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Having the “Talk” with Healthcare Providers to Increase Awareness of Sexually Transmitted Infections in Older Adult (65+ Years) Patients: A Quality Improvement Project

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**Having the “Talk” with Healthcare Providers to Increase Awareness of Sexually
Transmitted Infections in Older Adult (65+ Years) Patients: A Quality Improvement
Project**

A DNP Project Presented to the Faculty of the
Nicole Wertheim College of Nursing and Health Sciences
Florida International University

In partial fulfillment of the requirements for the Degree of Doctor of Nursing Practice

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Abstract

Background: The number of sexually transmitted infections (STIs) among older adults (those 65 years and older) are increasing at a significant pace. Despite this healthcare providers face consistent challenges in initiating sexual health discussions and STI screening in this population.

Objectives: The primary objective of this quality improvement project was to increase provider knowledge of sexual health and STI screening in older adults. Increases in knowledge should translate into changes in practice, resulting in better patient care.

Methodology: This quality improvement project utilized a before/after design. Providers recruited from a primary care clinic had their knowledge of the topic assessed before and after an educational intervention. Knowledge test scores were compared before and following education to determine if provider knowledge increased.

Results: A total of $n = 10$ providers from a primary care practice operating in South Florida with an average age of 39.4 years ($SD 4.43$) agreed to participate in the project. Mean knowledge scores increased from 9.85 ($SD 5.48$) at baseline to 19.62 post-intervention. A Mann-Whitney U-test to compare the scores indicated the following $z = -3.691$, $p < 0.001$, suggesting that the change was statistically significant.

Conclusions: For primary care providers working with older adults in the community, provider education does increase knowledge of sexual health and STI screening in older adults.

Implications: Increases in provider knowledge should translate into the ability of providers to change practice, leading to increased STI and sexual health screening for older adults. This should improve individual and population health over the long term.

Keywords: STI screening, older adult, sexual health, sexually transmitted infection, nursing

Having the “Talk” with Healthcare Providers to Increase Awareness of Sexually Transmitted Infections in Older Adult (65+ Years) Patients

Life expectancy in the United States and across the globe has increased significantly over the course of the last several decades (Estill et al., 2018). Individuals are living longer, healthier lives and healthcare providers are currently being challenged to meet the changing needs of this population group (Srinivasan et al., 2019). A growing concern regarding the care of older adults, including those over the age of 65 years, is the topic of sexual health (Haesler et al., 2016). Even though the reproductive elements of sex are no longer a concern for most older adults, research does indicate that sexual activity and sexual intimacy are typically needed for older adults to live healthy and fulfilling lives (Haesler et al., 2016). This evidence stands in direct contrast to current stereotyped views and biased social attitudes regarding sex in older adults (Heidari, 2016). More specifically, older adults are often viewed as having little interest in sex or as being asexual (Heidari, 2016).

Unfortunately, the social stereotypes and age bias that exist regarding age in our current culture are homogeneous and influence thinking in most population groups including healthcare providers (Flynn et al., 2016). Current evidence shows that when it comes to assessing and reviewing sexual health issues with older adults, most healthcare providers do not routinely integrate these topics into the care they provide (Gewirtz-Meydan & Ayalon, 2017). This realization is alarming, especially considering the growing incidence of sexually transmitted infections (STIs) in older adults (Smith et al., 2020). Data provided by the Centers for Disease Control and Prevention ([CDC], 2017) indicate that while STI rates are highest among individuals between the ages of 15 and 24 years, the second largest population group impacted by STIs is older adults. The organization goes on to note that between 2015 and 2016 there was a

20% increase in STI rates for older adults, continuing a pattern of year-over-year increases in STI infection rates that began in 2012.

Problem Statement

Problem Identification

The problem being addressed through this quality improvement project involves provider knowledge and attitudes toward sexual health and STI screening in older adults. In the introduction to this work, it was noted that the social stereotypes of sexuality in older adults consistently suggest that those in this population are not interested in or are not regularly having sex (Heidari, 2016). However, studies examining sexuality in older adults do demonstrate that as many as two-thirds of adults over the age of 65 remain sexually active across their lifespan (Syme et al., 2017). Sex in older adults has been shown to improve quality of life as well as physical and mental health (Haesler et al., 2016). Despite evidence supporting the need to recognize and assess sexuality in older adults, many providers do not actively address this topic when providing care (Gewirtz-Meydan & Ayalon, 2017). While some providers may be influenced by social biases toward aging, evidence also indicates that healthcare providers may lack the knowledge and skills needed to initiate conversations with older adults regarding their sexuality (Malta et al., 2020).

This topic is one that appears to have notable ramifications for the health of this population. Data provided by the CDC (2017) does indicate that STI rates continue to increase for older adults by a significant number each year. Older adults, believing that reproductive issues are not a concern, have been shown to engage in unsafe sexual practices that may be contributing to an increased rate of STIs in this population (Kirkman et al., 2016). Data indicates that 90% of older adult males having sex reported never using a condom with their date or casual

partner (Karpiak & Luniewicz, 2017). Further, 70% reported not using a condom when their partner was a stranger (Karpiak & Luniewicz, 2017). Hence, the problem that must be addressed is provider knowledge to provide sexual health and STI screening for older adults.

Background

Healthy aging in the United States has become a focal point for improving not only patient quality of life but also overall population health (Michel & Sadana, 2017). As life expectancy in the United States and globally continues to increase, there has been a push from both policymakers and healthcare providers to improve knowledge and care of the older adult population (Michel & Sadana, 2017). Healthy aging is typically focused on the use of a psychosocial model of care in which the older adult's health is managed in a holistic manner (Lu et al., 2019). In the past, the chronological age of the patient was emphasized, and care built for the older adult often failed to integrate critical elements of well-being such as social relationships (Lu et al., 2019).

A shift in the way that aging is viewed and how care is provided has, for the most part, been a boon for older adults. Scholars note that policies for improving the psychosocial needs of the older adult have been developed across both communities and healthcare facilities (Nelson, 2016). These changes have enabled older adults to remain active in their communities while also enhancing the quality of their lives (Nelson, 2016). Despite the marked progress made toward improving the care of the older adult, scholars consistently note that sexual health in this population continues to remain a taboo subject (Dhingra et al., 2016). Even though more research is being published on the topic at the present time, evidence does indicate that there are still considerable gaps in knowledge when it comes to fully understanding the sexual health needs of older adults (Karpiak & Luniewicz, 2017). This is clearly a concern that must be

addressed by expanding research and fostering knowledge development among healthcare providers.

Scope of the Problem

The scope of the problem is difficult to quantify due in part to the lack of data regarding how healthcare providers approach the topic of sexual health with each of their patients.

However, the scope of the problem can be quantified in terms of the growing number of older adults in the United States and data regarding sexually transmitted infections in older adults.

Data provided by Roberts et al. (2018) writing on behalf of the United States Census Bureau indicates that in the U.S., the older adult population has been growing steadily over the course of the last century. Growth in this population began to accelerate as the Baby Boomer generation began to turn 65 in 2011 (Roberts et al., 2018). The Baby Boomer generation has historically been one of the largest in U.S. history and by 2016, estimates showed that there were 49.2 million adults over the age of 65 living in the U.S. (Roberts et al., 2018).

As the number of older adults in the community increases, so too will the number of sexually active older adults. Current evidence indicates that as many as two-thirds of older adults remain sexually active as they age (Syme et al., 2017). Sexual activity among older adults often excludes reproductive concerns, leading to the belief among older adults that precautions for safe sex are not needed (Kirkman et al., 2016). Further, evidence indicates that due to agism and stereotypes of older adults, healthcare providers may not engage in critical conversations to improve sexual health and prevent STIs among older adults (Malta et al., 2020). These factors appear to be contributing to an increased rate of STIs among older adults with the CDC (2017) demonstrating the rapidly increasing rates of these infections in older adults since 2012.

Consequences of the Problem

The impact of not fixing the problem would stem from increased community transmission of STIs, increased antimicrobial resistance, and increased costs to treat these infections. Increased community transmission of STIs has been noted to be a growing concern among public health officials (Unemo & Jensen, 2017). Current evidence suggests that the rates of sexually transmitted infections have been increasing for the total population for more than a decade (Unemo & Jensen, 2017). This has occurred in conjunction with an increase in antimicrobial resistant strains of these infections (Unemo & Jensen, 2017). In recent years, antimicrobial resistant strains of chlamydia, gonorrhea, and syphilis have been reported across the globe (Low & Broutet, 2017). While antimicrobial resistant gonorrhea cases are increasing at the fastest pace, these infections pose a significant threat to human health as the antimicrobial tools developed to treat these infections are rendered useless (Low & Broutet, 2017).

Also concerning when addressing the topic are the costs associated with treating STIs as the number of these infections increase along with antibiotic resistance. Current evidence indicates that \$16 billion is spent annually on the treatment and direct care of patients with STIs (Pearson et al., 2017). These costs will only continue to increase as the number of STIs in the community proliferate (Pearson et al., 2017). Considering increased rates of STIs among older adults and a clear lack of healthcare provider intervention to address the issue, it is anticipated that the costs to treat STIs in the older adult population will continue to increase in the coming years.

Knowledge Gaps

The knowledge gap identified is related to the current state of provider knowledge regarding sexual health in older adults. Existing evidence does indicate that providers may lack

the knowledge and skills needed to undertake sexual health histories of older adults in practice (Haesler et al., 2016). Interestingly, however, evidence also indicates that many providers report challenges in conducting sexual health history assessments of patients at any age during their lifespan (Flynn et al., 2017). Sexual health history taking is often viewed as a difficult task for providers (Flynn et al., 2017). When the specific concern of age is introduced along with stereotypes of older adults as being disinterested or uninvolved in regular sexual activity, the knowledge gaps for healthcare providers more than likely become quite substantial. However, as noted earlier, research regarding sexual health in older adults is often scant, creating additional barriers for providers to not only seek out knowledge on the topic but for public health organizations such as the CDC to raise awareness of the topic for both the community and healthcare providers (Dhingra et al., 2016; Karpiak & Luniewicz, 2017).

Significance

The significance of the problem can be seen when looking at both individual and public health. As noted, the CDC (2017) reports that the number of cases of STIs among older adults continues to increase at a significant pace. This continues to occur at a time when the size of the older adult population is also increasing rapidly as well (Estill et al., 2018). Older adults may not be aware of their risk of contracting STIs (Syme et al., 2017). Many older adults believe that because pregnancy is no longer a concern, sexual activity may carry with it very little risk (Syme et al., 2017). Although older adults often do not have to be concerned with pregnancy, they can contract sexually transmitted infections including HIV that can have an adverse medical sequela, increasing morbidity and mortality (Siegler et al., 2018). While these issues are a concern for individuals, the reality is that increased rates of sexual activity among older adults can have implications for public health as well.

The data presented in the above problem statement clearly demonstrates that as many as 90% of older adult males' report never using a condom with a casual sex partner (Karpiak & Luniewicz, 2017). Additionally, the costs for treating STIs annually has increased to more than \$16 billion (Pearson et al., 2017). As the number of individuals in the U.S. with STIs increases, so too will costs. This is highly problematic given that many of these infections can be prevented. Further complicating the situation is the emergence of antibiotic resistant strains of STIs. Over time increased antimicrobial resistance to STIs within the community will have a detrimental impact on the health of all individuals (Low & Broutet, 2017). Increased antimicrobial resistance will mean that simple STI infections such as syphilis and gonorrhea will be difficult if not impossible to treat in the future (Low & Broutet, 2017). Preventing the spread of STIs within the community is one of the most effective methods for ensuring that this does not occur.

Increased STI rates and antimicrobial resistance as well as increased healthcare costs associated with STIs can be prevented. Current evidence regarding sexual health history taking among healthcare providers indicates that this topic is often not extensively addressed in the context of the formal education of the provider (Zachor et al., 2018). While some attention may be given to the sexual and reproductive health of adults in medical training, there is often a lack of provider preparation and training regarding how to initiate sexual health assessments and to engage the patient in care (Zachor et al., 2018). Because providers lack this fundamental knowledge, provider education was identified as the most effective approach to addressing the current problem. A further review of the literature does indicate that provider education to enhance patient engagement in conversations regarding sexual and reproductive health can be

effective for improving both the knowledge and attitudes of providers regarding this issue (Davis et al., 2016).

Synthesis of this information clearly demonstrates that the use of provider education should have some positive implications for improving provider knowledge and awareness of sexual health issues in the older adult including the need to screen this population for sexually transmitted infections. Thus, the purpose of this quality improvement project—to increase provider knowledge of STI screening in the older adult—should be achievable through the development and implementation of a provider education program. Through this proposed solution it should be possible to raise provider awareness of the issue while providing evidence-based support for engaging in sexual health history taking and STI screening with older adult patients. Over time this should further result in a reduction in STI incidence rates among older adults within the community.

Summary of the Literature

Sexuality in the older adult is an often-overlooked aspect of care (Harding & Manry, 2017). Scholars note that in most healthcare practices, providers often fail to address the topic with older adults assuming that older adults are either not interested in the topic or not engaged in sexual activity due to their age (Harding & Manry, 2017). This biased view of older adults and sexuality persists despite evidence indicating that as many as two-thirds of older adults over the age of 65 remain sexually active (Syme et al., 2017). The gap between provider willingness and ability to address the sexual needs of older adults represents a threat to public health, due in large part to the fact that older adults currently represent the second largest group contracting sexually transmitted infections (STIs) (Centers for Disease Control and Prevention, [CDC], 2017). In fact, current epidemiological data indicates that in older adults STI infection rates have been

increasing since 2012 and, presently, 20% of all STIs diagnosed in the U.S. are in the older adult population (CDC, 2017).

The challenge of educating older adults about sexual health and risks such as STIs has consistently been associated with provider lack of knowledge and negative attitudes toward the topic (Haesler et al., 2016). In addition to the fact that most formal medical education programs fail to provide adequate information for providers to engage in sexual health history taking among older adults, research also suggests that broader social issues such as ageism also have implications for the behavior of providers regarding this issue (Haesler et al., 2016). Given these issues, the use of a provider education program to increase knowledge regarding sexual health history taking and the need for screening of STIs in the older adult is proposed. The educational program should not only raise awareness of STIs in the older adult population, but also this educational program should enhance provider knowledge to effectively and comfortably assess sexuality in the older adult.

Provider education to increase knowledge and awareness of STIs in older adults appears to represent a viable means to enhance the ability of providers to address sexual health issues in older adults. This intervention should result in the prevention and early detection and treatment of STIs in this population. Over time, knowledge gains made by providers should improve care for the patient while also improving public health by reducing the spread of STIs within the population. To support this proposed intervention and quality improvement project, a review of the literature regarding the use of provider education to increase knowledge of STI and sexual health history taking was warranted. Evidence-based practice requires the use of a solid evidence base upon which to recommend practice change (Dang & Dearholt, 2017). Consequently, this document includes a review of the search strategy utilized to locate articles on the topic as well

as a comprehensive overview of the literature regarding what is required to create and implement an educational program for improving provider knowledge of STI infections in older adults.

Search Strategy

To support the proposed quality improvement project a solid evidence base was first needed. Locating articles on the topic of provider education to augment knowledge of STI infections in the older adult first began with the identification of healthcare-related electronic databases for identifying articles that could be utilized. Six specific databases were identified as having relevance to the topic and included the following: Academic Search Complete, CINAHL, Medline, PubMed, Ovid, and ScienceDirect. Searches of each of these databases were conducted utilizing search terms relevant to the PICO question. In particular, the population (older adults), intervention (provider education), and outcomes (increased knowledge of STIs) were initially utilized as search terms for the project. Searches using these terms were conducted utilizing the Boolean operator AND to ensure that all terms were combined. Limiters placed on the searches included the following: full-text articles, published between 2012 and 2022 (the last 10 years), written in English, available in full-text, and available in peer-reviewed journals.

Unfortunately, these search terms produced only a handful of results, prompting the need to expand search terms utilizing synonyms and combining terms with the Boolean operator OR. A summary of the of the PICO terms, synonyms, and Boolean operators used for searching are summarized here.

- “Older adult” AND “provider education” AND “knowledge” AND “STI”
- “Older adult” OR “elderly” AND “provider education” OR “training” AND “sexual health history” OR “knowledge” AND “STI”

- “Older adult” OR “elderly” OR “geriatric” AND “provider education” OR “training” OR “module” AND “sexual health history” OR “sexuality” OR “knowledge” AND “STI”

The expanded search criteria did provide a broader foundation for locating articles on the topic. For each search conducted, available abstracts were reviewed to determine if they included a primary educational intervention and if outcomes measured involved increases in provider knowledge regarding sexual health or sexual health history taking. Abstracts meeting this inclusion criteria were placed in a folder for full-text review. After all article searches had been completed, duplicates were removed and a total of 89 articles remained. Full-text articles were reviewed to determine if an educational intervention had been used (primary study) and if the outcomes showed some improvement for provider knowledge regarding sexual health history taking, STI screening, or understanding of sexuality in the older adult. A total of nine articles met this inclusion criteria and are summarized below as well as in an evidence table provided in Appendix A. The Johns Hopkins Nursing Evidence-Based Practice Individual Evidence Summary Tool was used to evaluate each article in terms of both level of evidence and quality (Dang & Dearholt, 2017).

Literature Summary

As noted above, the search strategy employed yielded nine studies published within the last 10 years that reported results for primary studies examining the use of provider education to improve sexual health history taking and STI screening in older adults. Although each of the nine studies provides support for the proposed quality improvement project, it is imperative to review each of the studies along with their limitations. Through an evaluation of each study and its weaknesses, it should be possible to justify the practice change while also identifying key issues that may impact the success of the quality improvement project. For the purposes of this

literature review, the decision was made to review sources based on their level of evidence as evaluated through the Johns Hopkins Nursing Evidence-Based Practice Individual Evidence Summary Tool (Dang & Dearholt, 2017). An abbreviated summary of the literature using this tool can be found in Appendix A.

Level I Studies

Using the Johns Hopkins Nursing Evidence-Based Practice taxonomy for grading both level of evidence and quality, three Level I studies were located for this literature review (Horne et al., 2021; Lu et al., 2021; Verrastro et al., 2022). As per the Johns Hopkins taxonomy, Level I studies include systematic reviews with or without meta-analysis and randomized controlled trials (Dang & Dearholt, 2017). The first Level I study identified was undertaken by Horne et al. (2021) and included a systematic review of the literature without meta-analysis. In this research, the authors report reviewing 11 studies to determine if the use of education improves provider knowledge of sexual health history taking and STI screening in all sexually active adults. The results of the review demonstrated that education unequivocally increased provider knowledge and self-efficacy while also improving attitudes toward the subject. The recommendations made by the authors are to adopt sexual health education to improve provider ability to address the topic with all patients and to increase STI screening rates.

Even though the study by Horne et al. (2021) has a high level of evidence, there are some study limitations that should be noted. The quality of this study was rated at a level B since a meta-analysis was not performed. The authors did note the lack of homogeneity in the statistical data as the primary reason for not conducting a meta-analysis. Although the study is one that has a high level of evidence to support the proposed quality improvement project, the evidence does not indicate for certain that increases in knowledge will translate into changes in practice.

Further, while some of the studies included in the review focused on older adults, others focused on adults from different age ranges. Additionally, the authors do not provide extensive insight regarding the content of the programs used to deliver education to providers. However, the evidence does indicate that myriad types of programs may be effective for increasing provider knowledge of this topic.

The second Level I study reviewed for this project was undertaken by Lu et al. (2021) and utilized a randomized controlled trial involving 75 psychiatric mental health nurse practitioners (PMHNPs). The focus of the educational intervention was to improve provider knowledge of sexual health history taking and STI screening in older adults. In total 43 PMHNPs were assigned to the education or experimental group and 32 were assigned to a control group in which no education was provided. The educational program consisted of an eight- hour workshop spread across a four-week timeframe. Three specific themes were used as the basis for the educational program including sexual health care, sexual consultation, and sexual identity. The results of the study did indicate that there were statistically significant improvements in knowledge of sexual health and sexual healthcare for providers as measured by mean differences (MD) in comparing pre- and post-intervention levels of knowledge: MD = -1.53, 95% confidence interval [CI; -1.96, -1.10], $p < .001$.

Even though the study completed by Lu et al. (2021) has some notable advantages for supporting the proposed quality improvement project, this study also has some pertinent weaknesses. The study was graded at level B for quality due in part to the fact that only a single site was used, and blinding was not introduced. Additionally, the small sample used in the study along with the specific area of specialization for nursing practice (PMHNPs) indicates that the results may not be generalizable to other healthcare providers or other clinical settings. Further,

the results do not provide insight into how increased knowledge among providers may impact practice. Even though these limitations are noted, it is useful to consider that the intervention used did augment provider knowledge which is the focus of this proposed quality improvement project.

The final Level I study identified for inclusion in this literature review was undertaken by Verrastro et al. (2022). This study included a systematic review without meta-analysis. More specifically, this study reviewed 11 articles published between 2000 and 2020 selected from eight scholarly databases. The focus of this systematic review was to determine the impact of provider education on knowledge regarding sexual health care including STI screening in adult populations including older adults. The results did indicate that across all studies, knowledge gains for providers were noted with the authors asserting that this type of education is needed for providers due to a lack of formal training delivered to providers working in most healthcare disciplines.

The study by Verrastro et al. (2022) does support the current quality improvement project but does have some pertinent limitations. In particular, the quality of the article was rated at level B since a meta-analysis was not included. However, much like Horne et al. (2021), Verrastro and coauthors argued that it was not possible to conduct a meta-analysis due to a lack of homogeneity in the data collected in each study. Further, the data is aggregated to draw conclusions and the articles reviewed included various populations outside of older adults. While provider education for sexual health and STI screening in older adults was included, this was not the sole focus of the systematic review. Limitations are also noted regarding a lack of descriptive detail regarding what type of educational intervention works best. Despite these weaknesses, the results do imply that different educational interventions may be effective for increasing provider

knowledge of the topic as well as improving attitudes while also enhancing self-efficacy to engage patients in topics regarding sexuality.

Level II Studies

In addition to the three Level I studies identified for inclusion in this literature review, six Level II studies were also included (Aaberg, 2019; Bauer et al., 2013; Jonsdottir et al. 2016; Sung & Lin, 2013; Sung et al., 2016; White et al., 2020). As per the Johns Hopkins Nursing Evidence-Based Practice taxonomy, Level II studies include quasi-experimental pre-/post-intervention designs, among others (Dang & Dearholt, 2017). The six Level II studies included in this review involved some variation of this methodology. For example, Aaberg (2019) utilized a quasi-experimental pre-/post-intervention study to evaluate the use of an educational program regarding sexual health and STI screening for 50 Bachelor of Nursing (BSN) students in their senior year of nursing school. The focus of the research was to determine if nursing student knowledge, attitude, and self-efficacy increased as a result of the educational program. The educational program focused on providing sexual healthcare for adults of all ages including individualized care for the older adult. The results indicate that nurses experienced improvements in knowledge, attitudes, and self-efficacy. On the knowledge score measure, mean scores increased from 60.27 on the pre-test to 97.67 on the post-test, $t = 4.46$, $p = 0.001$, indicating that the results were statistically significant.

Although positive results supporting the use of provider education to enhance provider knowledge of sexual health history taking and screening were noted in the study by Aaberg (2019), this study is not without its limitations. The study was given a B quality rating since a control or comparison group was not used. The study also used a small sample size drawn from a single university. This limits the generalizability of the findings to the larger population of

healthcare providers. Additionally, the study focused on all adults with only some specialized content provided regarding the needs of older adults. No information was provided regarding the duration or length of the program. These limitations will need to be considered in the context of the proposed quality improvement project.

Bauer et al. (2013) also completed a quasi-experimental pre-/post-intervention study. In this investigation, Bauer et al. sought to assess knowledge gains regarding sexual health history and STI screening for registered nurses and licensed practice nurses working in long-term care facilities. A total of 122 providers from this setting agreed to participate in the project and the educational content was specifically focused on the sexual needs of older adults. Knowledge gains made through the educational intervention were quite significant with the results evaluated in terms of mean difference. Mean differences in knowledge indicated a pre-intervention score of 55 and a post-intervention score of 77 on a knowledge test of providers. The results were statistically significant: $P = 0.001$. The results prompt the authors to argue that provider education on this topic is not needed and useful.

Limitations to the study undertaken by Bauer et al. (2013) must also be considered. A quality rating of B was assigned to this article based on the absence of a control or comparison group. Without these groups, it is not possible to demonstrate causality in the findings to show that the educational intervention was the sole cause of the change in knowledge. The study is also limited to using a small sample in a specific care setting: i.e., long-term care. This impacts the ability to generalize the findings to all care providers and healthcare settings. Also, there is no means for assessing whether gains in knowledge will translate into changes in practice for sexual health history taking and STI screening in older adults. Even though these limitations are

present, the study provides important insight into the knowledge gains that can be made by providers when education is provided on this topic.

Jonsdottir et al. (2016) also completed a quasi-experimental pre-/post-intervention design with a time series element. In this study, 216 oncology nurses working with older adult patients were provided with education to improve sexual health history taking and discussing sexual health topics with patients. The authors educated all nurses who agreed to participate and evaluated outcomes for knowledge following the intervention, at 10 months, and at 16 months. At each point of evaluation, assessment of nurses indicated that knowledge had increased, and that knowledge was retained at 10 and 16 months. Nurses participating in the program experienced a 38% increase in knowledge that was retained at 10- and 16-months post-intervention. The authors argue that these changes in knowledge are important and should have implications for practice, making it imperative to utilize education to improve sexual health among older adults seeking oncology services.

The study by Jonsdottir et al. (2016) demonstrates the positive impact of provider education on knowledge to provide sexual health care for older adults. However, the study does have important limitations. The sample size and setting for the intervention (oncology) limits the generalizability of the findings to other healthcare provider groups. Further, the study does not use a control or comparison group which limits the ability to assess a direct cause-effect relationship between education and knowledge outcomes. These concerns resulted in the decision to assign a B quality level to the article. These limitations will need to be considered when developing the current quality improvement project.

A quasi-experimental pre-/post-intervention with control methodology was utilized by Sung and Lin (2013) to evaluate the impact of an educational program to increase nurse

knowledge, attitudes, and self-efficacy to provide sexual health history and sexual healthcare services to adult patients. This included content regarding older adults. The sample included 95 nursing students drawn from a single site that were enrolled in the educational program (experimental group) and 95 nurses who did not receive the educational intervention (control group). The students were selected on a voluntary basis and were not randomly assigned. All results collected for knowledge, attitudes, and self-efficacy demonstrated statistically significant improvements following the educational program. Knowledge gains made were the largest and most significant: $\beta = -0.27$, $P < 0.001$. The program included information regarding sexuality, sexual health history taking, STI screening, and sexual identity.

Because the study utilized a control/comparison group it was assigned an A quality level. However, there are other limitations to this study. In particular, the study utilized a small sample drawn from a single site. Therefore, the results may not be applicable to all nurses or healthcare providers receiving this type of education in practice. Additionally, the results do not demonstrate causality as study participants were not randomly assigned to control or experimental groups. This makes it impossible to state with certainty that the educational intervention was solely responsible for knowledge gains. The study also does not indicate if increases in knowledge will lead to changes in practice. However, it is assumed that when providers are more knowledgeable, this knowledge will be utilized in practice to improve patient care.

Sung et al. (2016) conducted a similar study using a quasi-experimental design with control. In this study, nurses working in various healthcare settings were assigned based on a volunteer basis to either an educational/experiment group ($n = 59$) or a no education/control group ($n = 58$). The purpose of the study was to examine the impact of the educational

intervention on knowledge, attitudes, and self-efficacy in providing sexual healthcare to patients of all age ranges including older adults. Statistically significant gains in knowledge, attitudes, and self-efficacy were noted. For knowledge scores, the results indicated $\beta = 0.16$, $p < 0.01$, suggesting notable gains in this area. The study was assigned an A level quality due to the use of a comparison/control group for evaluating the results. The educational content provided focused on three themes based on patient needs: the bio-psycho-social aspects of sexuality, the role of the nurse in promoting sexual health for the patient and understanding patient sexual identity.

Although the study demonstrated positive results that support the proposed quality improvement project, there are some important limitations to consider. The article does not specifically focus on the older adult and focused content used for education of this population is not thoroughly reviewed. Limitations also include the use of a small sample of nurses only. The results may, therefore, not be applicable to all nurses or healthcare providers working with older adult patients. The sample lacks randomization making it difficult to state with certainty that causality has been shown in the intervention. Finally, the data does not indicate if gains made in knowledge, attitudes, and self-efficacy will translate into changes in practice to improve sexual health and STI screening in older adults.

The final Level II study reviewed for this quality improvement project was written by White et al. (2020) and included a quasi-experimental, pre-/post-intervention design with control. In this study, 30 advanced practice nurses seeking education at a single university were enrolled in the program. For comparison 64 controls who did not receive education were also included. The educational program addressed content regarding sexual health history taking as well as differences in population sexual health needs including a specific exploration of the needs of older adults including STI screening. Knowledge gains were assessed for specific populations

including older adults with the results indicating that for those who completed the educational program knowledge increased by a mean difference of 1.39 over controls. The increase was noted to be statistically significant: $P < 0.005$.

The results of the study conducted by White et al. (2020) do support the use of an educational program to augment knowledge of sexual health issues in older adults; however, the study does have some pertinent limitations. The sample size used was small and focused on only one specialization: advanced practice nurses. The results may not be generalizable to all care settings and provider groups. Further, the study does not demonstrate causality due to a lack of randomization of the sample. No data regarding the impact of increased knowledge on practice was provided, making it difficult to know for sure if increased knowledge will lead to better sexual health for older adults. Despite these issues, this evidence does provide an important foundation for supporting the proposed quality improvement project.

Implications for the Project

The implications of the evidence for the project must be considered. What is noted from this review is that there is ample support for utilizing provider education to augment knowledge regarding sexual health and STI screening in older adults. While the content of educational programs in terms of what works was difficult to clearly discern, the literature does emphasize the point that myriad types of educational programs can be effective for increasing provider knowledge. Further, even though each individual study has some limitations in terms of generalizing the findings, collectively the evidence does indicate that provider education should be useful for most healthcare provider groups, including those working in a primary care setting. Based on this assessment of the evidence and despite the limitations of the literature, there is enough data to support the proposed quality improvement project.

Purpose/PICO Clinical Questions/Objective

Among primary care providers who routinely deliver care to older adults, does an informational video assisted program improve the awareness of the increased risk of STI in older adults and improve intention to screen in this population?

- P- Primary care providers.
- I- Educational video: Risk of STI in the older patient.
- C- Pre-test outcome on knowledge and current screening practices regarding the high risk of STI in older adults.
- O- Post-test outcome on knowledge and intention to screen risk of STI in older adults.

The focus of the current quality improvement project was to increase primary care provider knowledge and awareness of sexually transmitted infection (STI) risk in older adults including those 65 years of age and older. Current research on the topic indicates that older adults comprise the second largest population of individuals in the United States that contract STIs (CDC 2017). STI rates are noted to be highest among adolescents and young adults between the ages of 15 and 24 years (CDC, 2017). However, the rate of STI infections in older adults has been steadily increasing since 2012 with infection rates in this group increasing by 20% between 2015 and 2016 (CDC, 2017). These rates are alarming since the number of older adults in the United States continues to increase each year (Estill et al., 2018). As the older adult population increases and rates of STIs expand, the problem has the potential to become a significant challenge for public health.

Adding to the complexity of the issue are provider attitudes and knowledge regarding sexually transmitted infections in older adults. Current evidence suggests that providers often believe that older adults are not interested in having sex or are not sexually active (Heidari,

2016). These beliefs persist even though research indicates that two-thirds of older adults remain sexually active across their lifespan (Syme et al., 2017). Provider attitudes toward sexuality in older adults are influenced by broader cultural stereotypes regarding aging (Flynn et al., 2016). However, evidence also indicates that most providers lack knowledge regarding sexual health in older adults and further how to complete sexual health histories for this population (Zachor et al., 2018). Provider education to improve these knowledge deficits has been shown to be effective for increasing knowledge and awareness of these concerns (Davis et al., 2016). Consequently, the primary DNP project goal was to increase provider education of the need for STI screening among older adults seen in primary care practice.

Project Goals and Outcomes

With the primary goal for the DNP project outlined it was possible to consider specific project goals via SMART (specific, measurable, attainable/achievable, relevant, and time bound) parameters that will be used for the project along with the desired outcomes for the project.

SMART goals identified for the project included the following:

- By the beginning of June 2022, acquire Institutional Review Board (IRB) approval for the project.
- By mid-July 2022, develop an approved program to educate providers at a primary care site about STI and sexual health in older adults.
- By the end of July 2022 complete recruitment of primary care providers including obtaining informed consent, demographic data, and pre-project (baseline) knowledge assessments of primary care providers.
- By mid-September 2022, complete primary care provider training using the approved training program.

- By the end of September 2022, complete post-project evaluations of provider knowledge and analyze data to determine project outcomes.
- By the end of November 2022, complete final written report for dissemination of data and present data for program completion.

The principal outcome sought for this project was an increase in provider knowledge following the implementation of the educational intervention. The project was structured to enable the principal investigator to collect baseline and post-program knowledge to determine if knowledge increases, decreases, or remains the same as a result of the intervention. Based on current evidence supporting the use of education to increase provider knowledge of sexual health and STI screening in older adults it was anticipated that provider knowledge will increase (Aaberg, 2019; Lu et al., 2021). Data analysis including the use of inferential statistics was used to provide insight into whether the change in knowledge is statistically significant. While evaluating the impact of change in provider knowledge on practice was outside of the scope of this project, it is anticipated that the educational program will change provider behavior when it comes to taking sexual health histories in older adults along with increasing STI screening rates for this population (Verrastro et al., 2022).

Definition of Terms

Specific terms used for this project are reviewed here:

- Sexually transmitted infection: A sexually transmitted infection (STI) also known as a sexually transmitted disease (STD) is an infection that is typically transmitted through oral, vaginal, or anal intercourse (McCormack & Koons, 2019).
- Older adult: For the purposes of this project older adults include those 65 years of age and older.

- Sexual health: Sexual health is defined as a state of comprehensive (physical, mental, emotional, and social) well-being as it relates to the person's sexuality (Savoy et al., 2020). It not only includes the absence of sexually transmitted diseases but also includes the absence of sexual dysfunction or infirmity (Savoy et al., 2020).
- Sexual health history: Sexual health history involves an assessment of a patient's sexual partners, practices, protection used to prevent STIs, past medical history of STIs, and plans for pregnancy, if applicable (Savoy et al., 2020).

Conceptual Underpinning/Theoretical Framework

While various change theories and nursing models could have been used to guide this project, Lewin's theory of planned change appears to have notable utility based on the specific nature of the change proposed. Lewin's theory is noted in the literature to be effective for guiding change that can be planned and coordinated as compared with sudden or revolutionary change that may have more immediate impacts on the organization (Burnes, 2020). Changes that can be planned can be coordinated with contingency plans made to address any problems that may arise as a result of undertaking change (Burnes, 2020). As described in the literature, Lewin's theory includes three stages: unfreezing, moving, and refreezing (Batras et al., 2016). Unfreezing involves identifying and taking all the necessary steps needed to implement the change in practice while moving refers to the process of undertaking the change (Batras et al., 2016). Refreezing occurs after the results of change are known and an effort is made to move the organization out of the change process to a new state in which the change is adopted as part of standard practice (Batras et al., 2016).

Lewin's theory of planned change was used to guide the implementation of the proposed quality improvement project. Application of Lewin's theory indicates that the first step,

unfreezing, required consideration of all the activities needed to plan the educational program for this quality improvement project. Thus, unfreezing for this project involved activities such as obtaining organizational approval for the project, acquiring IRB approval for the project, building an evidence-based educational module for providers at the practice site, and recruiting providers at the practice site to participate in the project. Additional activities that were included in the unfreezing stage would include making providers aware of the educational program, scheduling a time for the educational program to be delivered to program participants, and creating the pre- and post-tests to evaluate the knowledge of providers.

Once the unfreezing stage was complete, it was possible to enter the second stage of Lewin's change model or the moving phase. In this phase the pre-intervention knowledge of providers regarding the topic was assessed. In addition, providers were educated, and post-intervention knowledge gained by providers was measured. The completion of the moving stage of change occurred when the data was analyzed and the results were tabulated to determine if the practice change was successful—i.e., provider knowledge increased by a statistically significant amount. Based on the results of the project it was possible to move into the refreezing stage or the third stage of Lewin's model by determining the next steps in the project. The project was successful warranting the adoption of the program by the facility and the development of plans to maintain the practice change over the long-term. If the project was not successful, it would have been necessary to review the results considering current evidence to determine if the project should be abandoned altogether or if changes should be made to reintroduce the project utilizing different resources, supports, and tools.

Methodology

Setting and Participants

The setting for this quality improvement project was a primary care clinic operating in South Florida. The project for providing education targeted all medical providers working at the facility including physicians and advanced practice nurses. Appendix B includes a letter of support from the organization. The facility sees, on average, 2,000 patients per month and employs six physicians, and 10 nurse practitioners as well as nurses and other non-medical providers. An estimate of the number of older adults seen in the practice suggests that 30% of the patient population is 65 years of age and older. Ideally, the quality improvement project would have involved all 16 medical providers including physicians and nurse practitioners currently working at the site. Because the project was provided on a voluntary basis, it was only possible to recruit a total of 10 providers from the practice site.

Description of the Approach/Procedures

Permission to conduct the project at the practice site was secured (Appendix B) and Institutional Review Board (IRB) approval was sought from Florida International University (FIU) and granted on August 23, 2022. A copy of the IRB approval letter can be found in Appendix C. During the process of IRB approval, a formal educational program for providers at the practice site was created. The presentation was approved by the site's leadership and by the academic advisor at FIU. Once IRB approval was secured, recruitment of participants from the practice began. Participants including physicians and nurse practitioners were contacted via email (Appendix D). The email list was acquired from an internal directory at the practice site to which the principal investigator had access. The email recruitment letter contained information about the quality improvement project and details regarding participation. Interested providers

were asked to reply to the email indicating their willingness to participate. The email included instructions to respond within one week. Providers who did respond within one week were sent a follow-up email. At the end of this second week of recruitment, providers who did respond had their email addresses removed from the project. All emails were sent using the blind copy feature to ensure that privacy and confidentiality were maintained.

Once a group of providers interested in participating in the project had been identified, a second email with an informed consent form attached was sent (Appendix E). Participants were instructed to sign the document either digitally or by printing and scanning the form to indicate their acknowledgement of their participation in the project. Providers were asked to return the completed informed consent form by replying to the email within one week. Providers who initially expressed interest in the project and did not return the informed consent form within one week were sent a follow-up email reminder and asked to complete the form within one week. Providers who did not respond had their email addresses removed from all future project communications. Again, the blind copy feature for emails was used to protect provider privacy and confidentiality. Providers that completed the informed consent form were considered participants in the project.

Once all informed consent forms had been returned, participants were emailed a link to an online survey platform (SurveyMonkey) to complete a demographic questionnaire (Appendix F) and a pre-intervention assessment of knowledge regarding sexually transmitted infections in older adults (Appendix G). The email contained a link with instructions on how to complete the forms. The principal investigator's contact information was provided in case participants had any questions regarding the forms. Participants were asked to complete the demographic questionnaire and pre-intervention knowledge assessment within two weeks. Participants were

asked to use their email addresses when completing the survey and all participants were blinded or unable to see the responses of others. At the end of the two- week period, the principal investigator was able to determine which participants did and did not complete the surveys. For those that did not complete the surveys, a follow-up email was sent requesting completion of these documents within one week. If participants did not respond during the follow-up period, their information and data was excluded from the project. All emails were sent using the blind copy feature to protect participant privacy and confidentiality.

Following the completion of the demographic questionnaire and pre-intervention knowledge assessment, participants were emailed a link to an online educational module created by the principal investigator. The presentation included a voice over PowerPoint presentation that was recorded and uploaded to YouTube. Instructions for viewing the presentation were provided in the email along with a request to reply to the email when the participant had completed viewing the presentation. Participants were asked to view the presentation within two weeks. By the end of the two- week period, participants that had not responded in the affirmative that the presentation has been viewed were sent a follow-up email and asked to complete the task within the next week. Participants that do not watch the video had their data excluded from the project. Again, all emails were sent using the blind copy feature to protect participant privacy and confidentiality.

After all eligible participants viewed the online educational module, a final email was sent for participants to complete the post-intervention knowledge assessment. The assessment will include the same questions from the pre-test (Appendix G) with the questions rearranged to help reduce test bias. The knowledge test was completed online at SurveyMonkey, and participants were asked to use their email addresses. This will make it possible to track

participation and to match pre- and post-intervention knowledge assessments. Participants were asked to complete the assessment within two weeks. Based on data from SurveyMonkey, participants that had not completed the assessment were sent a follow-up email and asked to complete the assessment within one week. Participants that did not complete the assessment within the follow-up period had their data removed from the project. The blind copy feature was used to protect participant privacy and confidentiality.

Protection of Human Subjects

Protection of human subjects for this quality improvement project began with IRB approval. IRB approval was sought to ensure that the project was ethically sound. Second, the principal investigator was the only individual in the study who was aware of the specific providers from the practice that were participating in the study. All email communications were sent via a secure server and were stored on a password protected laptop and, in a password, protected file on the desktop. This included informed consent forms and all data from SurveyMonkey. SurveyMonkey is also a secure platform that provides password protection of data and will only be accessible by the principal investigator. Additionally, all providers wishing to participate in the study were asked to complete an informed consent form indicating their acknowledgement of the risks and benefits of the project. The blind copy feature was used on all email communications to ensure that participant privacy and confidentiality are maintained.

Data Collection

Data collection for the project occurred using SurveyMonkey. This online platform is secure and was only be accessed by the principal investigator through a password protected account. Forms used for data collection included a demographic survey (Appendix F) and a pre-/post-intervention knowledge assessment tool (Appendix G). The demographic questionnaire

included information regarding participant age, gender, race, and practice role as well as number of years in practice. The pre-/post-intervention knowledge assessment was specifically designed for the project by the principal investigator based on the educational module. Content validity of the assessment tool was confirmed through a review of the assessment by two independent geriatric nurse practitioners and one nurse educator. Based on the feedback, revisions to the assessments were made. The assessments included 20 questions that will be scored on a 100-point scale.

Data Management and Analysis Plan

Data for the project, including the email list of participants was stored on a password protected laptop to which only the principal investigator had access. All signed informed consent forms were stored on the same laptop in a password secured file on the desktop. Demographic data and assessment scores (pre- and post-intervention) were stored in SurveyMonkey along with participant emails. The data was transferred to an Excel file that was also password protected and stored on the laptop. Participant emails were not included in the Excel file. Rather, the first participant was assigned a random three-digit code. Subsequent participants received a random code that was numbered sequentially. Data from this project is and will be stored on the hard drive of the laptop for a period of five years after the completion of the project, at which time data will be professionally removed from the hard drive.

Once data was transferred to the Excel file, it was analyzed using descriptive and inferential statistics. Descriptive statistics including mean, frequency, and standard deviation were used to evaluate demographic data and to provide an overview of the characteristics of the sample. Descriptive analysis was also used to determine mean pre- and post-intervention knowledge scores to provide a comparison. Inferential statistics were used to determine if the

difference between pre- and post-intervention knowledge scores was statistically significant. More specifically, a Mann-Whitney U-test was used with an alpha value of 0.05. If the results of the test indicate that the p-value is less than 0.05, this would demonstrate that a statistically significant change in the scores has occurred. By reviewing the mean scores, it was possible to see if the scores increased or decreased as a result of the intervention.

Discussion of the Results

Data from the literature indicates that provider education should increase STI screening rates in older adults 65 years of age and older (Bauer et al., 2013; Horne et al., 2021; Jonsdottir et al. 2016). While evaluations of increased provider knowledge following education were only measured in one study (Aaberg, 2019), it is assumed that increased STI screening rates improved as a result of the knowledge gained by providers. Because this quality improvement project follows the literature, it was initially assumed that the results would demonstrate an increase in knowledge for providers. This should also translate into practice changes including the willingness and ability of nurse practitioners working in primary care practice to complete sexual health histories and to provide STI screening for sexually active older adults. The implications for this project for advanced practice nursing are therefore worth considering.

From educational and clinical practice standpoints, an increase in provider knowledge regarding STI screening among older adults should foster the need to expand the educational program such that other nurse practitioners working at different primary care sites are provided with the knowledge needed to address this vital health issue. Additionally, as noted, the educational program should result in changes to practice for the nurse practitioner including the use of sexual health history taking and STI screening as a routine part of care for older adults who are sexually active. These changes in practice should not only improve individual patient

health but also these changes should reduce the community spread of STIs and help to address issues such as increasing antimicrobial resistance. What this suggests is that the change should have systemic implications that extend far beyond the practice site.

The results of this quality improvement project should also spur changes in nursing research and leadership. If the results demonstrate positive gains in knowledge, this should encourage nurse practitioners to consider other practice settings in which the educational module could be incorporated such as nursing homes or assisted living facilities. This may require research as evidence to support the use of this intervention in these settings may be scant. Further, positive knowledge gains made by practitioners as a result of this project should spur nurse leaders to advocate for the expansion of the program to other practice sites as well as for maintenance of the project at the current practice site: i.e., providing education for new nurse practitioners hired at the facility.

Results

The results from this quality improvement project are reviewed in this section. Descriptive statistics were initially used to provide an overview of the characteristics of the subjects involved in this project based on data collected from the demographic questionnaire (Appendix F). Table 1 includes a summary of this demographic data for the sample ($n = 10$) which included medical providers (physicians and advanced practice nurses) from the facility.

Table 1

Demographics of the Sample (n = 10)

Measure	Result
Age	39.4 years (<i>SD</i> 4.43), Range (28-58)
Gender	
Male	3 (30%)

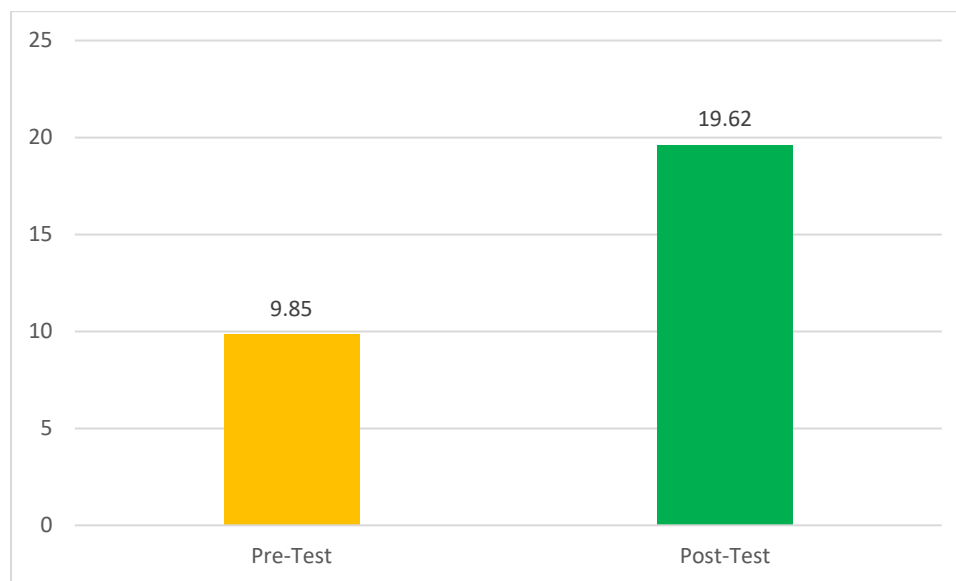
Female	7 (70%)
Race	
White/Non-Hispanic	0 (0%)
African American	1 (10%)
Hispanic/Latino	7 (70%)
Asian/Pacific Islander	0 (0%)
Other	1 (10%)
Years as a RN	8.45 (SD 6.29)
Highest Level of Education	
Bachelor's (BSN)	5 (50%)
Masters (MSN)	3 (30%)
Physician (MD)	2 (20%)
Older adults seen weekly (average)	250
Care for older adult outside clinic	
Yes	9 (90%)
No	1 (10%)

Descriptive statistics were also used to assess the scores from the pre- and post-intervention assessments (Appendix G). This included a calculation of the mean scores along with standard deviation. Scores from the assessment were based on a total score of 20 points. Scores are compared in Table 2 and in Figure 1 to visually demonstrate that change in scores the occurred following the educational program

Table 2

Pre- and Post-Test Mean Scores and Standard Deviation (n = 10)

	Mean	Standard Deviation
Pre-Intervention Knowledge Test	9.85	5.48
Post-Intervention Knowledge Test	19.62	6.03

Figure 1*Comparison of Pre-/Post-Test Scores (n = 10)*

To determine if the change in test scores from the pre- to post-intervention phase of the project was statistically significant a Mann-Whitney U-test was performed. Because of the small size of the sample ($n = 10$), it was reasoned that the data would not be normally distributed. Consequently, a paired t-test could not be used to compare scores and the nonparametric equivalent was needed: i.e., the Mann-Whitney U-test. An alpha value of 0.05 was used to demonstrate significance in the results. Results from the test indicated the following $z = -3.691$, $p < 0.001$. Comparison with the alpha value with the p-value indicates that the results were statistically significant suggesting that the educational program did contribute to the change in scores noted from the descriptive analysis (Table 2).

Discussion

The results of this project demonstrate that education for nursing professionals can serve to increase knowledge of sexual health and STI screening in older adults. As demonstrated when reviewing the background to this project, sexual health in older adults represents a significant

health issue. Older adults are the second largest group in the population that contract sexually transmitted infections (CDC, 2017). Provider bias as well as provider lack of knowledge regarding this topic are factors that can perpetuate and exacerbate the problem (Flynn et al., 2016). By increasing knowledge among healthcare providers, it is believed that this knowledge will translate into the ability and willingness of healthcare providers to change practice such that sexual health is integrated as part of routine care for the older adult. This would include increasing sexual health history taking, discussing sexual health topics with older adults, and performing STI screening in older adults who are sexually active and involved in non-monogamous relationships.

The results of this quality improvement project do support the literature indicating the provider knowledge can increase as a result of providing education on this topic (Verrastro et al., 2022). Consequently, the results from this project will add to a growing body of literature on the topic of improving sexual health and STI screening in older adults. Although there has been an increase in interest on this topic in recent years, there are a limited number of studies supporting the use of provider education for addressing the sexual health needs of older adults. Further, there are few evidence-based educational programs for providers or older adults to help them navigate this topic. It is hoped that the educational program and content from this quality improvement project will be used in the future to guide the evolution of evidence-based educational materials on the topic to help fill this gap in practice. Clearly, there are significant gaps in practice that need to be ameliorated in order to ensure that older adults can meet their sexual health needs.

Limitations

Although the results of this project did indicate that provider education was effective and aligned with the current evidence on the topic, there are some pertinent limitations to the project that need to be discussed. The project was implemented at a single practice site with a limited number of providers. This small sample coupled with the use of a single practice site limit the generalizability of the findings to other primary care sites or other clinical settings such as an acute care facility. Thus, there is no guarantee that the success of the project at the current practice site could be translated to others.

An additional limitation of the study was the short duration of the project. As noted in this work, the penultimate goal for this project was to affect a change in behavior by educating providers. Evaluating a change in practice would have required several months of data collection to determine if STI screening rates or sexual health history taking among older adults increased at the primary care facility. Because this quality improvement project was implemented over several weeks, rather than several months, provider knowledge was the most salient measure to evaluate. Although it is reasonable to believe that a practice change should result for providers due to increased knowledge, it was not possible to quantify this outcome for the project. Consequently, it is not responsible to state with certainty that provider practice will change.

Limitations for the project also include those related directly to the methodology and data analysis techniques used. The methodology employed was a pre-/post-implementation design that involved a single group. This approach does not allow for a direct comparison of the intervention group to a non-intervention group, limiting the conclusions that could be drawn from causality. In short, although the statistical significance does indicate that there was a change in provider knowledge that was not due to chance, it is not possible to state with certainty that

the change was the result of the educational program. Additionally, the small sample made it necessary to use a Mann-Whitney U-test which lacks the statistical strength of its parametric equivalent the paired t-test. The Mann-Whitney test compared sample medians rather than sample means. Evaluations based on median rather than mean have less statistical power.

Implications for Advanced Nursing Practice

The implications of the project for advanced nursing practice can be reviewed in terms of education, practice, and leadership. Considering first the implications of this project for advanced practice nursing education, it seems feasible to argue that this quality improvement project has demonstrated the role of education in enhancing the knowledge of providers to improve sexual health and STI screening in older adults. Demonstrating the value of education to increase knowledge about a topic that is rarely addressed in advanced practice nursing education should serve as an impetus for changing curriculum and/or increasing staff education about this topic in the clinical setting. Advanced practice nurses working in education should be able to make changes to nursing curriculum and course content to enhance the ability of nursing students to understand the topic and to integrate sexual healthcare into standard care used when delivering care to older adults. Advanced practice nurses are responsible for identifying gaps in practice and working to address them (Cusson et al., 2020). This project demonstrates that there is a gap in nursing education and further that this gap can be addressed through strengthening education and curriculum for nursing students.

This quality improvement project also has implications for practice. More specifically, this project highlights the benefits that can be achieved using evidence-based education to improve the knowledge of providers regarding sexual health and STI screening in older adults. Consequently, advanced practice nurses working with older adult patients will have access to

critical resources that can improve their knowledge and, ideally, change their practice. Nurses completing this educational program can no longer ignore the sexual health needs of older adult patients. Those participating in the program have an evidence-based solution that can be applied to practice to improve the care of patients. The implementation of evidence-based care in practice is a foundational component of the advanced practice role (Melnik et al., 2018). Consequently, advanced practice nurses working in direct clinical care with older adult patients will have a responsibility to act and to use this knowledge to improve care of the patient.

Leadership in the advanced practice role must also be considered in the context of this quality improvement project. Advanced practice nurses are expected to lead practice change for the improvement of the healthcare system and for individual and population health (Casey & O'Connor, 2022). While the nurses involved in this project may not initially be able to lead change in implementing education, as new nurses are hired at the practice site, providing education to these nurses would be an excellent method for leading practice change. Additionally, advanced practice nurses that possess this knowledge, should be able to disseminate it with other nurses to enhance the care of older adults in other practice sites. Through the dissemination of the results and through advocacy to provide staff education and on the topic at other practice sites, it should be possible to affect systems change within the healthcare to address the sexual health needs of individual patients while also contributing to improvements in population health through a reduction in the community spread of STIs.

Conclusions

This quality improvement project not only demonstrates the value of provider education to improve sexual health and STI screening in older adults but also this project provides a solid foundation upon which to systematically improve the care delivered to older adults. Increased

knowledge among providers should lead to improvements in screening rates at the practice site, which should, in turn, help reduce the spread of STIs in the community and the overuse of antibiotics to treat STIs. Dissemination of this educational intervention to other practice sites should have a systemic impact on change, allowing for improvements in older adult health across the healthcare system. Prevention and early detection of STIs among older adults will also serve to reduce costs and will have a positive impact on overall population health. Arguably, there are extensive benefits for implementing this practice change that must be considered outside of this project.

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Appendix A: Summary Literature Table

Article Number	Author and Date	Evidence Type	Sample, Sample Size, Setting	Findings That Help Answer the PICO Question	Observable Measures	Limitations	Evidence Level, Quality
1	Aaberg, 2019	Quasi-experimental, before-after design	50 BSN nursing students enrolled in their senior year of nursing school.	<ul style="list-style-type: none"> The results indicate the education increased student knowledge, attitudes and self-efficacy for engaging in sexual health history taking with all population groups including older adults. Mean scores increased from 60.27 on the pre-test to 97.67 on the post-test, $t = 4.46$, $p = 0.001$. 	Improvements in knowledge, attitudes, and self-efficacy	<ul style="list-style-type: none"> Small sample size at a single site limits the application of the findings to other provider groups. No comparison group to show causality. 	Level II Quality B
2	Bauer et al., 2013	Quasi-experimental, before-after design	112 providers including registered nurses, and licensed practical nurses working in long-term care homes serving the elderly.	<ul style="list-style-type: none"> Following the educational program, knowledge of sexual health and attitudes regarding sexuality in older adults improved. Pre-test mean difference (MD) scores were 55 compared with post-test MD of 77. Statistical significance was shown by $P = 0.001$ 	Improvements in knowledge, and attitudes regarding sexuality and sexual health in the older adult.	<ul style="list-style-type: none"> Small sample size from a single site limiting application of the findings. No control or comparison group to show cause- 	Level II Quality B

						effect relationship	
3	Horne et al., 2021	Systematic review without meta-analysis	11 studies reviewing interventions to improve sexual health knowledge and history taking in older adults.	<ul style="list-style-type: none"> Review of educational interventions indicated that each was effective for improving knowledge and changing staff attitudes toward older adult sexuality. Demonstrates that results are consistent across studies. 	Improvements in knowledge and staff attitudes as a result of providing education.	<ul style="list-style-type: none"> Limited studies to review. Not enough data to conduct a meta-analysis. Lack of congruity between educational programs reviewed. 	Level I Quality B
4	Jonsdottir et al. 2016	Quasi-experimental, before-after time series design	216 nurses working with older adults receiving oncology services.	<ul style="list-style-type: none"> Intervention was successful at increasing nurse knowledge regarding how to manage sexual health in older adults. 	Knowledge gains were the primary outcome measured. Attitudes and self-efficacy were not considered.	<ul style="list-style-type: none"> Small sample from a single setting. Does not indicate how increased knowledge will impact practice, especially in light of missing attitude and self-efficacy 	Level II Quality B

						data.	
5	Lu et al., 2021	Randomized controlled trial	43 psychiatric mental health nurse practitioners assigned to the education or experimental group. 32 psychiatric mental health nurse practitioners assigned to the control or no education group.	<ul style="list-style-type: none"> • Results indicate that nurse level of knowledge was the same at baseline. • Knowledge increased for those enrolled in the educational program along with attitude and self-efficacy. • Knowledge scores measured through MD showed (MD = -1.53, 95% confidence interval [CI; -1.96, -1.10], $p < .001$) 	Knowledge for providers improved along with self-efficacy and attitudes, suggesting that nurses had the requisite support needed to effectively complete sexual health histories and STI screening in older adults.	<ul style="list-style-type: none"> • Small sample size drawn from a specialized population: mental health nurses. • No indication that increased knowledge will lead to practice change. 	Level I Quality B
6	Sung & Lin, 2013	Quasi-experimental, before-after design with control. Participants were not randomly selected	95 nursing students received the educational program (experimental) and 95 did not (control). All students were drawn from a single nursing school.	<ul style="list-style-type: none"> • Participants in the educational group demonstrated significant gains in knowledge, attitudes, and self-efficacy. • All results were statistically significant with knowledge gains noted to have the greatest improvement: ($\beta = -0.27$, $P < 0.001$). 	Knowledge, attitudes, and self-efficacy were all measured in this study and demonstrated improvement.	<ul style="list-style-type: none"> • Small sample of nursing students drawn from a single site. Data may not be applicable beyond this setting. • Not a randomized controlled trial. Does 	Level II Quality A

						not show causality.	
7	Sung et al., 2016	Quasi-experimental, before-after design with control. Subjects were not randomized.	Nurses working in various healthcare settings. A total of 59 were enrolled in the education (experimental) group and 58 were enrolled in the control group which received no education.	<ul style="list-style-type: none"> Nurses enrolled in the education group had higher levels of knowledge following the education as well as higher levels of self-efficacy and better attitudes toward sexuality and sexual health screening in all populations including older adults. Increases in knowledge scores were statistically significant: ($\beta = 0.16$, $p < 0.01$) 	Knowledge, attitudes, and self-efficacy toward sexual health history taking and sexuality in patients were all measured in this study and demonstrated improvement.	<ul style="list-style-type: none"> Small sample of nursing students drawn from a single site. Data may not be applicable beyond this setting. Not a randomized controlled trial. Does not show causality. No data showing how improved outcomes impact practice. 	Level II Quality A
8	Verrastro et al., 2022	Systematic review without meta-analysis	11 articles drawn from eight scholarly electronic databases published between 2000 and 2020	<ul style="list-style-type: none"> Educational programs were shown in all studies to have a positive impact on provider knowledge of sexual health and sexual health history taking in various 	Knowledge increases for providers in the areas of sexual health history taking and sexual health needs of	<ul style="list-style-type: none"> Small study with limited results. Not enough data to conduct a meta- 	Level I Quality B

				populations including older adults.	patients.	analysis. <ul style="list-style-type: none"> • Lack of description and similarity of educational programs for comparison 	
9	White et al., 2020	Quasi-experimental, before-after design with control	Advanced practice registered nursing students enrolled in a single institution. 30 participated in the educational intervention and 64 were controls and were not enrolled in the program.	<ul style="list-style-type: none"> • Levels of knowledge were similar in both groups before the educational program. • Knowledge of sexual health history taking, and sexuality increased along with comfort and confidence. • Knowledge of providing sexual health screening and sexuality of sexual minorities including older adults increased: MD = 1.39, $p < 0.05$). 	Measures of knowledge, comfort, and confidence in different patient populations was assessed including older adults.	<ul style="list-style-type: none"> • Small sample with a focused provider group limits application to other provider groups. • Study does not show causality. • No data regarding the impact of improved knowledge, confidence or comfort on practice. 	Level II Quality A

Appendix B: Letter of Organizational Support

5378 West 16th Avenue | Hialeah, FL 33012 | p 305.820.4101 | f 305.821.5698 | www.caremax.com

From: IMC Hialeah Medical Director
Address: 5378 West 16th Ave
Miami FL, 33012
Telephone: 305-820-4101

Subject: Letter of Acknowledgement of approval for Research Project at an IMC Health Facility for Doctoral Student Sergio Amador Perez

To Whom it May Concern:

This letter will acknowledge that I have reviewed a request by Doctoral Student Sergio Amador Perez to conduct a research project entitled, "Having "The Talk" with Healthcare Providers to Increase Awareness of Sexually Transmitted Infections in Older Adult (65+ Years) Patients" at IMC Health Hialeah.

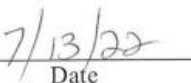
When the researcher has received approval for his project from the Florida International University Institutional Review Board received approval from the Research Review Committee, and upon presentation of the approval letter to me as site a Medical Director for the Facility I will agree to allow access for the approved research project. If we have any concerns or need additional information, the project researcher will be contacted

Sincerely,

Approval Person

Dr. Vandely Perez
IMC Hialeah
Medical Director


Signature


Date

Appendix C: FIU IRB Approval/Exemption Letter



MEMORANDUM

To: Dr. Dana Sherman

CC: Sergio Amador Perez

From: Carrie Bassols, BA, IRB Coordinator *ceb*

Date: August 23, 2022

Proposal Title: “Provider Education to Increase Knowledge and Awareness of Sexually Transmitted Infections in Older Adult (65+ Years) Patients”

The Florida International University Office of Research Integrity has reviewed your research study for the use of human subjects and deemed it Exempt via the **Exempt Review** process.

IRB Protocol Exemption #: IRB-22-0384 **IRB Exemption Date:** 08/23/22
TOPAZ Reference #: 112015

As a requirement of IRB Exemption you are required to:

- 1) Submit an IRB Exempt Amendment Form for all proposed additions or changes in the procedures involving human subjects. All additions and changes must be reviewed and approved prior to implementation.
- 2) Promptly submit an IRB Exempt Event Report Form for every serious or unusual or unanticipated adverse event, problems with the rights or welfare of the human subjects, and/or deviations from the approved protocol.
- 1) Submit an IRB Exempt Project Completion Report Form when the study is finished or discontinued.

Special Conditions: N/A

For further information, you may visit the IRB website at <http://research.fiu.edu/irb>.

Appendix D: Participant Recruitment Letter/Email

Greetings Staff and Prospective Participants,

My name is Sergio Amador Perez and I am currently enrolled as a Doctor of Nursing Practice (DNP) student at Florida International University. As part of my education, I am required to complete a quality improvement project to improve some aspects of patient care in my practice setting. For my project, I chose to focus on sexual health and sexually transmitted infection screening in older adults over the age of 65. More specifically, I have created an education module for staff to raise awareness about the current gaps in care, the need for STI screening in this patient group, and steps that can be taken to improve sexual health care for older adults. The goal of my project is to increase your knowledge of this topic such that you can integrate this knowledge into care and improve sexual health and STI screening among older adults.

It is my hope that you will be willing to participate in this project. In order to participate you will be asked to sign a letter of informed consent, to complete a demographic survey, to complete a pre- and post-test assessment of knowledge, and to view an online educational module regarding the topic. It is anticipated that all these activities will take 90 minutes total to complete. This educational project has been approved by the Florida International University Institutional Review Board and the presentation should benefit you in terms of improving your knowledge of the topic and ability to provide sexual health care to older adults seen in your practice.

If you are interested in participating in this project, I would request that you respond to this email within one week to confirm your interest. By participating in this project, you will have the opportunity to improve patient care and expand your understanding of a very important topic. If you have any further questions about the project, I can be contacted by email at samad024@fiu.edu or by phone at (585)-285-2588. I look forward to hearing from you and educating you about this important and timely topic.

Regards,

Sergio Amador Perez

Appendix E: Informed Consent Form



ADULT CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Provider Education to Increase Knowledge and Awareness of Sexually Transmitted Infections in Older Adult (65+ Years) Patients

SUMMARY INFORMATION

Things you should know about this study:

- **Purpose:** The purpose of this quality improvement project is to increase primary care provider knowledge of sexually transmitted infection (STI) disease risk in older adults including those 65 years of age and older.
- **Procedures:** If you choose to participate, you will be asked to sign this letter of informed consent, to complete a demographic survey, to complete a pre- and post-intervention knowledge test, and to view an online educational module on the topic.
- **Duration:** This will take about 1.5 hours.
- **Risks:** The main risk or discomfort from this research is the potential for you to become uncomfortable while completing the educational module.
- **Benefits:** The main benefit to you from this research is to increase your knowledge of sexual health issues and STI screening in older adults.
- **Alternatives:** There are no known alternatives available to you other than not taking part in this study.
- **Participation:** Taking part in this research project is voluntary.

Please carefully read the entire document before agreeing to participate.

PURPOSE OF THE STUDY

The purpose of this quality improvement project is to increase primary care provider knowledge of sexually transmitted infection (STI) disease risk in older adults including those 65 years of age and older.

NUMBER OF STUDY PARTICIPANTS

If you decide to be in this study, you will be one of 15-20 people enrolled.

DURATION OF THE STUDY

Your participation will involve 4 weeks in total, and out of those weeks the time spent will be about 1.5 hours.

PROCEDURES

If you agree to be in the study, we will ask you to do the following things:

1. Fill out a pre-intervention knowledge test and a demographic survey on an online platform (Survey Monkey).
2. Watch a PowerPoint presentation on YouTube via a link provided to your email address.
3. Fill out a post presentation knowledge test on an online platform (Survey Monkey).

RISKS AND/OR DISCOMFORTS

The study has the following possible risks to you: You may become uncomfortable during the time required to review the intervention; threats to privacy and confidentiality.

BENEFITS

The study has the following possible benefits to you: increased knowledge about the topic, the ability to provide better patient care, enhanced confidence in managing sexual health needs among older adults. Benefits for society will include reducing the spread of STIs in the community, lowering the costs to provide care for patients who contract STIs, and reducing antimicrobial resistance associated with STIs.

ALTERNATIVES

There are no known alternatives available to you other than not taking part in this study

CONFIDENTIALITY

The records of this study will be kept private and will be protected to the fullest extent provided by law. In any sort of report, we might publish, we will not include any information that will make it possible to identify you. Research records will be stored securely, and only the researcher team will have access to the records. However, your records may be inspected by authorized University personnel or other agents who will also keep the information confidential.

USE OF YOUR INFORMATION

- Your information collected as part of the research will not be used or distributed for future research studies even if identifiers are removed.

COMPENSATION & COSTS

There are no costs to you for participating in this study.

RIGHT TO DECLINE OR WITHDRAW

Your participation in this study is voluntary. You are free to participate in the study or withdraw your consent at any time during the study. You will not lose any benefits if you decide not to participate or if you quit the study early. The investigator reserves the right to remove you without your consent at such time that he/she feels it is in the best interest.

RESEARCHER CONTACT INFORMATION

If you have any questions about the purpose, procedures, or any other issues relating to this research study you may contact Sergio Amador Perez at (585)-285-2588 or samad024@fiu.edu.

IRB CONTACT INFORMATION

If you would like to talk with someone about your rights of being a subject in this research study or about ethical issues with this research study, you may contact the FIU Office of Research Integrity by phone at 305-348-2494 or by email at ori@fiu.edu.

PARTICIPANT AGREEMENT

I have read the information in this consent form and agree to participate in this study. I have had a chance to ask any questions I have about this study, and they have been answered for me. I understand that I will be given a copy of this form for my records.

Signature of Participant

Date

Printed Name of Participant

Signature of Person Obtaining Consent

Date

Appendix F: Demographic Form

Instructions: Please complete the following form by circling the correct answer or entering the correct answer on the line provided.

1. What is your age in years? ____ years

2. What is your gender? Please circle one.

Male

Female

Nonbinary

Prefer Not to Say

3. What is your race? Please circle one.

White/Non-Hispanic

African American

Hispanic/Latino

Asian/Pacific Islander

Other

Prefer Not to Say

4. How many years have you been a registered nurse? ____ years

5. What is your highest level of nursing education? Please circle one.

Registered nurse (diploma).

Baccalaureate degree (BSN)

Master's Degree (MSN advanced practice nurse).

Physician (MD)

6. On average, how many older adults do you care for on a weekly basis? ____ patients.

7. Outside of the clinical setting, do you provide caregiving support for an older adult?

Please circle one.

Yes

No

Appendix G: Pre-/Post-Intervention Assessment**True and False**

Instructions: Read and evaluate each statement. Circle the correct answer True or False

1. Most older adults (those 65 years of age and older) are not sexually active.

True False*

2. The rate of sexually transmitted infections increases each year among older adults.

True* False

3. Most providers are aware of the need to provide older adults with sexual health education.

True False*

4. Over half of all HIV positive individuals in the U.S. are older adults.

True* False

5. Most older adult males' wear condoms when having sex with a new partner.

True False*

6. Physiological changes associated with aging can increase older adult risk of contracting a sexually transmitted infection.

True* False

7. Most patients who contract an STI are asymptomatic.

True* False

8. Providers are often biased toward the topic of sexual health in older adults.

True* False

9. Sexual health is often not viewed by older adults as being an important issue.

True False*

10. Providers should provide regular STI screening in older adults who are sexually active and non-monogamous.

True*

False

Multiple Choice

Instructions: Review each statement/question and circle the correct answer.

11. Among older adults, ___ report remaining sexually active.

A. 26%

B. 43%

C. 66%*

D. 81%

12. Approximately what percentage of adults over the age of 80 report being sexually active?

A. 15%

B. 30%*

C. 45%

D. 60%

13. In the U.S. today there are 1.25 million HIV positive individuals. Among these, what percentage are older adults?

A. 10%

B. 30%

C. 50%

D. 70%*

14. Estimates indicate that as many as ___ of individuals with HIV are undiagnosed.

A. 6%*

B. 12%

C. 21%

D. 32%

15. What actions should providers take to improve sexual health in older adults? (Circle all that apply).

A. Educate themselves to reduce bias and stereotypes. *

B. Educate other providers about the topic. *

C. Educate the community about the topic*

D. Refer the patient to a sexual health specialist.

16. Older adult women may be at higher risk for contracting an STI due to which of the following? (Circle all that apply).

A. Decreased sex drive.

B. Compromised immune system as a result of aging. *

C. Vaginal changes due to menopause. *

D. A decline in estrogen.

17. What common symptoms are likely to be present when a patient contract an STI? (Circle all that apply).

A. Urinary urgency and pain. *

B. Nausea and vomiting.

C. Itching and/or rash. *

D. Fever and sore throat. *

18. What percentage of new HIV infections occur in older adults each year?

A. 8%

- B. 17%*
 - C. 23%
 - D. 29%
19. Older adults are the _____ largest group in the population to contract an STI.
- A. First
 - B. Second*
 - C. Third
 - D. Fourth
20. Between 2015 and 2016, STI infection rates increased by _____ for older adults.
- A. 10%
 - B. 15%
 - C. 20%*
 - D. 25%