The Significance of Comprehensive Sex Education in Relation to Sexual Health at a Private Christian University

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Background and Significance

Problem

Sexually transmitted infections (STIs), sometimes known as sexually transmitted diseases (STDs), refers to a collection of various infections that are generally transmitted from one person to another through sexual activity (Centers for Disease Control and Prevention [CDC], 2019). Worldwide, there are over one million new cases every day of treatable STIs which includes chlamydia, gonorrhea, syphilis, and trichomoniasis (World Health Organization [WHO], 2019). Although STIs can affect any age group from newborns to older adults, it is estimated that half of all new cases in the United States (US) occur in adolescents and young adults ranging from 15 to 24 years old (CDC, 2018).

In order to combat the transmission of STIs and improve sexual health, sex education curriculums were created in the U.S. In regards to current educational practices in the United States, sex education in schools varies state by state based on legislation (National Conference of State Legislatatures [NCSL], 2019). This means the degree of sex education one receives can differ greatly when compared to other students (NCSL, 2019). There are multiple factors that can impact how and what kind of sex education content is taught. For example, religion can greatly influence the type of sex education an individual receives. Typically in the Christian religion, abstaining from sexual activity until marriage is strongly recommended (Turns, Morris, & Lentz, 2013). Celibacy and abstinence until marriage are common themes presented in many sex education courses (Haffner, 2011). However, it was noted that more than 90% of Americans do

not wait to engage in sexual activity until marriage (Haffner, 2011). It was noted that Legislation reports there are 27 states that are required to stress abstinence in sex education, as well as an additional 10 states that require abstinence to be covered (Guttmacher Center for Population Research Innovation and Dissemination, 2019). Consequently, sex education that focuses only on forgoing sex until marriage is not realistic, nor adequately meeting the needs of the population.

A survey was conducted in 2017 at a private, Christian university in Southern California by the American College Health Association using the National College Health Assessment II (ACHA-NCHA II) tool (American College Health Association [ACHA], 2017). This instrument was used to assess the health habits and behaviors of undergraduate students (ACHA, 2017). The survey yielded a response rate of 24.6%. Within that survey group, 45.7% of students reported having at least one or more sexual partners via vaginal, oral or anal sex, in the last 12 months (ACHA, 2017). Only 20% of respondents reported ever being tested for HIV. A little over half of the respondents claimed to have received the human papillomavirus (HPV) vaccination (ACHA, 2017). Additionally, 42.7% of the respondents reported to be in a relationship at the time of the survey as well as an additional 6% who are currently married (AHCA, 2017). In regards to the different forms of sexual activity, 41.8% of students reported that they have had vaginal sex, 49.9% have had oral sex, and 12.8% have had anal sex within their lifetime (AHCA, 2017). These statistics represent a potential need for integrating additional sex education resources at the University.

Purpose and Rationale

This paper will explore the effects of STIs, the efficacy of current sex education practices in the United States, and describe an evidence-based practice intervention to address the sexual health knowledge gaps among college students at a religious affiliated institution. Currently there is no universal sex education curriculum across the United States. Legislation differs in each state, which can lead to gaps in knowledge and varying information. An effective sex education should include a wide range of topics pertaining to sexual health. The components of a comprehensive sex education curriculum will be discussed in the Current Sex Education in the U.S. section. STI rates have been increasing each year, leading to the purpose of targeting a college institution because of the large prevalence of STIs in the young adult population (CDC, 2018). Additionally, the results from the 2017 ACHA survey of the California religious affiliated institution is the institution this evidenced-based project (EBP) will be conducted at. The chosen EBP model is Ottawa Model with the developed PICO question as: Among students at a private, religious, college-level institution where the culture emphasizes abstinence until marriage **(P)**, will the implementation of a comprehensive sex education seminar **(I)**, as compared to no comprehensive sex education seminar, **(C)** result in increased knowledge and awareness regarding sexual health and STI prevention **(O)**?

Search Strategies

Multiple databases and government websites were accessed in order to conduct a literature review. Databases that were accessed include ProQuest Nursing and Allied Health Source and EbscoHost. Websites that were reviewed include the CDC, ACHA, American Sexual Health Association, and San Diego County Health and Human Services. An assortment of keywords were inputted to yield articles necessary for the literature review. Keywords inlcuded

"sex education", "Christanity", "Christian schools", "faith", "STIs or STDs", "college students", "United States", and "sex education legislation". Parameters that were implemented were peer reviewed articles, full text, and publication after the year of 2000. These search strategies yielded 34 articles and websites that contributed to the literature review.

Review of Literature

Sexually Transmitted Infections (STIs)

Overview.

There are over twenty different types of STIs (CDC, 2019). Some of these include, but are not limited to: chlamydia, gonorrhea, human immunodeficiency virus (HIV), herpes simplex virus (HSV), and syphilis (CDC, 2019). Please refer to Appendix A for further descriptions of the previously listed types of STIs. The source of infection can vary from bacteria, viruses, or parasites (WHO, 2019). For instance, trichomoniasis is a parasitic infection while chlamydia, syphilis, and gonorrhea are caused by bacteria (WHO, 2019). STIs can be categorized as curable or treatable (Moore & Smith, 2012). Syphilis, gonorrhea, and chlamydia are STIs that can be cured (Lechner 2013). STIs may or may not present with signs and symptoms (CDC, 2019). Presentation may vary depending on the type of STI and duration of infection, but some general symptoms may include a burning sensation upon urination, foul smelling discharge, and atypical sores (CDC, 2019).

The CDC recommends being in a "mutually monogamous relationship with a partner who has been tested negative…" for any STIs as well as correctly applying latex condoms during sexual activity in order to lower the chances of STI transmission (CDC, 2019). Consequences

that arise when STIs are left untreated include infertility, harmful maternal and fetal complications, and occasionally death (CDC, 2019).

Prevalence.

In total, nationwide, the CDC estimates there are over 110 million STIs between men and women (CDC, 2013). Approximately 20 million STIs emerge in the US per year (CDC, 2013). The direct medical cost pertaining to these 20 million new STIs is approximately 16 million dollars (CDC, 2013). Compared to other developed countries, the United States has a high STI and pregnancy rate (Stanger-Hall & Hall, 2011). Within the county of San Diego, the majority of STIs increased in the year 2017 (San Diego County, 2019). For instance, the percentage of those who were infected with chlamydia increased by 10% between 2016 and 2017 (San Diego County, 2019). The prevalence of gonorrhea in 2017, compared to 2016, increased by 19.1% (San Diego County, 2019). Additionally, gonorrhea was three times more likely for men than women (San Diego County, 2019). This rate from 2015 to 2017 increased by 57.6% (San Diego County, 2019). In regards to syphilis, it is more prevalent among males than females; specifically among “men who have sex with men (MSM)” (San Diego County, 2019). Overall, the number of individuals who have syphilis in San Diego County increased by 11.1% in the year 2017 (San Diego County, 2019). In general, STI rates are on the rise both nationwide and in the city of San Diego.

Current Sex Education in the United States

In the United States, sex education curriculum is not mandated by the federal government, meaning that it is left up to the discression of school districts and each state to

determine what is taught (Sneen, 2019). This leads to a wide array of variance among sex education programs from state to state and within schools (Sneen, 2019). The degree and accuracy of information provided, emphasis on the information, and overall effectiveness of education are all factors that can vary greatly within different sex education programs (American College of Obstetricians and Gynecologists [ACOG], 2016). For example, as of 2016, only twenty states have legislation that requires sex education to be medically accurate, however the definition of what is medically accurate varies by state (NCSL, 2019).

Federal funding by the government has been thought to influence the implementation of abstinence-only sex education programs through the funding of these types of curriculas (Sneen, 2019). Although comprehensive sex education programs are becoming more favorable, the issue that remains is the continual funding of abstinence-only sex education which compromises current public health efforts (Gardner, 2015). It is important to note that emphasizing abstinence in sex education has a reasonable basis, as this is the only way to 100% prevent STIs and pregnancy (Gardner, 2015). However, it does not address the needs of the population since a majority of STIs come from adolescents indicating that they are sexually active (CDC, 2018).

Comprehensive sex education is a broader educational format and can provide students with many benefits. As mentioned, sexual education programs will vary, but what sets comprehensive sex education programs apart from abstinence only programs is that comprehensive sex education includes information about safer sex practices (Walcott, Chenneville, & Tarquini, 2011). Studies have shown that comprehensive sex education is effective in decreasing risky sexual behavior along with STI and adolescent pregnancy rates (ACOG, 2016). Comprehensive sex education aims to educate individuals on a wide range of

topics that are encompassed with sexuality (Landry, Lindberg, Gemmill, Boonstra, & Finer, 2011). The goal of comprehensive sex education is to educate individuals on risk-reducing behaviors during sexual activity as well as promote sexual health responsibility (Landry et al., 2011). Comprehensive sex education should include topics such as body image, forms of contraception, identity, and sexual health knowledge (Landry et al., 2011). In fact, abstinence is a sub-topic taught during comprehensive sex education (Landry et al., 2011). Additionally, the American College of Obstetricians and Gynecologists (ACOG) recommends that sex education should be comprehensive and continued throughout one's life (ACOG, 2016). Therefore the implementation of resources and comprehensive education related to sexual health at colleges and universities is an area of opportunity for schools to influence safer and healthier habits in students.

Sexual Activity among College Students

Once completing high school, it is estimated that 65% of high school students will continue their education in college (Lechner, 2013). Typically, when a high school graduate attends college they begin to develop independence from their families (Lechner, 2013). "Emerging adulthood" is the classification of young adults between the ages of 18 and 25 who do not consider themselves as adolescents anymore but also not as a complete adult (Lechner, 2013). During this transition period, emerging adults will expand their responsibilities (Lechner, 2013). Making decisions and being accountable for one's sexual health are associated with increasing individual responsibility (Lechner, 2013). In 2009, approximately half of college students stated they obtained material about STIs or HIV through their institution (Lechner 2013).

In order to discover knowledge gaps related to sexual health for college students, 242 college students, in a 2009 study, were assigned to a class that was centered on sex education (Moore & Smith, 2012). This course included both videos and discussions for the students (Moore & Smith, 2012). Afterwards, the students were asked to write a paper about new information they learned through this course (Moore & Smith, 2012). Prior to the course, a demographic survey was conducted of the participants (Moore & Smith, 2012). It was revealed that 69.4% of the participants have had oral sex and 68.6% have had vaginal sex (Moore & Smith 2012). With a high prevalence of the participants who reported to be sexually active, it was also recorded that just 19.4% applied condoms for vaginal sex and 2.5% for oral sex (Moore & Smith, 2012).

Proper condom use and information related to STIs were documented as the most learned subjects (Moore & Smith, 2012). Additionally, while college students lack knowledge regarding STIs, they report adequate education about human immunodeficiency virus (HIV) (Moore & Smith, 2012). Pertaining to STIs, it was noted that HPV and syphilis are the least well known STIs among college students (Moore & Smith, 2012). Other learning, approximately 4.1%, was centered on “definiton of sex” and “sex communication” (Moore & Smith, 2012). It was identified that those involved with the study had a fixed idea of sex only pertaining to sexual intercourse (Moore & Smith, 2012). Teaching related to sex communication emphasized the importance of talking with one’s sexual partner about previous sexual relations (Moore & Smith, 2012). A significant result that was discovered from this study was that the college student participants believed they were knowledgeable about STIs, but when tested about STIs they incorrectly answered common questions regarding STIs (Moore & Smith, 2012). As a result,

Moore and Smith concluded that college students may perceive themselves to be more knowledgeable in STIs than they actually are (2012).

In a 2010 study, college student's opinions about whose responsibility it is to provide sexual health resources for the students was evaluated (Lechner, 2013). Overall, this study found that most participants believed it was the institution's obligation to supply its students with resources regarding sexual health, but it was scholars' obligation to utilize the produced resources (Lechner, 2013). Additionally, the results yielded a distinction between two- and four-year students' expectations regarding institution's resources (Lechner, 2013). Two-year college participants reported they desired to have referrals be made to the institution's resources, while four-year college respondents desired to have the institution's resources made available directly to them (Lechner, 2013).

With regards to the preferences to what type of sexual education is taught at a college, a qualitative study was conducted among college students (Gardner, 2015). During this study, students were asked their opinions about being taught only abstinence sex education (Gardner, 2015). The majority of the respondents answered with wanting the education to be more comprehensive (Gardner, 2015). This means the students wanted to be taught a variety of sexuality topics, such as safe sex technniques and different types of contraception (Gardner, 2015). Comprehensive sex education is necessary to be taught to college students not only because they prefer it but because research has shown that young adults are willing to endure some risks for the purposes of pleasure and sexual acitvity (Abma, Martinez, & Copen, 2010; Finer, 2007).

Sex and Christianity

In the US, 78% of citizens report to be of the Chrsitian faith. For decades now, there have been public debates about religion and sexuality; more specifically, how religion affects one's sexual behaviors. For Christianity, throughout its time, "sexuality has been characterized by a sense of shame and oppression". This shame and guilt was especially directed to those who experienced sexual activity prior to marriage. Consequently, a knowledge gap has been created for Christians who are not married and what course of action should be taken regarding their sexuality (Turns, Morris, & Lentz, 2013).

In order to understand where the roots of shame and guilt emerge from sexuality in the Christian religion, the original text must be examined. Within the first book of the Bible, Genesis, there are approximately 34 stories that are sex based (Haffner, 2011). These sexual themes range from surrogacy to rape and love (Haffner, 2011). In the first section of the Bible, in Genesis, sex is described as created by God himself, and it is a beautiful and good act (Genesis 1:31, New International Version [NIV]). In fact, according to the Bible, God wanted his creations, people, to experience sexual relationships without guilt and enjoy creating future generations (Genesis 1:28; Genesis 2:25, NIV). However, in chronological order, with the "fall of man" sex changed from being seen as pure into that of sin if not saved for marriage (Turns, Morris, & Lentz, 2013). Further in the Bible, in the New Testament, the prophet Paul tries to address some sexual issues among churches and its people (Haffner, 2011). In fact, in the First Letter to the Corrinthians, Paul addressed approximately 15 sex education topics (Haffner, 2011).

With these varying notations of sexuality in the Bible, Christians have diverse ideas about sex (Turns, Morris, & Lentz, 2013). For instance, in comparing the multiple denominations of

Christianity, there are conflicting perspectives about sex (Turns, Morris, & Lentz, 2013). Greek Othordox and Irish Catholic denominations typically enforce harsh attitudes toward sexuality (Turns, Morris, & Lentz, 2013). However, Italian Roman Catholic and other non-denominational churches are usually receptive to discussing topics about sex and sexuality (Turns, Morris, & Lentz, 2013). Another issue associated with sexuality facing religious institutions is the lack of support and education for those who are married and participating in the congregation (Haffner, 2011).

As previously stated, the majority of the US population identifies as Christian (Turns, Morris, & Lentz, 2013). Consequently, the one institution that can reach this population are the churches. Therefore, religious institutions have the power to help improve sexual health knowledge and awareness of its participants. It was noted that greater than 60% of US children and adolescents are at a synagogue or church for an hour or more every week (Haffner, 2011). Others have discovered the significance of church in regard to decreasing the knowledge gaps of sexual health. In 2000, a religious organization created the Religious Declaration on Sexual Morality, Justice, and Healing in order to supply comprehensive sex education to everyone in religious affliations (Landry et al., 2011). This organization and founding document has been supported by more than 14 religious denominations as well as 2,400 spiritual representatives (Landry et al., 2011).

EBP Intervention

Following the Ottawa EBP model, after assessing multiple barriers to sexual health, as discussed in the literature review section, an intervention was created and implemented among the undergraduates at the selected private Christian institution (Sudsawad, 2018). A sexual health

and demographic survey was created and sent out to all the undergraduate students in order to assess the culture in relation to sexual activity and sex education. Based upon the survey responses, a sexual health seminar and panel was created. This included the distribution of a pre-test and post-test to assess for an increase in knowledge and awareness related to sexual health and STI prevention among the participants.

For both phases of this project, students' perceptions about the University's health center in regards to sexual health-related care and resources were evaluated. This health center is on campus for the students attending the institution. The health center aims to provide care and resources for students in order to promote students' well-being. It has been unclear as to what sexual health resources and care are available to students through this health center. The University's health center was analyzed specifically because uncertainty of offered services may result in a lack of utilization of available resources.

Demographic Survey

Methods.

Prior to disseminating the survey, researchers obtained Institutional Review Board (IRB) approval through the researchers' university. Participants for the survey included undergraduate students from the university. To further protect confidentiality and promote safety, students were not required to use their school email to access the survey. The survey was created and distributed through Google Forms. The initial survey did not ask for names, emails, or other identifying information of participants.

Procedures.

An email was sent out to all traditional undergraduate students at the university inviting them to complete a voluntary, anonymous online survey through a link provided in the email. The survey remained open for a two-week period. Prior to being able to complete the survey a brief informed consent was displayed notifying participants of the survey procedures and that they must be at least 18 years of age to participate. The survey asked students a series of 20 questions related to the participants' demographic information, gender identity, sexual activity, and sex education history (See Appendix A). The majority of questions were required and consisted of multiple choice or select all that apply options. The last two questions were optional and free response. After completing the survey, participants were given the option to enter their name into a separate survey in order to be entered into a random drawing for one $50 gift card.

Results.

The participants of the study were 519 undergraduate students (*n*=519) from a small, private Christian university. The calculated response rate for the survey was 19.2%. A majority of respondents were in the 18- to 24-year old age group, while only 1.7% reported being 25 years of age or older. Most participants, 77.8%, reported being of White/European descent. Sexual orientation for the majority, about 85%, reported being heterosexual. There were a small amount of responses, ranging from 2-5%, that identified as bisexual, asexual, questioning, and gay. The data is considered to be equally distributed between the four grade levels, ranging from 22.2% to 29.3% between freshmen, sophomores, juniors, and seniors. The distribution between females and males was 75.7% females and 23.7% males. This distribution accurately correlates to the university's gender ratios. A majority of respondents identified having been raised of the Christian faith and/or currently identify as Christian.

Within this survey, participants were asked if they had ever been sexually active in their lifetime. This question also included the definition of sexual activity to be oral, vaginal, or anal sex. Out of the 519 respondents, 54.7% reported having been sexually active at some point in their life. This is significant as it indicates that over half of the represented sample of the student population have engaged in sexual activity at some point, which therefore increases their likelihood of contracting a STI. Approximately 2.3% of the participants reported that they had not received sex education before from any source. For the analysis of the survey responses, sexual activity was compared to gender, grade level, attendance to a private versus public school, and those who reported to never have received formal sex education. Approxmately 55% of women from the survey reported having been sexually active, and about 54% of men reported having been sexually active. Comparing sexual activity to those who had ever attended a private school versus those who reported only having been to public schools, both categories had sexual activity above 50% (See Appendix B). Additionally, the sexual activity among those who reported never receiving formal sex education was about 53%.

When analyzing sexual activity between the traditional undergraduate grade levels, each consecutive grade level had an increase in reported sexual activity from freshman to senior year. Approximately 40% of freshmen reported being sexually active. There was a 13% increase in sexual activity between freshman and sophomore year with 53% of sophomores being sexually active. There was a 9% increase in sexual activity between sophomore and junior year. Sexual activity among juniors was about 62%. Between junior and senior year, when comparing sexual activity, there was a plateau. Approximately 62% of seniors are sexually active.

There were three questions regarding students' perceptions on the university's health center that is located on campus in relation to receiving sexual health treatment and/or resources. Common themes identified in regards to the school's health center included fear, stigma, and confusion of what the health center does offer. One respondent stated, "Due to the nature of [the University's] conduct code, if I was an unmarried woman I would feel stigmatized receiving sexual health resources from [the University]." Another participant noted, "I was not aware of any resources at the [University's] Wellness Center related to sexual health. If there are resources, they are not made known to students." Lastly a detailed participant response stated:

> I think that [the University], and the Wellness Center as an extension, provide inadequate sexual health information because they don't provide any. Safe sex, consent, and non-abstinence sex education have not been, in my experience, welcome conversations at [the University]. I would be hesitant to attend such a seminar, not because it's not relevant to my life or I am uninterested/uncomfortable with the topic, but rather because I don't trust [the University] or the Wellness Center to give me information that isn't rooted in an abstinence-only curriculum.

It is evident from these student responses that students may feel uncomfortable about this topic as a result of the University's culture. In addition, many of the respondents had negative feelings, such as fear and shame, in regards to the Institution's health center. Many participants also reported feeling confused or unsure on what the health center's resources and care includes. Refer to Appendix B for additional quotations from students about perceptions of the University's health center.

Limitations.

There are a few limitations that are associated with the created sexual health demographic survey. One limitation of this portion of the study is fear of the respondents to answer truthfully even though the survey was anonymous. Fear is a significant issue for this survey because this private Christian affiliation recommends abstinence until marriage for its students. Another limitation could be the misinterpretation of some of the survey questions. There was an insignificant amount of responses that were considered unusable after screening the responses and were therefore not used in the analysis. Participant bias may have occurred since this was a voluntary survey, therefore individuals who feel strongly towards this topic may choose to complete this survey more than others. Lastly, survey fatigue may be a factor to the undergraduate students that did not complete the survey.

Sexual Health Seminar and Panel Event

Methods.

Participants for this portion of the study also included students from the small private, Christian institution that were used in the demographic survey. Students attended the event on a voluntary basis, as attendance was not required. Student participants were administered a pre- and post-test in a hard copy format to complete before and after the seminar portion of the event. Participation in completing the tests was also voluntary, but encouraged. Students were instructed to not write their name or any other identifying information on the tests to protect confidentiality.

Procedures.

Based on the fall 2019 survey and the ACHA survey results, an optional sexual health event was created for undergraduate students at our institution. Methods of advertisement

included posters placed around the campus and in dormitories, social media promotion, and emails sent to students, which all started approximately two weeks prior to the event date. The event was 90 minutes and consisted of half seminar and half panel. The seminar included a brief overview of statistics from the ACHA survey of 2017 and our fall 2019 survey related to sexual health and potential areas to improve health among the selected population. Following this was a lecture on STIs that was taught by an STD Prevention Program Manager from the local health department. After the seminar, students were given the opportunity to ask a group of panelists questions related to sexual health. The panel consisted of the STD Prevention Program Manager, an expert in Christian theology, and an expert in sociology. An online tool was utilized so students could ask sexual health related questions anonymously to the panelists. This tool was utilized to address student feelings of "fear" and being "uncomfortable", which were prevalent themes from the 2019 demographic survey. The ability for students to be able to ask questions anonymously during the panel was also advertised to help further address these prevalent themes.

Students were encouraged to fill out a nine question pre-test (see Appendix C) prior to the start of the event to evaluate baseline knowledge and perceived awareness related to STIs. After the seminar an eleven question post-test was administered to student participants that included the same questions as the pre-test as well as two additional questions (see Appendix D). An informed consent was given at the beginning of both the pre- and post-test notifying participants of the test procedures. Questions one through eight were scored for accuracy. Question nine utilized a modified Likert scale to determine student perceptions of current sexual health knowledge related to STIs. Questions ten and eleven were exclusively asked on the post-test. Question ten also utilized a modified Likert scale to evaluate applicability of education

to participant's life. Question eleven on the post-test was an optional, short answer question that allowed student participants to make any comments that they had related to the event.

Results.

From the pre-test there were 50 responses (n=50) with an average score of 71% (see Appendix E). For the post-test there were 46 responses (n=46) with an average score of 88.04%. Overall there was a 17.04% average improvement from the pre-test and post-test. A calculated p-value of less than 0.001 indicates statistical significance in regards to an increase in knowledge from this sexual health seminar and panel ($p = 9.66\,e^{-7}$). An RA Fischer Test was conducted on questions one through eight to determine the statistical significance of each of these questions individually. Questions two, four, six, and seven were considered statistically significant with a p-value less than 0.01. Question two addressed the myth of a single test for all STIs. Question four related to the importance of understanding that STI testing is the definite source to know if one has a STI. Question six identified the current rise in STIs across the nation. Question seven addressed another myth surrounding STIs in relation to STIs typically being asymptomatic.

Question number 9 on the pre-test showed a wide distribution of varying responses (see Appendix E). Results from question number 9 in the post-test showed a more narrowed distribution that was shifted to the right indicating that participants had an overall increase in their perception of knowledge related to STIs (see Appendix E). For question number ten, 45 out of 46 respondents agreed that they were able to take away an important piece of information from the event that will be applicable to their life in some way. One person reported "not sure" for question ten. There were no responses for question eleven which was optional.

Limitations.

One potential limitation with this portion of the study is that participants were self-selected. Due to the event not being mandatory, participants were able to choose whether or not they wanted to attend the event. This could affect pre- and post-test results because individuals who feel strongly towards this topic may have felt more motivated to attend the event. Factors that could have affected student participation may be related to desire or interest in attending the event, overall workload, and other extracurricular obligations. Another limitation includes some confusion among participants with the correct answer for question one on the post-test because the guest speaker briefly discussed the correct answer at the end of the seminar. An additional limitation is that four participants left the event or did not complete the post test. Participants were not required to stay for the length of the seminar, or complete the pre- and post-tests which could have resulted in the loss of four post-test responses. This leads to another potential limitation that some participants did not arrive in a timely manner which may have also altered pre- and post-test results. Along with this, another limitation was that the pre- and post-tests were given in a hardcopy format, which resulted in people not answering certain questions or selecting multiple answers for questions which resulted in the question being marked incorrect. Lastly, it was noted that nine of the participants for both the pre- and post-tests were senior-level nursing students. This also may have altered results because STI education is integrated into the senior nursing curriculum and the guest speaker also spoke to this group of nursing students for a class lecture.

Discussion

Public and private schools are not mandated to teach sex education (NCSL, 2019). This includes schools teaching a wide variety of sex education classes; such as abstinence only sex

education, comprehensive sex education, or a mixture (NCSL, 2019). As a result, inequality among sexual health knoweldge and awareness is created due to the unmandated teachings of sex education. Additionally, another factor that contributes to variance in sex education teachings is religion, and in this study the Christian religion held a focus. Christianity is noted to preserve the notion of abstinence until marriage, which can create stigmas and fear revolving around Christians who do decide to engage in premarital sexual activity (Turns, Morris, & Lentz, 2013). The CDC notes that over half of new STI cases arise from 15-24 year olds (CDC, 2018). This directly correlates with college-aged students. Among college students, research has demonstrated a lack of understanding of the true definiton of sex and a false perception of knowledge related to sexual health and STIs (Moore & Smith, 2012). The created intervention of the sexual health and demographic survey and the sexual health seminar and panel coincide with current societal deficits related to sexual health and the STI crisis.

In order to create and provide an individualized sexual health seminar and panel event, a demographic and sexual health survey was created and administered to all undergraduate students at a Private Christian college. From the responses (n=519), it was calculated that 54.7% of the students have been sexually active within their lifetime. Additionally, upon further analysis, it was discovered that all but one category (gender, grade level, attendance of private or public school, and no formal sex education) were greater than 50% for being sexually active. The one category that was below 50% for sexual activity was among freshmen which was approximately 40%. Another important component from this survey was the identified themes revolving around receiving care from the health center on campus if it were to involve sexual health needs. The two common themes identified were fear and worry of being stigmatised for

being sexually active. As a result, these themes were essential in the preparation and implementation of the sexual health seminar and panel.

The findings from the sexual health and demographic survey reflected both the importance of and need for implementing comprehensive sex education topics through a sexual health education seminar that was held for the chosen population. It was heavily advertised that the panel portion of the sexual health event would be anonymous. This was a crucial component of the event to help make students feel safe and address common themes of fear and stigma that came up in the demographic survey related to seeking sexual health related care at the institution's health center. Upon comparison of the pre-test (n=50) and post-test (n=46) average, there was a 17.04% average increase from a 71% to an 88.04% average. Additionally, the average test scores yielded a p-value of less than 0.001 indicating statistical significance of learning regarding the sexual health seminar and panel topics of STIs and STI prevention. The results from the pre-test of the sexual health seminar and panel showed that actual knowledge does not always match up with the respondents' perceived knowledge (See Appendix E). This relates to the Moore and Smith study which showed that college students often perceived their knowledge related to sexual health as much greater than their actual knowledge (2012). These findings from the intervention supported previous research that emphasizes the importance of comprehensive sex education.

Conclusion

This EBP project uncovered particular obstacles that Christian college students face in regards to sexual health. The obstacles identified were fear and stigma around sexual health in this Christian environment. Consequently, an area for future research may include evaluating

barriers as to why students do not want to seek sexual health education or resources in an educational environment that is Christian-affiliated. It may be beneficial to evaluate these potential barriers to a greater extent and ways to address these barriers in order to improve sexual health and learning outcomes. Findings from the survey and seminar will be disseminated to school officials as well as scholarly organizations. To help promote longevity of this study, a list of resources related to sexual health was created specifically for the chosen population and disseminated to stakeholders within the institution. For further research, this study should be repeated and implemented in a larger and mandatory scale in order to more accurately assess for knowledge and awareness increases of sexual health topics among this population. Recommendations for future practice include having comprehensive sex education classes integrated into the undergraduate curriculum at the institution and to partner closely with the health center on campus to continue to improve sexual health among students, as well as related resources and education. School officials should also consider creating safe spaces for students to ask questions that they have regarding sexual health. Specifically, the University's health center must clearly address what resources are and are not available to eliminate confusion, uncertainty, and potential rumors. Lastly, it is evident that encouraging and educating on safe sexual practices can help to combat knowledge deficits related to sexual health among the selected population. Ultimately the University should be able to provide for and promote the well-being of its students, which includes sexual health as a pertinent health need.

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APPENDIX A

Demographic Sexual Health Survey

1. Which category below includes your age?
    - 18-24
    - 25+
2. What is your gender/gender identity? (Mark all that apply)
    - Man
    - Woman
    - Intersex
    - Transgender
    - Genderqueer
    - Other (if you wish please specify) _____
3. Do you currently live on campus or off campus?
    - On campus
    - Off campus
4. Are you a transfer student?
    - Yes
    - No
5. What year are you?
    - Freshman
    - Sophomore
    - Junior
    - Senior
6. What religion were you raised with?
    - I was not raised with any religion
    - Spiritual but not religious
    - Christianity
    - Judaism
    - Buddhism
    - Hinduism
    - Atheism
    - Other: Specify
7. What is your current religion?
    - I currently do not practice/consider myself religious
    - Spiritual but not religious
    - Christianity
    - Judaism
    - Buddhism
    - Hinduism

- Atheism
- Other: Specify

8. What is your racial/ethnic identity? (If you are of a multi-racial/multi-ethnic/multi-cultural identity, mark all that apply)
    - White / European descent
    - African-American/African/Black
    - American Indian or Alaskan Native
    - Hispanic/Latinx
    - Middle Eastern/Southwest Asian/North African
    - Asian / Asian American
    - Native Hawaiian or other Pacific islander
    - Pacific Islander
    - Other(please specify)
9. Which term best describes your sexual orientation?
    - Asexual
    - Bisexual
    - Gay
    - Heterosexual
    - Lesbian
    - Queer
    - Questioning
    - Other (please specify) _____

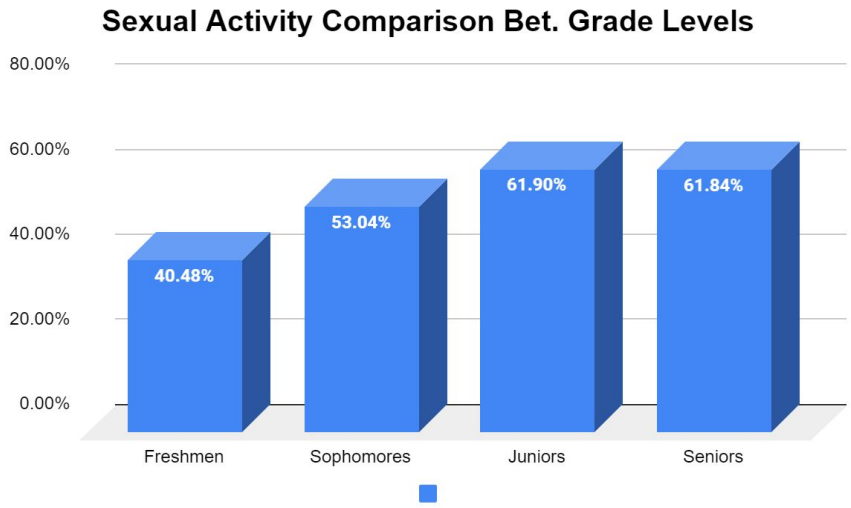
10. Did you attend a Christian affiliated school during elementary, middle, and/or high school?
    - Yes
    - No
11. Have you been received formal sex education before?
    - Yes
    - No
12. If so, from what source(s) did you receive your sex education? Select all that apply
    - Friends
    - Doctor/Clinician
    - Parents/Caregivers
    - Siblings/Cousins
    - Other family members
    - Public School
    - Private School
    - Christian School
    - Internet
    - Media (TV shows and movies)
    - Church

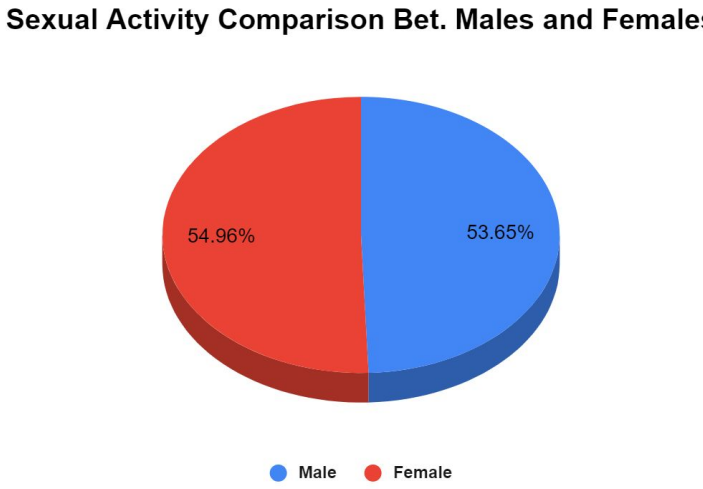
- Other (Specify)

13. What is your current relationship status
    - Single
    - In a relationship (greater than 6 months)
    - Dating (less than 6 months of dating)
    - Married
    - Engaged
    - Separated
    - Divorced
14. Have you ever been sexually active (oral, anal, or vaginal sex)?
    - Yes
    - No
15. Would you be interested in taking a comprehensive sex education seminar/workshop/educational event at [redacted] this year?
    - Yes
    - No
16. If no, why?
    - No time in my schedule
    - Not comfortable with the topic
    - I do not want to receive any learning regarding sex education
    - Not relevant to my life
17. I have been to the [redacted] Wellness Center to receive information/ resources related to sexual health
    - Yes
    - No
18. I am satisfied with the [redacted] Wellness Center's current resources regarding sexual health.
    - Strongly disagree
    - Disagree
    - Neutral/I don't know
    - Agree
    - Strongly agree
19. How do you feel about the wellness center in relation to sexual health and resources? (short answer, optional)
    - Free response
20. What would you be interested in learning within sex education? (short answer, optional)
    - Free Response
21. We are having a raffle for a $50 Amazon gift card for those who responded, if you are interested in being entered please select yes (this will take you to another survey so your name is NOT connected to the information you have just provided)
    - Yes (link with new survey)
    - No

APPENDIX B

Demographic Sexual Health Graphs,Tables, & Quotations





Gender	% Sexually Active
Male	53.66%
Females	54.96%

Relationship Status	% Sexually Active
Single	41.39%
Dating (less than 6 months	72.55%
Dating (greater than 6 months)	73.51%
Married	100%
Engaged	60.00%
Divorced	50%
Separated	0%

Grade Level	% Sexually Active
Freshman	40.48%
Sopohmore	53.04%
Junior	61.90%
Senior	61.84%

No formal Sex education	% Sexually Active
No formal Sex education	53.04%

Schooling	% Sexually Active
Christian Private	50.50%
Public School	57.41%

How do you feel about the Wellness Center in relation to sexual health and resources?
"I would like the resources to be more accessible."
"I don't feel comfortable telling the nurse I have had sex for fear of getting in trouble with the school."
"Due to the nature of [the University's] conduct code, if I was an unmarried woman I would feel stigmatized receiving sexual health resources from [the University]."
"It is not advertised or discussed, so I have no knowledge of any resources (pamphlets, condoms, educational sessions, etc.)"
"I was not aware of any resources at the [University's] Wellness Center related to sexual health. If there are resources, they are not made known to students."
"Honestly [I] wouldn't go to the Wellness Center. I think there's a way to be sex positive without endorsing premarital sex, and from the experiences I've heard from others, the wellness center wouldn't be an emotionally healthy place to have questions about or explore sex and/or sexuality"
"I feel like people are scared to get any help for sexual health because you can get fined if sexually active."
"I am not sure what they have to offer regarding sexual health resources, it would be great if they made a resource list of not only what they offer regarding sexual health resources, but resources for other health issues as well."
"I would not attend the [University's] Wellness Center in relation to sexual health because I would feel uncomfortable, condemned, or not informed to the right degree that I would need."

"The wellness center does not provide any methods for safe sex practices. They are ignorant to the fact that people have sex and they believe abstinence is key however we all know people are having sex. If the wellness center provided sex education as well as contraceptives then they would partially meet golden standard. Another thing is I do not feel comfortable talking to the wellness center for my gay sexual education. I believe their religious background would shun me so why would I want to talk to someone that would want to tell me I'm in the wrong."
"I think that [the University], and the Wellness Center as an extension, provide inadequate sexual health information because they don't provide any. Safe sex, consent, and non-abstinence sex education have not been, in my experience, welcome conversations at [the University]. I would be hesitant to attend such a seminar, not because it's not relevant to my life or I am uninterested/uncomfortable with the topic, but rather because I don't trust [the University] or the Wellness Center to give me information that isn't rooted in an abstinence-only curriculum."
"We're in college and people are having sex. Denying this only puts these students at risk and makes them fearful to seek help. Although this school is religious, this should not alter the perceptions of students seeking help or wanting to be sexually healthy. The Wellness Center is less than satisfactory all around in regards to health care."
"It is extremely insufficient. When I went in for a UTI the doctor and nurse were very judgmental and treated me like I was lesser than because I disclosed my sexual background"
"They want to pretend it doesn't happen"
"I didn't know we had sexual health resources other than abstinence."
"I think it's very important to provide information about sexual health to students in order to keep them safe and healthy"
"In talking with other people who have experienced the wellness center's "sex education", it seems that they don't provide non-biased care and they don't give objective information regarding sex education"
"I think that it would be great if the wellness center offered something about sexual health however I think there would be a ton of obstacles to overcome in order to do so"

"Not many resources & not easy to gain support or information. Shame & isolation are feelings that come in this space."

APPENDIX C

Sexual Health Seminar and Panel Pretest

Pre Seminar Test (*DO NOT WRITE YOUR NAME ON THIS*)

I understand that I am being invited to participate in a research study. This information is being collected for a 2019-2020 [redacted] Honors Project. The purpose of this research is to evaluate the effectiveness of comprehensive sex education topics among the undergraduate student population of [redacted]. I understand that my participation is voluntary and that I may refuse or withdraw from the project at any time. I understand that data collected will remain confidential. By participating in this project, I provide my consent and I acknowledge that I am 18 years of age or older. I acknowledge that I may call the investigators involved in the study, or supervising professor,[redacted], in order to discuss confidentiality any questions about participation in the project.

1. The 3 site method of STI testing includes:
    a. Urgent care, doctor's office, laboratory
    b. Vaginal, oral, anal
    c. Skin, urine, blood
    d. A 3 site method of testing STIs does not exist

2. True or false: There is an STI panel test available at most healthcare providers. This method offers a single test that can test for all STIs at once.
    a. True
    b. False

3. What method(s) can be used to help protect oneself against all/most STIs
    a. Condoms
    b. Birth control
    c. Abstaining from sexual activity
    d. Both A and B
    e. Both A and C
    f. All of the above
    g. None of the above

4. What is the one way to know if one has a STI
    a. Signs and symptoms (for example: pain during urination, abnormal discharge, foul odor)
    b. Getting tested
    c. There is no way of knowing
    d. Asking your sexual partner

5. Which way can you contract an STI
    a. Oral sex
    b. Anal sex
    c. Vaginal sex
    d. All of the above

6. STIs are at an all time high
    a. True
    b. False

7. Most STIs present with no symptoms
    a. True
    b. False

8. Which of the following is/are (a) possible consequence(s) from an untreated STI

   a. Infertility
   b. Cancers
   c. Pregnancy Complications
   d. All of the above
   e. None of the above

9. I would describe my current knowledge around sexual health topics (i.e. STIs) as:
   a. Very below average
   b. Below average
   c. Average
   d. Not sure
   e. Above average
   f. Very above average

APPENDIX D

Sexual Health Seminar and Panel

Post Seminar Test (*DO NOT WRITE YOUR NAME ON THIS*)

I understand that I am being invited to participate in a research study. This information is being collected for a 2019-2020 [redacted] Honors Project. The purpose of this research is to evaluate the effectiveness of comprehensive sex education topics among the undergraduate student population of [redacted]. I understand that my participation is voluntary and that I may refuse or withdraw from the project at any time. I understand that data collected will remain confidential. By participating in this project, I provide my consent and I acknowledge that I am 18 years of age or older. I acknowledge that I may call the investigators involved in the study, or supervising professor, [redacted], in order to discuss confidentiality any questions about participation in the project.

1. The 3 site method of STI testing includes:
    a. Urgent care, doctor's office, laboratory
    b. Vaginal, oral, anal
    c. Skin, urine, blood
    d. A 3 site method of testing STIs does not exist

2. True or false: There is an STI panel test available at most healthcare providers. This method offers a single test that can test for all STIs at once.
    a. True
    b. False

3. What method(s) can be used to help protect oneself against all/most STIs
    a. Condoms
    b. Birth control
    c. Abstaining from sexual activity
    d. Both A and B
    e. Both A and C
    f. All of the above
    g. None of the above

4. What is the one way to know if one has a STI
    a. Signs and symptoms (for example: pain during urination, abnormal discharge, foul odor)
    b. Getting tested
    c. There is no way of knowing
    d. Asking your sexual partner

5. Which way can you contract an STI
    a. Oral sex
    b. Anal sex
    c. Vaginal sex
    d. All of the above

6. STIs are at an all time high
    a. True
    b. False

7. Most STIs present with no symptoms
    a. True
    b. False

8. Which of the following is/are (a) possible consequence(s) from an untreated STI
    a. Infertility
    b. Cancers
    c. Pregnancy Complications
    d. All of the above
    e. None of the above

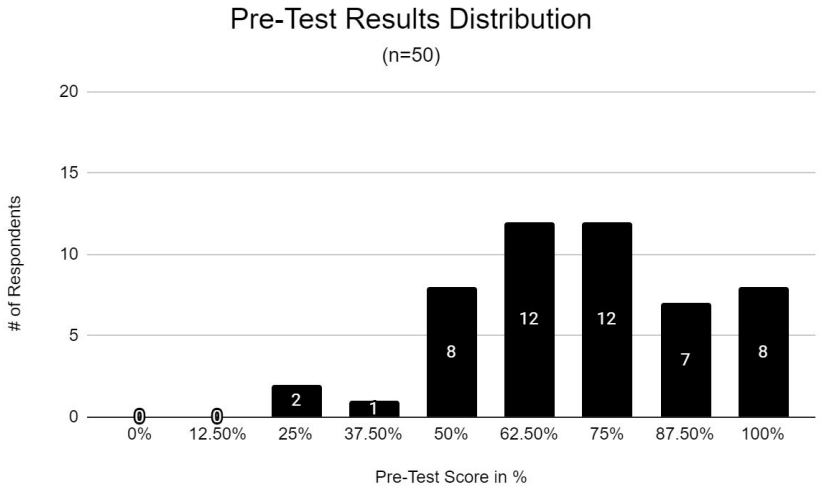
9. I would describe my current knowledge around sexual health topics (i.e. STIs) as:
    a. Very below average
    b. Below average
    c. Average
    d. Not sure
    e. Above average
    f. Very above average

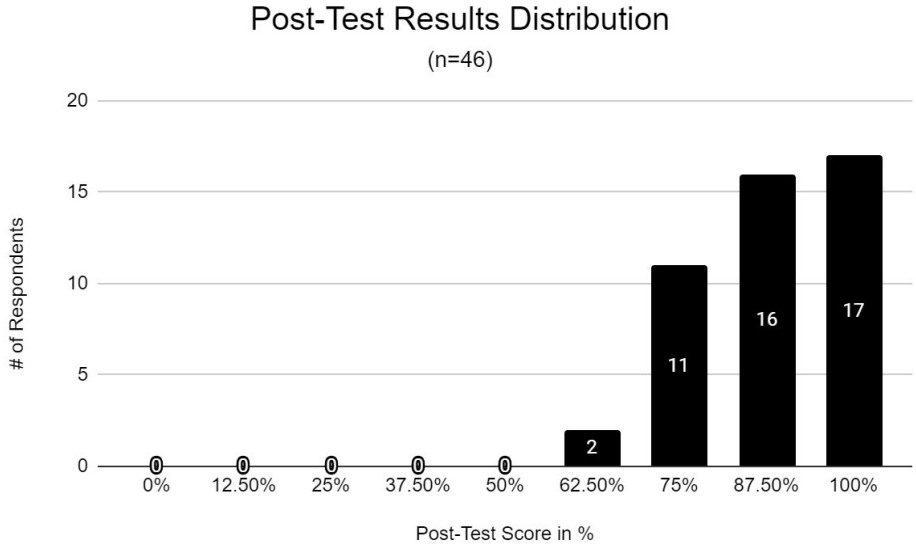
10. I was able to take away an important piece of information from this event that is/or will be applicable to my life in some way:
    a. Agree
    b. Disagree
    c. Not sure

Please use this section to write any comments you have about the event (*optional*):

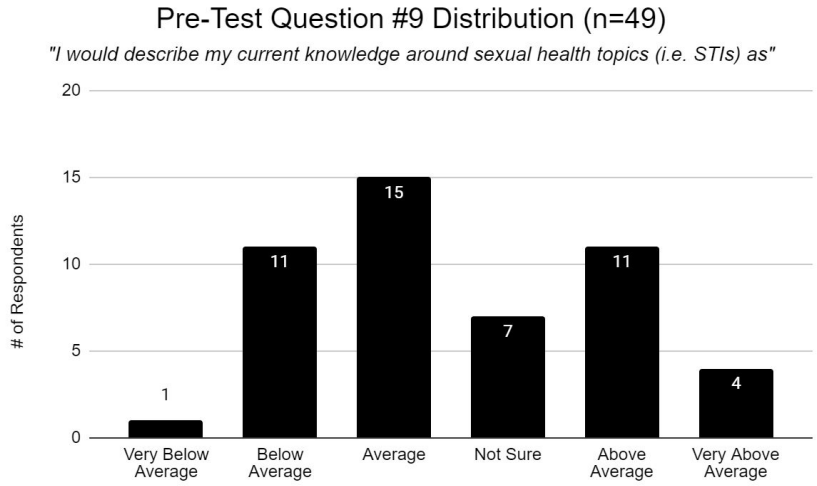
APPENDIX E

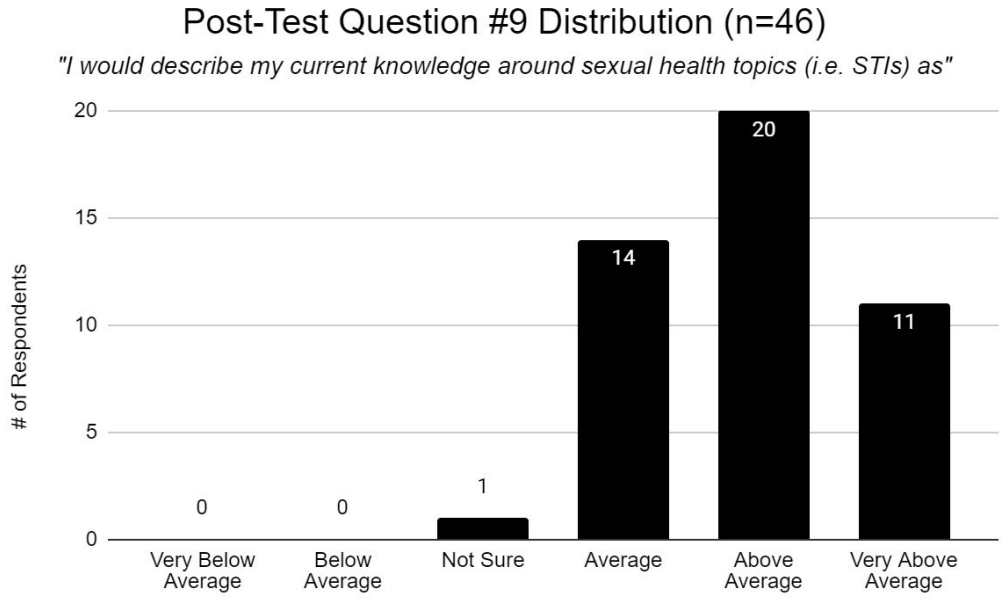
Sexual Health Seminar and Panel Pre-test and Post-test Tables

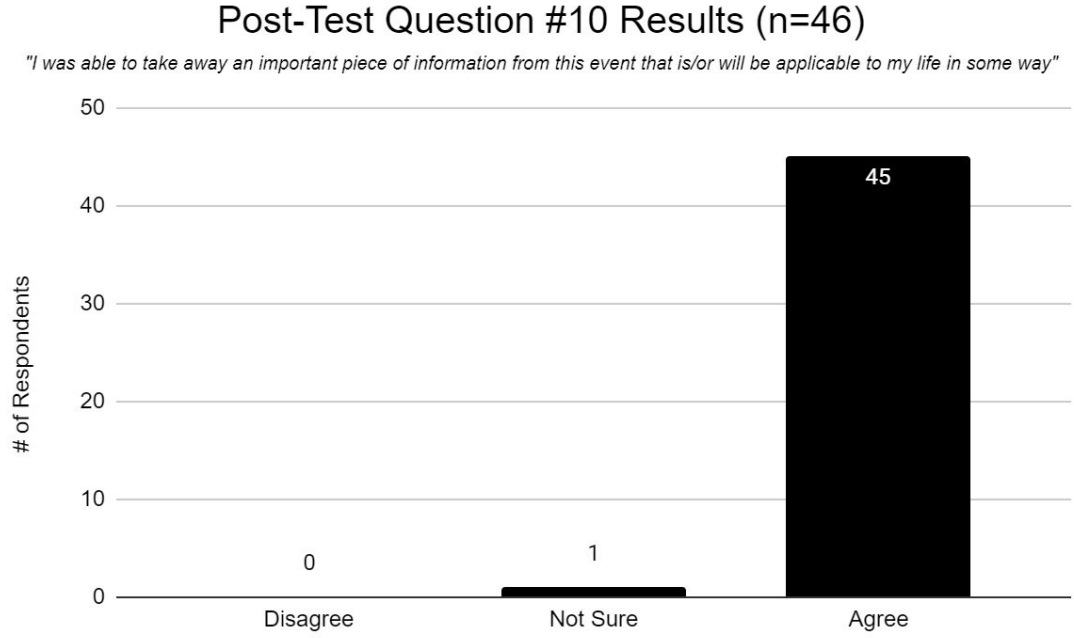




		Post-test		
Question #	# Correct	# Incorrect	Average % Correct	% Improvement from Pre-Test
#1	23	23	50%	↑ 10%
#2	39	7	84.78%	↑ 38.78%
#3	35	11	76.09%	↑ 6.09%
#4	44	2	95.65%	↑ 23.65%
#5	46	0	100%	↑ 8%
#6	46	0	100%	↑ 20%
#7	45	1	97.83%	↑ 27.83%
#8	46	0	100%	↑ 2%
			Average Post-Test Score = 88.04%	



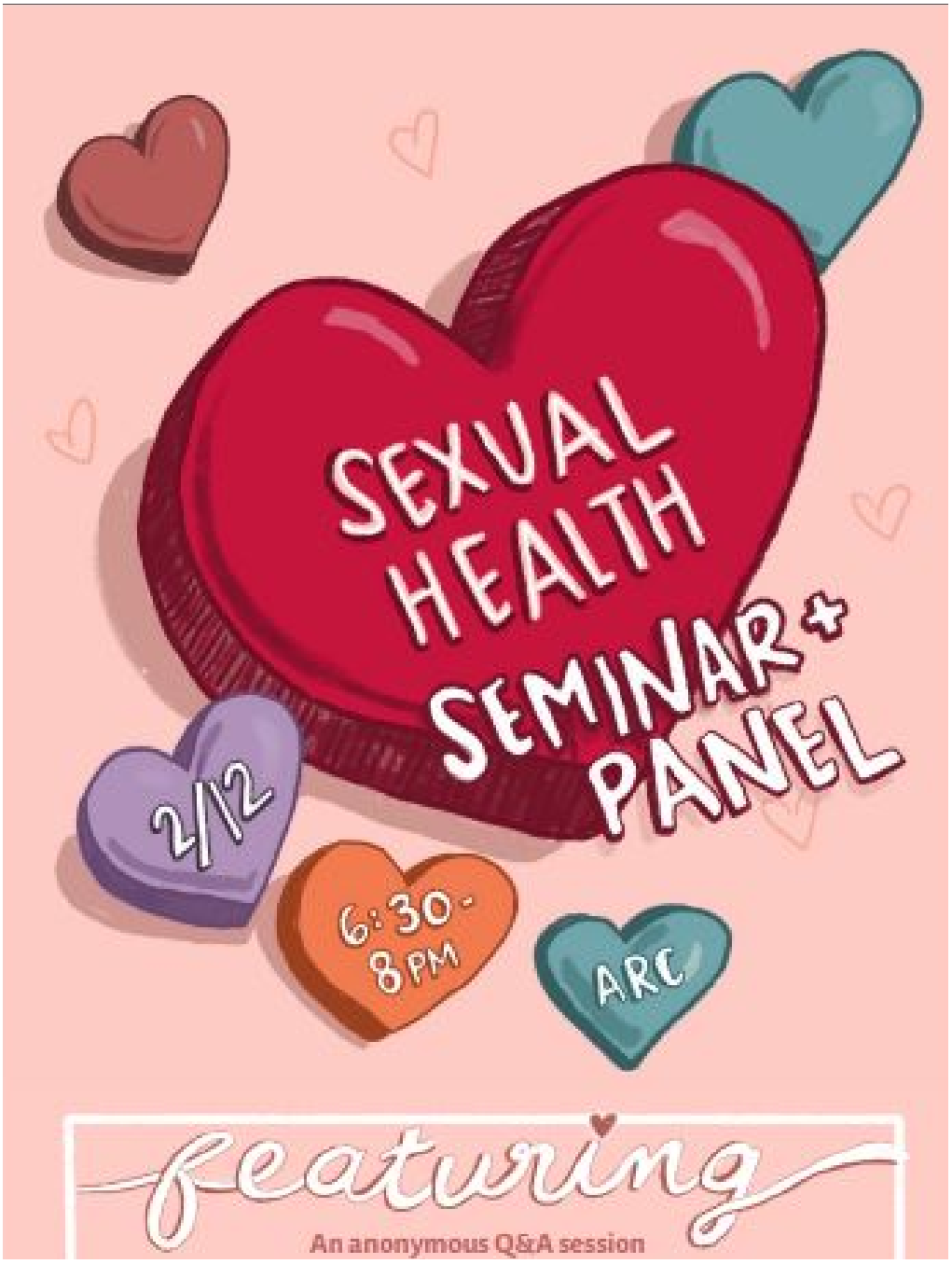




Question #	P-value
#1	0.2
#2	6.00E-05
#3	0.3
#4	0.002
#5	0.07
#6	9.00E-04
#7	2.00E-04
#8	0.5
Overall Test Avg.	9.66E-07

APPENDIX F

Sexual Health Seminar and Panel Flyer Advertisement



Appendix G

Common STI Descriptions

Chlamydia

Chlamydia is a common STI that is caused by bacteria (CDC, 2019). Chlamydia, within San Diego County as well as all of California, is the most documented STI (San Diego County, 2013). According to the CDC, many chlamydia cases are not reported because people are unaware they have it (CDC, 2019). It is estimated that about two thirds of chlamydia infections are in the adolescent population (CDC, 2019). Additionally, the population within San Diego County who has the highest rate for this infection are 20 to 24 year old females (San Diego County, 2013). Due to this, it is recommended for sexually active women younger than 25 years old to be tested annually for Chlamydia (CDC, 2019). Chlamydia is treated with a short course of antibiotics along with abstaining from sexual activity until the medication is completed (CDC, 2019). It is also noted that after completing the medication regimen, an individual should be retested three months later (CDC, 2019). It is rare for men to acquire complications from untreated Chlamydia (CDC, 2019). However, for women complications include pelvic inflammatory disease, an increased likelihood of contracting HIV, and experiencing an ectopic pregnancy (CDC, 2019).

Gonorrhea

Gonorrhea is a bacterial infection that can be acquired through unsafe oral, anal, or vaginal sex (CDC, 2019). Men and women can acquire this infection, and men between the ages of 20 to 29 years old are most likely to contract it (CDC, 2019). Gonorrhea can be diagnosed through a urine test as well as oral and rectal swabs (CDC, 2019). Treatment for an individual

with Gonorrhea includes antibiotic therapy (CDC, 2019). However, it was noted that in recent years this infection has become more difficult to treat (CDC, 2019). Antibiotic resistant forms of Gonorrhea have emerged (CDC, 2019). Complications that can occur from Gonorrhea include infertility for women and sterility for men (CDC, 2019).

Human Papillomavirus (HPV)

Human Papillomavirus (HPV) is not only the most prevalent STI in the United States (CDC, 2019), but it is also the most common STI to be contracted (CDC, 2013). According to the CDC over 70 million Americans have HPV, most of which are in their teens and 20s (CDC, 2019). For the majority of those who contract HPV, this infection will self-resolve in approximately two years (CDC, 2013). However, ten percent of those who contract HPV face serious complications (CDC, 2013). Complications of HPV include cervical cancer and genital warts (CDC, 2013). HPV can also lead to other forms of cancer such as cancer of the oropharyngeal, penis, or anus (CDC, 2019). It is estimated that each year there are about 12,100 men and 19,400 women who are diagnosed with cancer that originated from HPV (CDC, 2019). In order to combat these serious and detrimental health complications, the CDC recommends that males and females to be vaccinated at around the age of 11 or 12 years old (CDC, 2013).There are no approved screening tools to detect the status of someone's HPV as well as detecting this virus in other regions of the body besides the cervix (American Cancer Society, 2019). Treatments for individuals who have HPV are aimed at combating the complications that arise from HPV since it cannot be cured (CDC, 2013).

Syphilis

Syphilis is a bacterial infection that is primarily transmitted through sexual contact (CDC, 2019). It can be spread when an individual comes in contact with a syphilis sore through vaginal, anal, or oral sex (CDC, 2019). Once infected with syphilis, the infection will progress through a series of phases, if left untreated (CDC, 2019). The first stage is known as primary syphilis (CDC, 2019). During this stage, a sore may develop near the infection site and will typically resolve after a few weeks, however despite the sore healing treatment is still needed to eliminate the infection (CDC, 2019). Symptoms that are presented during the secondary phase includes swollen lymph nodes, fever, lesions, and a rash on the hands and feet (CDC, 2019). In the latent phase, signs and symptoms of the infection from the secondary phase disappear, but the infection continues to progress (CDC, 2019). This phase may last for years, and one may not know they are infected (CDC, 2019). Tertiary syphilis is the final phase, it is rare and can be deadly (CDC, 2019). This phase occurs several years after the initial infection (CDC, 2019). During this phase the individual's organs become damaged and may start to fail (CDC, 2019). In order to diagnose syphilis, a blood test is conducted to look for antibodies (CDC, 2019). The infection is treated with antibiotics, most often with the class of antibiotics known as penicillins (CDC, 2019).