The STD Knowledge Questionnaire (Jaworski & Carey, 2007) was made up of 27 questions. Each correct answer scored 1 point with a total possible score of 27. Incorrect answers received a score of 0. Reliability was previously demonstrated to have an internal consistency with a Cochran alpha of .86 and test-retest reliability of .88 (Adamson et al., 2013).

Questions Guiding the Inquiry

The PICOT format was used to develop the study questions guiding this project, which focused on identifying a lack of knowledge on sexually transmitted infections. Building the foundation of knowledge, education, and resources was available to assist in further education. There is a lack of knowledge of how easy STIs can be transmitted, spread, and undetected until symptoms are severe. With the increase in STI numbers, the lack of education contributes to this

increase and high-risk spread of infections. In this study, I focused on the question of whether an evidence-based educational program (intervention) among first-year nursing students at a rural community college (population) would help to improve knowledge on sexually transmitted infection (outcome), before and after STI education module (Comparison) within the first few months of starting the program (Time).

The specific research questions that guided this study were as follows:

RQ1. Is there a significant relationship between lack of knowledge versus those who have some knowledge with STIs within first-semester nursing students?

RQ2. Will an evidence-based education module increase knowledge in those who participate in the study versus those who do not complete the study?

Data Analysis

After informed consents were completed and verified, participants were directed to complete a pretest made up of 27 questions. The STD Knowledge Questionnaire (Jaworski & Carey, 2007) was made up of 27 questions. Each correct answer scored 1 point with a total possible score of 27. Incorrect answers received a score of 0. The pretest focused on STIs and gave me a baseline of knowledge each participant had before the education module was given. After participants completed the pretest, they were directed to an educational module. The education module offered knowledge on common STIs, transmission, signs and symptoms, treatment, resources, and common STIs in their region. The module also included knowledge questions throughout the study to identify if the education was beneficial before moving to the next module. The completion of the pretest and education module concluded the first part of the study.

A two-week grace period was put in place between the completion of the education model and the posttest. It allowed me to identify if the participant could identify knowledge after completion and if the education module benefited the participant. After two weeks, the participants were notified that the posttest was available and could be completed no later than November 25, 2020. The posttest was the exact 27 questions that the participants had in their pretest assessment. Once completion of the posttest, the students completed the research project and were notified of their completion and to contact the proxy or researcher for any further questions.

Data were electronically gathered between 09/14/2020 and 11/25/2020 and stored in secure, password protected, Google Classroom platform. Statistical analysis was performed using Stata® version 14.2 (College Station, TX; Stata). Results are reported as mean (standard deviation) and median (interquartile range [IQR]; Table 1). Normality was assessed using Shapiro-Wilk test. Mann-Whitney U test was used to evaluate differences between groups with nonparametric continuous variables. A paired *t* test was used to evaluate differences between parametric continuous variables. The following graphs and tables identify the data that were collected throughout the study. (See table1-2)

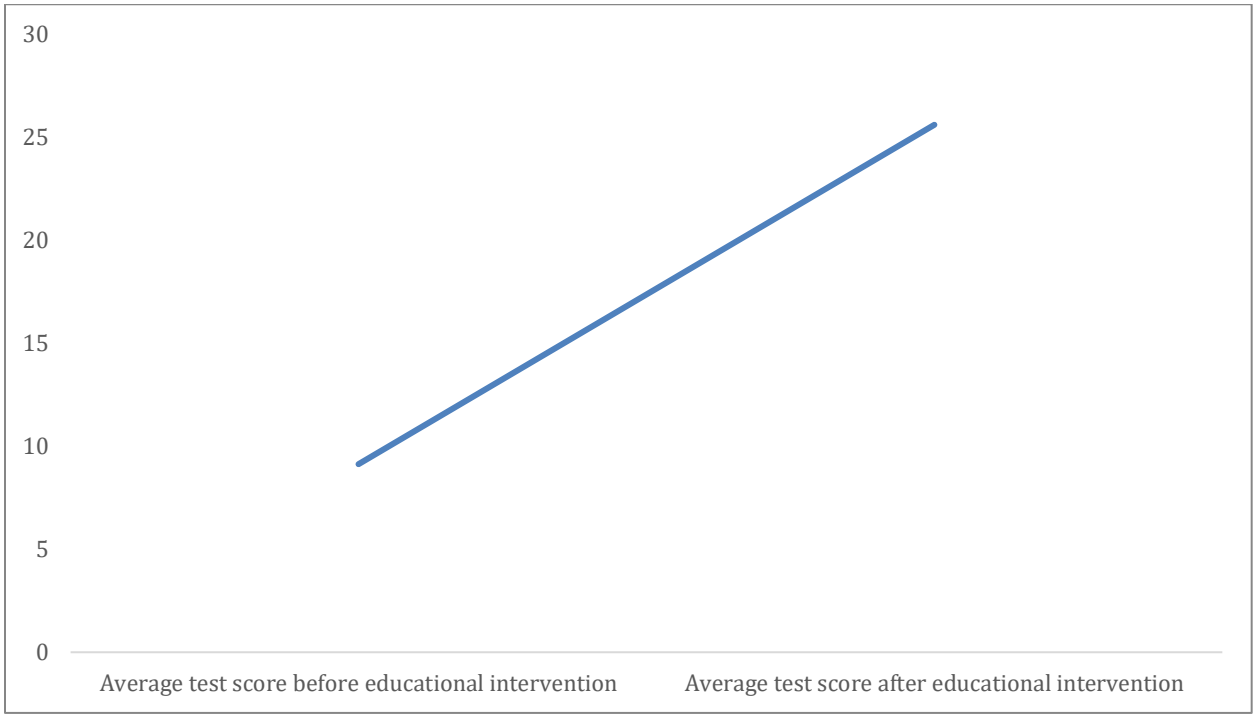
Table 2

Total Correct Answers, Before and After an Educational Intervention

Pre-education intervention			Posteducation intervention		
correct	*n*	%	correct	*n*	%
0 to 4	6	13	0 to 4	0	0
5 to 9	26	58	5 to 9	0	0
10 to 14	10	22	10 to 14	0	0
15 to 19	2	5	15 to 19	1	2
20 to 24	1	2	20 to 24	5	11
25 to 27	0	0	25 to 27	39	87
	45	100		45	100

Figure 1

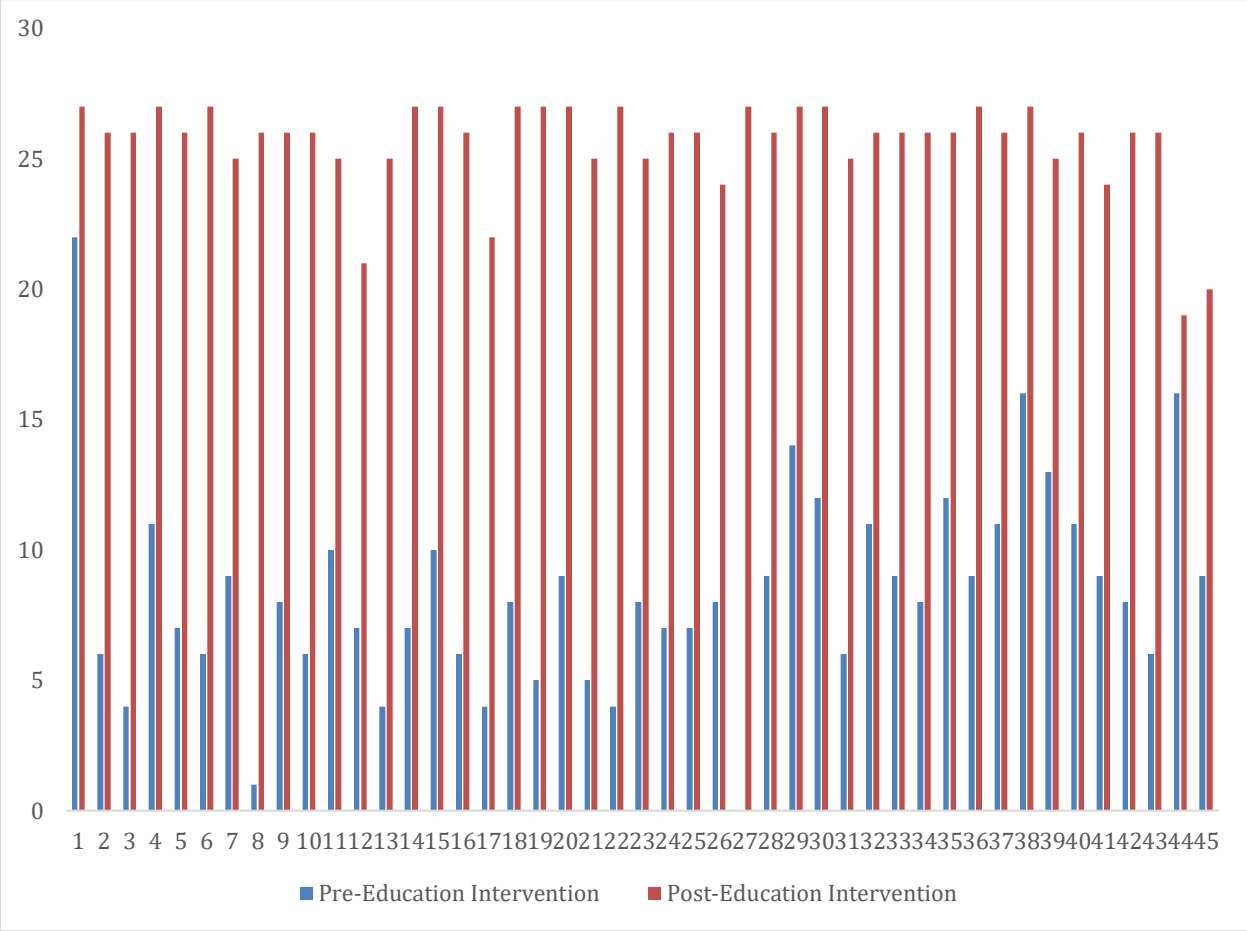
Change in Average Correct Scores, Before and After an Educational Intervention



Note. Scores range from 0–27.

Figure 2

Change in Average Correct Scores, Before and After an Educational Intervention



Chapter Summary

The chapter focused on the analysis of data that were collected throughout the study in first-semester nursing students and lack of knowledge in STIs. Of the 45 students who participated in the study, the data collected showed a range of those who had some knowledge, those who were unfamiliar or did not know about STIs. Participants completed a pretest identifying their knowledge within the study before completing an educational module. Once the pretest was completed, the educational module was presented to each participant to assist in gathering knowledge on an important topic. After completion of the module, a two-week grace

period was given, and then participants were notified of the opening of the posttest. The posttest assisted me in identifying if the educational module was beneficial and assisted in the gap in STI knowledge. It proved to show that the knowledge was maintained, and participants were able to identify the risk of STIs. There is a need to develop meaningful, evidence-based education on STIs to assist in the gap that was identified in the study. Everyone showed up to be able to have the opportunity to become educated in an important topic within the region. Because of lack of knowledge, the incidence of STIs continues to rise within the region. With further evidence-based education on STIs, the potential to reduce the rise is reachable and can potentially be obtained.

Conclusion

In conclusion, studies showed that the educational module was shown to be beneficial. The pretest identified the lack of knowledge on STIs and their dangers within a community that lacks the education and resources to educate those that are at higher risk. The pretest also identified that the lack of STI education in the region could absolutely cause an influx in the rise of STIs. The education module offered knowledge on a subject matter that affects their health now and later, which can also affect those after them. The data collected two weeks after the educational module was given showed a drastic increase in knowledge with the posttest. The questionnaire (i.e., 27 questions) composed by Jaworski and Carey (2007) identified the lack of knowledge before the educational module and then the ability to maintain the information two weeks after and determine the strength of the module. Faculty and staff within the organization were also able to identify the knowledge gained by the participants. It has been considered to adapt this educational module within their first semester as extra credit to assist in the knowledge gap of STI education.

Chapter 5: Discussion, Conclusions, and Recommendations

The objective of this DNP project was to quantify knowledge regarding STIs in a population of first-year nursing students. An educational intervention was carried out on the topic of STIs, and data were gathered pre- and postintervention to assess the impact of the intervention on overall student knowledge of STIs. Although the current curriculum briefly discusses STIs within the four years of the program, no clear education is done. Each semester, evaluating the curriculum briefly discussed STIs, but only addressed them during a physical assessment, during protocols when a patient is in the hospital, and at clinics. The students were encouraged to stand back and allow the designated nurse to speak with the patient and not be involved in the importance of STI education as they had brief knowledge. It identified a gap within the program of sexual health and the need for education. The study was able to identify with a 27-question pretest that the lack of knowledge before any educational module was identified and could be one reason for the rise in cases within the region. Although 45 participants were involved in the study, the answers were all over the place, again identifying a lack of knowledge on STI health. For student nurses to possess the knowledge and skill set necessary to evaluate and educate their patients, the nursing programs could benefit in developing and implementing an effective education module into the curriculum, presenting clear, concise, accurate, and evidence-based information. Being able to instill this into the curriculum allows student nurses to enter the workplace with a baseline knowledge of STIs and could potentially improve patient interaction when discussing sexual health. This chapter presents the findings based on analysis of the survey data from the study and how each of the eight essentials of doctoral education were applied to the planning, implementing, analyzing, and interpreting of the findings.

Health Belief Model Findings

Based on the Hochbaum health belief model, developed in the 1950s, served as the driving factor of the DNP study (Health Belief Model, 2012). It is one of the most widely used conceptual frameworks for understanding behavioral health. The goal of development was to assist in free health screening for the population and preventive measures in the 1950s. The health belief model's goal is to encourage individuals to be involved in their own health and become proactive. In simplicity, the goal of Hochbaum was to instill within the population to be proactive and take control of their health. He wanted the individual to be self-efficient and confident in identifying the need to seek help. Whether it be in educating themselves on their disease, attending any free health screenings, and encouraging others to be proactive (Health Belief Model, 2012). The importance is to help build fundamental beliefs in how proficient a person can navigate their own health and safety. As future nurses, it is imperative that each student know how to care for patients in some of the most challenging times of their lives, and tensions can run high during the time of the unknown. Finding out they have contracted an STI and being unsure of the contact person, being untreated risking infertility, and causing other health concerns can be frightening to anyone. It is imperative that nurses establish and maintain a solid, caring rapport with their patients regardless of their situation. The expected learning outcome for nursing students was to educate and increase their knowledge on STIs and the high risk of encountering an STI during this stage of life.

The outcome of the project displayed a lack of knowledge on sexual health. It signified or presented one of the reasons the incidence continues to rise with minimal changes being done to lower the numbers. Students currently enrolled within the program have and will continue to have little exposure to STI education. Currently, one semester discusses HIV briefly, but other

known STI/STDs are not discussed or discussed briefly when completing a physical assessment. Other than what is disclosed during their time in the nursing program, no other STI education is brought to the forefront, whether that means enrolling into the nursing program or enrolling into the college within their region. The pre-intervention scores were statistically significantly different from postintervention scores ($p < .05$), with a higher average of correct scores postintervention, 25.6 postintervention, compared to 8.4 pre-intervention. The data signified that there are shortfalls within the nursing curriculum on STI education.

The student's professional experience, life experiences, and the education they receive in the nursing program are the foundation where student nurses will begin forming self-efficacy. It is important that this current nursing school can accept the need to reevaluate their curriculum and identify where those shortcomings are and be able to adapt new evidence-based information into their program. Being able to identify the weaknesses can assist in the curriculum changes perhaps occurring in Community Health. Community Health could be reevaluated and revamped to include more education on STIs, the incidence within the region, and basic knowledge of the most common STIs within their community. By providing collected data by the first-semester nursing student to leadership and faculty, the implementation of the STI education module could potentially be instituted, and further data to be collected.

The lack of STI education in the curriculum will continue to increase the incidence due to the lack of knowledge and education. Due to the lack of knowledge, as stated previously, the pretest was very telling with a score of $p < .05$ with a higher average of correct scores postintervention (25.6 postintervention compared to 8.4 pre-intervention; see Figures 1–2). The significance noted that 2% of participants received a score of 20 or more pre-educational intervention, compared to 98% of participants' posteducational intervention (Table 2). The

dynamics of the pre- and posttest would hopefully raise red flags within the program to assist in adapting the STI module created into the curriculum.

The student nurses in this sample demonstrated a significant improvement in the total score after the presentation was given. Again noting 2% of participants received a score of 20 or more pre-educational intervention, compared to 98% of participants' posteducational intervention (Table 2). A paired *t* test was also performed to compare pre- and posttest scores and verified a statistically significant difference between pre- and postscores. Therefore, there was a 98% marked increase in self-efficacy scores in the posttest results after receiving the evidenced-based education module with clinical judgment scenarios. By examining the relationship between self-efficacy scores before and after the evidenced-based education module with clinical judgment scenarios, the results of this study indicated that the intervention significantly improved the student nurse's knowledge of STI education.

It continues to be a topic of taboo, and discussions are minimal within the studied region. It is important as a leader or educator in a clinic or school that education is done to assist those who lack the basic knowledge in STIs. It showed in data that there is a gap within sex education and allowing the subject to be discussed openly and freely without judgment.

Implications for Leaders

The results of this project demonstrated a positive correlation between knowledge, clinical judgment application, and self-efficacy scores when focusing on STI and sex education. The impact this should make within the nursing program and identifying a weakness within the students on sex education shows the current curriculum gap and the need for education. As aforementioned, the nursing program curriculum is uniquely designed to prepare students for a profession in nursing, academic content, and clinical instruction and should reflect current

practices for the professional nurse's role in caring for clients who may present to them in the clinic or hospital setting. Precious research has stated that increasing familiarity will improve attitudes toward populations who are stigmatized. Based on the data collected and analyzed in this study, it would be a valuable addition to the current curriculum to implement this or a similar model evidenced-based learning module that allows the student to enhance their knowledge practice clinical scenarios and requires clinical judgment application. This curriculum implementation, based on the data collected in this study, has the potential to increase the student nurses' knowledge, familiarity, and self-efficacy in caring for this vulnerable population because of stigma. As additional evidence-based practices become the gold standard, it is imperative that instructors maintain the most current and innovative teaching strategies. This curriculum implementation may contribute significantly to an improved self-efficacy among student nurses entering the nursing profession who can educate others and educate potential STI clients.

EBP Findings and Relationship to DNP Essentials

The completion of this doctoral project demonstrates competence in the eight DNP Essentials for advanced practice nursing. This section presents evidence of meeting each of the Essentials according to *The Essentials of Doctoral Education for Advanced Nursing Practice* (American Association of Colleges of Nursing, 2006).

Essential I: Scientific Underpinnings for Practice

A conceptual framework based on the scientific underpinnings of nursing theory and adult learning theory supported the preparation, implementation, and analysis of this educational project. Hochbaum's health belief model was the foundation for this project and the direction in identifying available resources (Pereira & Carmo, 2014). The theory outlined the role of an induvial to be involved in their own health and participate in free screenings, being open to

vaccinations and involved in their health decisions (Pereira & Carmo, 2014). The evidence-based program allowed the student nurse to participate in an immersive learning process on STI education (Pereira & Carmo, 2014).

Essential II: Organization and Systems Leadership for Quality Improvement and Systems Thinking

An analysis of the current gap in curriculum involved a multi-interdisciplinary approach to improving the training that student nurses receive to best equip them for communicating, not passing judgment, and allowing for openness for the patient. I demonstrated the systems and organizational leadership skills through the implementation and completion of this quality improvement project evaluating the current curriculum. I engaged in a collaborative process with administrative personnel, nursing leaders, and faculty to ensure that the problem of interest was thoroughly analyzed and presented as a gap in the curriculum, increasing the incidence of STIs in the region. Unanimous organizational support for this educational project led to IRB approvals from both the university and the overwhelming support from the institution where data were collected from.

Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice

The evidence-based education module was created using the most current practices used in the literature. I developed this DNP project to evaluate the impact of an evidence-based education module intervention to reduce knowledge gaps, improve education, and improve nonjudgement for this specific population. The effective use of research methodologies, information technology to deliver, collect, and analyze the data from this project, demonstrated clinical scholarship and competence in using analytical methods to evaluate nursing practice that is evidence-based.

Essential IV: Information Systems/ Technology and Patient Care Technology for The Improvement and Transformation of Health Care

A digital evidence-based education intervention was delivered using a web-based electronic classroom. The effectiveness of this intervention was evaluated using the pretest and posttest survey method designed to reduce knowledge gaps, improve the education of STIs, and hopefully grow with the region and prevent or assist in the stigma STIs bring. Utilizing technical skills to research, extract current practices, design an evidence-based education module, and analyze the data collected while evaluating the impact of the educational intervention demonstrates competence in DNP Essential IV.

Essential V: Health Care Policy and Advocacy in Health Care

The development of this DNP project required an understanding of health care policy and legislative procedures for accrediting bodies of the curriculum implemented in Texas, following both the Texas Higher Education Board, Texas Board of Nursing, and the Accreditation Commission for Education in Nursing. Because the college is accredited through the Texas Board of Nursing as well as the Accreditation Commission for Education, lobbyists, elected officials, and board members have the authority to determine the curriculum that is implemented in the schools they endorse. There are slight variations from state to state concerning regulations in the current curriculum. The implementation of enhanced training for student nurses was to educate each student in the first semester on STIs and be comfortable opening that line of communication with each client they encounter in the healthcare setting.

Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes

The success of the project required consecutive communication and collaboration with the first-semester student nurses, college administrators, and faculty members who taught in the first semester. It required time to present the project idea and discuss with the class the proper mechanics in being a part of the project. Frequent meetings throughout the study required a multidisciplinary team to discuss dates, times, deadlines, and data collection prior to and post educational model. Effective communication with each participant for the data to be collected and obtained at proper times and with deadlines to ensure data collection could be used. Each date, participants received reminders of what step would be next in the research project.

Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health

The development and focus of the DNP project required a basic understanding of the severity of STIs within the region. Being able to offer an educational module in the nursing program opens the door to a sensitive and uncomfortable subject. The analysis of the rising national statistics of STIs revealed a critical need to improve knowledge and gaps in the curriculum to enhance the education in severe and climbing STI rates.

Essential VIII: Advanced Nursing Practice

This DNP project was implemented utilizing a systematic approach. The class of participants was supported to be able to go into a situation and have that open communication with a patient about sex education. The enhanced knowledge and education allow these future nurses to be educated within their own health in hopes of educating those they come in contact with, which potentially opens the door for the difficult discussions and decreases the stigma that

STIs carry. By opening that discussion, the potential in decreasing the rise in STIs in their region will hopefully decline.

Proposal for the Future

The study was completed working with a vulnerable population who are in the targeted age range of STIs. Due to the lack of education in the region, the incidence continues to rise at an alarming rate. A research study was developed to identify if lack of education could potentially be the reason for a rise in cases. STI education in region one, where the study took place, was identified as a higher-ranked area due to surrounding towns. Gonorrhea, syphilis, and chlamydia were a large portion of cases that were reported. The study focused on first-year nursing students as each student at some point in their career may meet someone who has an STI and needs help, education, and direction.

As future studies are completed, the incidence of STIs in region one can be a deterrent in the attempt to bring sex education to the forefront and educate those who will be involved in patient care. Future nursing students are at the forefront of healthcare. They typically find jobs as medical assistance, certified nurse's aides, medication aides, and pharmacy technicians. Each within their own scope of practice can face an individual who suffers from an STI and has no knowledge on incidence, resources, medications, and basic signs and symptoms. As each future student develops into their own individual self, providing simple knowledge on STIs can assist in decreasing the rapid rate of STIs.

A pre- and posttest completed by the participants provided data to identify the lack of STI knowledge. Data collected showed a significant reflection of the importance of instituting an educational piece focused on STIs within the nursing curriculum to better serve the region. By adapting curriculum changes within the program and adding education on STIs, it allows for

open communication and future students to not be afraid of approaching a subject that carries a negative stigma. As a future student, it is important to understand their role in advocating for patients' health and providing the best evidence-based education without fear or judgment.

As an undergraduate program, it is important that educators and future nurses understand that the foundation of nursing is built from this platform, and for these students to succeed and be advocates for patients, educators need to provide basic knowledge in each area of study. STIs are no different and should be focused on during the student's time in community studies when the students are visiting facilities such as planned parenthood, health department, STI-focused clinics and other community outlets that are used daily. The study was completed within a program that offers limited education on STIs and informs students to stand back and observe the nurses at the above establishments. Instead of instilling an education module focused on STIs and having each student involved and hands-on.

Conclusion

I chose this research study because it could provide significant insight on a rising problem within a region that wishes to practice and educate on abstinence. Instead of educating a high-risk population, the region wishes to continue to put a negative stigma on STI and STI education. It is apparent by the data and previous research completed that abstinence is not fully practiced, and the high-risk population is actively involved in sexual activity with minimal education on preventives and dangers of being uneducated in an impactful decision in their lives. Each participant that chose to be involved in the study provided themselves with an education that was clearly noted with the pretest had minimal knowledge of STIs. The region continues to see a rise in numbers. With no change in the future, the risk of continued rise will be inevitable. It requires advocacy, education, further evaluation, and an attempt in prevention for change.

The study raised interest in me during an assessment of the current nursing school curriculum where the research study was focused. Being from the area, I was aware of the lack of knowledge and the practice of abstinence, and minimal discussion of sex. The current curriculum within the nursing program provides minimal education. During the initial physical assessment, students are trained to ask about sexual history with minimal direction or knowledge. A brief discussion is had with students third semester focusing on HIV and no other STIs. When looking at community health in the programs last semester, the education of STIs is minimal. The focus was on testing and medication management. Education was not focused on common STIs in the region, prevention, resources, assistance, and basic knowledge of caring for oneself. Further studies are needed to identify why the region continues to have a rise in numbers.

The study required coordination and participation of the leadership team, faculty members in the first semester, students who wished to participate in the study, and a proxy to complete the study. The leadership team had to sign off approval of the study to be completed within the nursing program and utilize students within the program. The faculty fully involved with the first semester students also required their involvement to set up flyers in the classroom, down their hall, zoom meetings to be set up to discuss the project, and reminders of due dates. It also required that the students were informed and understood that participation was strictly voluntary and did not correlate with their first semester for any extra credit or requirement to participate. The use of a proxy ensured no information or biases could be used or suggested because the students would have me as an instructor in the future.

The gap of knowledge was noted by me when the pre- and posttest were completed, and the data were compiled. As stated in previous sections, the scores significantly improved from

the pretest to the posttest. This provided data that the educational module that was provided was, in fact, beneficial and gave the participants important insight on STIs within the region. The pretest was an identifying factor that education in sexual health is needed, and practicing abstinence and choosing to not discuss sex is only harming the region, not assisting in the increase in cases within the studied location.

Further research would benefit all involved, and reviewing and identifying the gap in the curriculum can assist in educating future nursing students. Being able to educate future nurses and build confidence within them to have those difficult conversations with others about sex and STIs can, in hopes, reduce the incidence, and evidence-based education can be provided.

References

Adamson, K. A., Kardong-Edgren, S., & Willhaus, J. (2013). An updated review of published simulation evaluation instruments. *Clinical Simulation in Nursing, 9*(9), e393–e400. https://doi.org/10.1016/j.ecns.2012.09.004

American Association of Colleges of Nursing. (2006). *The essentials of doctoral education for advanced nursing practice.* http://www.aacn.nche.edu/publications/position/DNPEssentials.pdf

Centers for Disease Control & Prevention. (2015). *Adolescents, technology and reducing risk for HIV, STDs and pregnancy.* http://www.cdc.gov/std/life-stages-populations/adolescents-tech.htm

Centers for Disease Control & Prevention. (2016). *Adolescent and school health.* http://www.cdc.gov/HealthyYouth/

Centers for Disease Control & Prevention. (2017). *Sexually transmitted disease surveillance.* https://www.cdc.gov/std/stats17/default.htm

Chesson, H. W., Mayaud, P., & Aral, S. O. (2017). Sexually transmitted infections: Impact and cost-effectiveness of prevention. In K.K Holmes, S. Bertozzi, B. R Bloom, & P. Jha (Eds.), *Disease Control Priorities, Major Infectious Diseases*. World Bank. https://doi.org/10.1596/978-1-4648-0524-0_ch10

Dan, P., Stefana, P. D., & Elena, P. (2019). The role of the family physician in the prevention of sexually transmitted infections. *Acta Medica Marisiensis*, *65*, 12.

El Bcheraoul, C., Sutton, M. Y., Hardnett, F. P., & Jones, S. B. (2013). Patterns of condom use among students at historically Black colleges and universities: Implications for HIV prevention efforts among college-age young adults. *AIDS Care Psychological and Socio-medical Aspects of AIDS/HIV, 25*(2), 186–193. https://doi.org/10.1080/09540121.2012.687864

Ewing, S. W., & Bryan, A. D. (2020). Have we missed the boat? The current, preventable surge of sexually transmitted infections (STIs) in the United States. *Health Psychology, 39*(3), 169–171. https://doi.org/10.1037/hea0000834

Garrett, C., Hocking, J., Chen, M., Fairley, C., & Kirkman, M. (2011). Young people's views on the potential use of telemedicine consultations for sexual health: results of a national survey. *BMC Infectious Diseases*, *11*(1), 285–295. https://doi.org/10.1186/1471-2334-11-285

Health Belief Model. (2012, January 13). *Nursing theories: Open access articles on nursing theories and models.* http://www.currentnursing.com/nursing_theory/health_belief_model.html

Jaworski, B. C., & Carey, M. P. (2007). Development and psychometric evaluation of a self-administered questionnaire to measure knowledge of sexually transmitted diseases. *AIDS and Behavior*, *11*(4), 557–574. https://doi.org/10.1007/s10461-006-9168-5

Macha, K., & McDonough, J. P. (2012). *Epidemiology for advanced nursing practice*. Jones & Bartlett.

Mayo Foundation for Medical Education and Research. (2015). *Sexually transmitted diseases.* http://www.mayoclinic.org/diseases-conditions/sexually-transmitted-diseases-stds/basics/definition/CON-20034128

MedLine Plus Medical Encyclopedia. (2020a). *Cervicitis*. https://medlineplus.gov/ency/article/001495.htm

MedLine Plus Medical Encyclopedia. (2020b). *Epididymitis*. https://medlineplus.gov/ency/article/001279.htm

O'Connor, E. A., Lin, J. S., Burda, B. U., Henderson, J. T., Walsh, E. S., & Whitlock, E. P. (2014). Behavioral sexual risk-reduction counseling in primary care to prevent sexually transmitted infections: A systematic review for the US Preventive Services Task Force. *Annals of Internal Medicine*, *161*(12), 874–883. https://doi.org/10.7326/M14-0475

Pereira, H., & Carmo, A. (2014). Sexually transmitted diseases: Knowledge and perceived prevalence of symptoms in university students (Vol. 2). *International STD Research & Reviews*, 1–11. https://doi.org/10.9734/ISRR/2014/6850

Petry, S., Padilha, M. I., Kuhnen, A. E., & Meirelles, B. H. S. (2019). Knowledge of nursing student on the prevention of sexually transmitted infections. *Revista Brasileira de Enfermagem*, *72*(5), 1145–1152. https://doi.org/10.1590/0034-7167-2017-0801

Rosenfield, J. (2019, July 26). Sexually transmitted infections are on the rise: What should primary care physicians do about it? *Medical Economics*, *96*(15), 25–28. https://www.medicaleconomics.com/view/what-should-primary-care-physicians-do-about-sexually-transmitted-infections

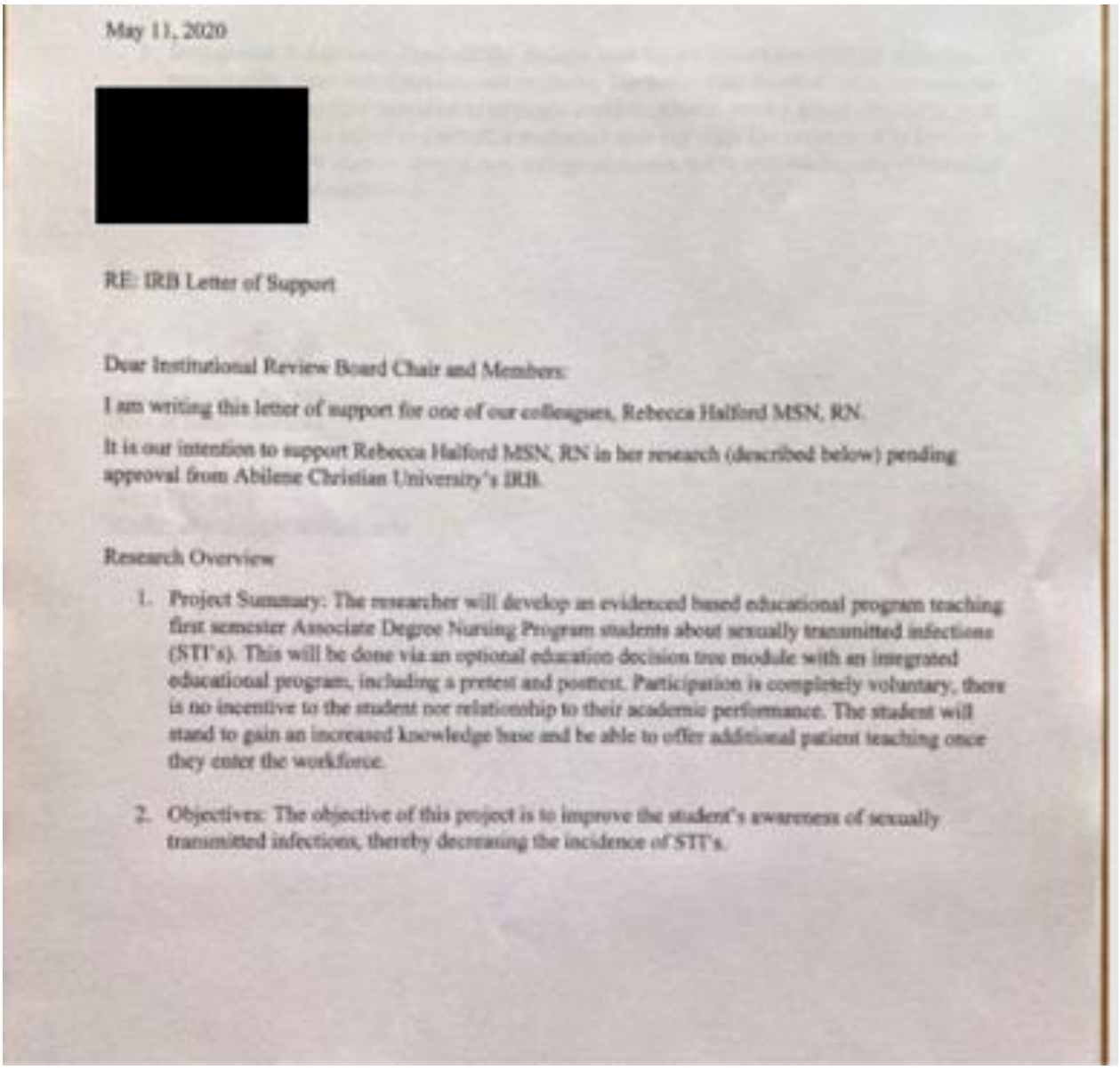
Texas Department of State Health Services. (2014). 2013 *Texas STD and HIV epidemiologic profile*. https://www.dshs.state.tx.us/hivstd/

Texas Department of State Health Services. (2015). *Annual report: Texas STD surveillance report.* http://dshs.state.tx.us/hivstd/info/syphilis/

Texas Department of State Health Services. (2016). *Texas STD and HIV epidemiologic profile.* https://www.dshs.state.tx.us/hivstd/

U.S. Department of Health & Human Services. (2014). *New community approaches to reducing sexually transmitted diseases*. http://www.cdc.gov/std/foa/cars/default.htm

Appendix A: IRB Letter for Focused Population



May 11, 2020

[redacted]

RE: IRB Letter of Support

Dear Institutional Review Board Chair and Members:

I am writing this letter of support for one of our colleagues, Rebecca Halford MSN, RN.

It is our intention to support Rebecca Halford MSN, RN in her research (described below) pending approval from Abilene Christian University's IRB.

Research Overview

1. Project Summary: The researcher will develop an evidenced based educational program teaching first semester Associate Degree Nursing Program students about sexually transmitted infections (STI's). This will be done via an optional education decision tree module with an integrated educational program, including a pretest and posttest. Participation is completely voluntary, there is no incentive to the student nor relationship to their academic performance. The student will stand to gain an increased knowledge base and be able to offer additional patient teaching once they enter the workforce.

2. Objectives: The objective of this project is to improve the student's awareness of sexually transmitted infections, thereby decreasing the incidence of STI's.

3. **Background & Rationale:** Rural college students have limited knowledge of STI's, including transmission, signs and symptoms, and treatment. The Texas State Board of Education does not require any sex or HIV education to be taught in public schools, yet if a school chooses to teach these topics, it is required to emphasize abstinence until marriage. The rationale of this project is to help to educate students early in their college admission and to help decrease the incidence of STI's in the rural community.

Sincerely,

[redacted]

Dean of Health Sciences

[redacted]

Appendix B: Permission for Tool Use

Tool Approval

Hello Rebecca,

If you use this scale, please cite:

Jaworski, B. C., & Carey, M. P. (2007). Development and Psychometric Evaluation of a Self-administered Questionnaire to Measure Knowledge of Sexually Transmitted Diseases. *AIDS and Behavior*, 11, 557-574.

Best wishes,

Mike

Michael P. Carey, Ph.D.

Appendix C: Abilene Christian University IRB

ABILENE CHRISTIAN UNIVERSITY
Educating Students for Christian Service and Leadership Throughout the World

Office of Research and Sponsored Programs
320 Hardin Administration Building, ACU Box 29103, Abilene, Texas 79699-9103
325-674-2885

September 4, 2020

Rebecca Halford
Department of Nursing
Abilene Christian University

Dear Becky,

On behalf of the Institutional Review Board, I am pleased to inform you that your project titled
"Improving Sexually Transmitted Infection Knowledge in Community College Students: A Path to Prevention",

(IRB# 20-122)is exempt from review under Federal Policy for the Protection of Human Subjects.

If at any time the details of this project change, please resubmit to the IRB so the committee can determine whether or not the exempt status is still applicable.

I wish you well with your work.

Sincerely,

Megan Roth

Megan Roth, Ph.D.
Director of Research and Sponsored Programs