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Effectiveness of an Informational Video-Assisted Presentation on Primary Care Provider Awareness, Knowledge, and Screening of Genitourinary Syndrome of Menopause: A Quality Improvement Project

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Effectiveness of an Informational Video-Assisted Presentation on Primary Care Provider Awareness, Knowledge, and Screening of Genitourinary Syndrome of Menopause: A Quality Improvement Project

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By

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Abstract

Genitourinary Syndrome of Menopause (GSM) is a chronic and progressive condition that affects a significant number of menopausal women. This recently coined term encompasses a myriad of urogenital symptoms that are directly associated with the loss of estrogen. Women who are afflicted by GSM can experience genitourinary discomfort, pain, and incontinence and may be at higher risk for considerable clinical complications. As a result, GSM can impact a woman's physical, emotional, social, and financial well-being. Additionally, GSM can lead to increased medical costs and elevated resource utilization and healthcare burden. Despite the far-reaching impact of this syndrome, however, it remains largely underdiagnosed and undertreated. The reasons for this treatment gap are multifactorial and include social stigma related to menopause, lack of awareness of relationship between hypoestrogenic state and symptoms, limited provider education on GSM and its management, and generally unwarranted safety concerns regarding treatment options. Genitourinary Syndrome of Menopause causes considerable and far-reaching harm and needs to be more effectively managed at all healthcare levels.

To help reduce the GSM treatment gap among primary care providers in a large South Florida healthcare system, a quality improvement (QI) project was designed to enhance their awareness, knowledge, and screening of this condition. An evidence-based educational video presentation was created and utilized to inform clinicians about GSM's impact and the different treatment modalities that are currently available for its stepwise, judicious management. Additionally, a screening tool was introduced during the presentation to help facilitate identification of GSM. Pretest and posttest surveys helped quantify the change in clinicians' awareness, knowledge, and screening of GSM. The scores of these surveys were statistically

analyzed and compared. The results pointed to a significant increase in knowledge and screening following the intervention. The small size of this study may limit its relevance, but points to the value of provider education in GSM management and, in turn, the enhancement of postmenopausal women's health.

Keywords: genitourinary syndrome of menopause, postmenopausal, video-based provider education.

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Chapter I.

Introduction/Problem Statement/Significance

Background

The end of the childbearing years often brings significant changes in a woman's life. During this time, women are often experiencing multiple social and psychological challenges, including shifting family dynamics, aging parents, changes in earning capacity, and financial stressors (Wiemers & Bianchi, 2015). In addition, many of these women are entering menopause and are undergoing hormonal changes that can significantly alter their health and well-being (Hildreth et al., 2018). For most women, menopause is a natural biological process that signals the end of a woman's reproductive capacity and typically occurs between the ages 45 and 55 (Santen et al., 2014). Although menopause usually represents a natural transition, it is by no means an easy process for many women. According to Manson and Kaunitz, a significant majority of women experience symptoms ranging from mild to severe, and which encompass physical, emotional, and even cognitive alterations with the potential to considerably impact quality of life (Manson & Kaunitz, 2016). In particular, women can suffer from significant genitourinary symptoms associated with the loss of estrogen, and which can include vaginal dryness, dyspareunia, post-coital bleeding, vaginal burning and itching, urgency, frequency, urinary leakage, incontinence, hematuria, and recurrent urinary tract infections (Biehl et al., 2019) This constellation of symptoms is formally known as genitourinary syndrome of menopause (GSM) and can afflict as much as half of all menopausal women (Mastroianni et al., 2020). It is this syndrome that is the main focus on this research study.

Genitourinary syndrome of menopause is a relatively new name used to describe various vaginal and urinary symptoms experienced by women of menopausal age. Previously referred to

as atrophic vaginitis or vulvovaginal atrophy, the name was changed in 2014 when the International Society for the Study of Women's Sexual Health as well as the North American Menopause Society proposed that this new term could better reflect the myriad of symptoms experienced, and which not only included genital concerns, but also encompassed urinary tract disorders and associated sexual impairments (Portman & Gass, 2014). GSM is directly associated with the decreased levels of estrogen experienced in menopause and which cause pathophysiological changes to the labia majora and minora, clitoris, vagina, urethra and bladder (Bachmann et al., 2020). This hypoestrogenic state leads to symptoms that include vaginal and pelvic pain or pressure, vaginal dryness, irritation and/or vaginal burning sensation, itchiness, decreased elasticity, vaginal swelling and tenderness, increased vaginal friability, urinary frequency and urgency, urinary leakage and incontinence, painful urination, hematuria, and recurrent urinary tract infections (Gandhi et al., 2016). As a result, GSM can cause significant clinical complications, which include vaginal atrophy, reduced vaginal secretions, pelvic organ prolapse, vaginal vault prolapse, vaginal and introital stenosis, cystocele and rectocele, and urethral atrophy and prolapse (Gandhi et al., 2016). These broad and pervasive symptoms can lead to medical complications, sexual disturbances, relationship problems and dramatically alter a woman's physical, emotional, and psychological health and sense of well-being at a particularly challenging juncture in her life (Mastroianni et al., 2020).

Currently, there are very effective therapies for the treatment of genitourinary syndrome of menopause. Non-hormonal, over-the-counter treatments include vaginal lubricants (Replans, K-Y Liquid) and are readily available, while prescription options include prasterone and ospemifene, which are marketed for the treatment of menopause-related dyspareunia (Rahn et al., 2014). The most effective treatments for GSM, however, are vaginal estrogen formulations

(Biehl et al., 2019). These treatments are clinically proven to reduce the troublesome effects and complications of GSM and maintain a high safety profile, even among those women for whom systemic hormone therapies might be contraindicated (Biehl et al., 2019). These treatments are so effective, that The North American Menopause Society recently issued a position statement supporting the use vaginal estrogen therapies for women who do not respond to non-hormonal treatments (North American Menopause Society [NAMS], 2020).

Problem Statement

Despite the severity of these menopausal symptoms and the availability of effective therapies for GSM, however, most women go untreated. It is estimated that only 20-25% of women afflicted by this condition seek treatment (Qi et al., 2020). The reasons cited by women for this inaction often include social stigma and embarrassment associated with menopause, lack of awareness of menopause as the cause of their symptoms, and lack of education about treatment options (Kingsberg et al., 2019). Most concerning is the knowledge gap that exists among clinicians when it comes to treatment of menopause. Studies show that clinicians often lack thorough education on the management of menopause symptoms and, as a result, many lack awareness of the relationship between hypoestrogenic states and genitourinary symptoms or may feel hesitant to prescribe medications due to generally unwarranted safety concerns (Mastroianni et al., 2020). This knowledge gap may be further compounded by the provider's own discomfort in broaching the often stigmatized subject of menopause (Mastroianni et al., 2020). The end result is that women who are experiencing GSM often suffer in silence. The quality improvement project presented in this paper aimed to improve primary care provider's awareness, knowledge, and screening of GSM in an effort to decrease the existing treatment gap and improve the lives of afflicted women.

Significance

It is estimated that there are approximately 50 million menopausal women in the United States, with about half or more of these women experiencing bothersome genitourinary symptoms (Manson & Kaunitz, 2016). This means that approximately 25 million women are suffering from GSM at any given time, with only a small percentage receiving treatment for their symptoms. The consequences of this lack of treatment can be significant. From a financial perspective, women with untreated GSM symptoms experience loss of productivity, absenteeism, increased medical complications, and increased potential for surgical interventions, to name a few (Assaf et al., 2017). Most importantly, women who do not receive treatment must cope with significant physical, psychological, and emotional burdens, as GSM not only affects their bodies in consequential ways, but also impacts their sexual health, interpersonal relationships, social activities and general sense of health and engagement with the world (Mastroianni et al., 2020).

According to a recent position statement by the North American Menopause Society, the hesitancy by both patients and providers to address menopause and the subsequent underdiagnosis and undertreatment of GSM can be improved by increasing provider awareness of this syndrome and its current treatment recommendations, and by opening the lines of communication through the implementation of routine GSM screening among perimenopausal and postmenopausal women (2020). Utilizing these recommendations as a springboard for action, a quality improvement project was proposed and designed to address GSM management in primary care, the principal point of care for most afflicted women.

Chapter II.

Literature Summary and Related Evidence

Literature Search

The literature search for this study focused on three distinct research areas: Treatment for Genitourinary Syndrome of Menopause, studies on video-based education for providers, and available screening tools for GSM. The databases that were used to search for relevant information on this topic were The Cumulative Index to Nursing and Allied Health Literature (CINAHL), Google Scholar, and PubMed. Keywords included the following: genitourinary syndrome of menopause, estrogen deficiency, hypoestrogenic, vulvovaginal, vaginal atrophy, dyspareunia, vaginitis, dryness, screening tool, topical estrogen, primary care education, primary care menopause, provider video education, training. Boolean operators "AND" and "OR" were used to broaden or narrow the search as applicable.

Inclusion Criteria

For this research study, only primary, peer-reviewed articles were considered. Studies needed to be written in or translated to English language and include full text. Inclusion criteria for evidence-based current GSM treatment options consisted of studies published between 2017 and 2022, although older publications were included mainly as a means of outlining the evolution of GSM knowledge and treatment approaches over time.

Exclusion Criteria

Excluded publications were not primary, peer-reviewed, not published in the English language and did not include full-text. Additionally, any duplicate articles, editorials or opinion pieces were excluded from the literature review.

Genitourinary Syndrome of Menopause: Treatment

A comprehensive review of current empirical research on genitourinary syndrome of menopause was conducted to facilitate the creation of a comprehensive, evidence-based presentation for primary care providers. The treatment of GSM should be addressed with stepwise fashion and advanced as appropriate based on response (NAMS, 2020). Recommended interventions will be reviewed in this progressive approach, beginning with first-line treatments.

Personal lubricants and vaginal moisturizers.

According to NAMS, first line therapies for GSM should be over-the-counter, non-hormonal topical treatments, which include lubricants and moisturizers (NAMS, 2020). These formulations as safest for women for whom hormonal preparations may be contraindicated or less desirable, such as those with a history of breast cancer or other hormonally-mediated malignancies (Edwards & Panay, 2015). Lubricants are typically for women whose primary concern is dyspareunia and increase of comfort during sexual activity, while moisturizers are utilized to improve overall vaginal tissue hydration and quality regardless of sexual activity (Edwards & Panay, 2015). These topical applications are typically water, silicone, or oil-based (Edwards & Panay, 2015). Due to their beneficial qualities, the World Health Organization now recommends their routine use during sexual activity (World Health Organization [WHO], 2012). Admittedly, randomized controlled studies on their effectiveness are scarce, although these topical treatments are generally considered safe (NAMS, 2020).

According to a double-blind prospective study which utilized a daily diary log over a period of five weeks to test the effectiveness of silicone and water-based lubricants, personal lubricants are highly effective (Herbenick et al., 2011). A total of 2.453 women were placed in either the water-based or silicone-based lubricant groups and were asked to record their impact

on genitourinary symptoms and sexual pleasure (Herbenick et al., 2011). Results revealed that women in both groups experienced less urogenital symptoms and reported an overall increase in sexual pleasure, with water-based lubricants being less likely to be associated with irritation (Herbenick et al., 2011).

In a randomized, double-blind, placebo-controlled study, 86 breast cancer survivors with induced menopause were randomly assigned to either a placebo group or a vaginal topical gel group in which they were asked to administer these formulations three times per week for a total of twelve weeks (Lee et al., 2011). Vaginal dryness and dyspareunia were then measured through self-reports and vaginal pH measurements and revealed that the vaginal gel offered significant relief to these women (Lee et al., 2011).

The literature also reports that women generally feel positively about using lubricants during sexual activity. A cross-sectional study in which 2,451 women were queried about their perceptions on lubricants revealed that women generally had positive experiences with lubricants and did not generally report apprehension regarding their use (Jozkowski et al., 2013). In general, older women tended to report greater satisfaction with these formulations (Jozkowski et al., 2013). This insight is important when making recommendations about GSM treatment.

As any topical formulation has the potential to cause a reaction, NAMS recommends that any new application be tested on a small area for 24 hours prior to full use (2020). It is important to note that the World Health Organization recommends lubricants and moisturizers that are specially designed for intravaginal use and which meet established pH and osmolarity guidelines to avoid potential side effects, such as irritation or increased risk of infection (Edwards & Panay, 2015).

Hyaluronic acid.

Hyaluronic acid is a naturally occurring humectant found in fluids in the eyes and joints (Liu & Nassim, 2020). These are typically sold over-the-counter as gels or vaginal inserts for relief of vaginal dryness and several studies have found them effective and safe. Vaginal hyaluronic acid tends to be more expensive than lubricants or moisturizers, so these may be first options if cost is an issue.

A double-blind randomized placebo-controlled study measured the efficacy and safety of a hyaluronic acid gel (Grimaldi et al., 2012). In this study, thirty-six post-menopausal women were randomly assigned to experimental or controlled groups and were followed over a period of seven months (Grimaldi et al., 2012). The findings reported significant improvement in hypoestrogenic vulvovaginal symptoms in both objective and subjective measures (Grimaldi et al., 2012). Although the sample size was small, it is nevertheless important to note that no adverse effects were reported during this trial period (Grimaldi et al., 2012).

A randomized controlled trial published in 2011 compared the effectiveness of hyaluronic acid vaginal tablets versus estrogen vaginal tablets (Ekin et al., 2010).

Another randomized controlled study published in 2013 compared the efficacy and safety of a hyaluronic acid gel versus an estrogen-based cream (Chen et al., 2013). The study randomly assigned its 144 subjects to either treatment modality and had them apply their assigned formulation every three days for a total of thirty days (Chen et al., 2013). The findings revealed that both applications were highly effective at attenuating vaginal atrophy, with hyaluronic acid being only slightly less effective than the estrogen cream while retaining a high safety profile (Chen et al., 2013).

In a prospective, randomized, double-blind study, researchers compared the efficacy and safety of vaginal hyaluronic acid with vaginal genistein, a soy-based isoflavone and phytoestrogen (Le Donne et al., 2010). Genistein is typically used an oral alternative medicine in the treatment of certain cancers and is not as widely used for vaginal dryness (Le Donne et al., 2010). In this study, 62 postmenopausal women were randomly assigned to either genistein or hyaluronic acid groups and asked to use these formulations for fifteen days per month for a total of three months. At the end of the study, women in both groups reported significant improvement in both objective and subjective genital symptoms, with genistein vaginal suppositories showing a clear advantage (Le Donne et al., 2010). According to the authors, genistein needs further research but represents a hopeful option for the treatment of vaginal atrophy (Le Donne et al., 2010).

Topical Estrogens

Vaginal estrogen therapies are generally considered the most effective at alleviating genitourinary symptoms of menopause and are recommended as the therapy of choice when non-hormonal treatments prove insufficiently effective (NAMS, 2020). Estrogen applied vaginally is minimally absorbed systemically (Santen et al., 2019) and has been shown to be safe for most women (NAMS, 2020). Nevertheless, NAMS recommends its cautious and carefully considered use in women with a history of or at risk for estrogen-dependent cancers, and it is contraindicated in women with undiagnosed postmenopausal bleeding (2020).

Although the use of estrogen in postmenopausal women dropped out of favor following a 2002 Women's Health Initiative (WHI) study which suggested the risks of hormonal treatments exceeded the benefits (Rossouw et al., 2002), those results are now widely attributed to inappropriate extrapolation (Utian, 2015). In fact, a subsequent study by the same group found

that the benefits of hormonal therapy indeed exceeded its risks in most women (Crandall et al., 2018). Furthermore, this study showed no increased risk from vaginal estrogen use when compared to that of the general population (Crandall et al., 2018). More recent studies, including a 2020 systematic review of randomized controlled trials found that vaginal estrogens did not pose an increase risk for venous thromboembolic events, an earlier WHI study concern (Crandall et al., 2020).

Currently and despite the well-regarded safety of vaginal estrogen therapies, the FDA retains the same black box warnings on these topical formulations as it does on its systemic therapies, and lists the potential risks of cancers, dementia, and cardiovascular events (NAMS, 2020). As such, NAMS recommends that practitioners educate their patients about the differences between systemic and localized estrogen (2020).

The effectiveness of vaginal estrogen in treating genitourinary syndrome of menopause is well documented in evidence-based studies. An early clinical trial found that estrogen delivered via vaginal ring provided significant relief of urinary and genital symptoms among postmenopausal women (Nachtigall, 1995). This investigation was soon followed by a randomized controlled study tested the efficacy of estrogen cream with estrogen vaginal ring among 194 postmenopausal women with urogenital atrophy (Ayton et al., 1996). This study found both formulations to be of equal effectiveness (Ayton et al., 1996). At least five more rigorous studies followed in the following decade supporting this claim (Barentsen et al., 1997; Casper & Petri, 1999; Henriksson et al., 1994; Lose & Englev, 2000; Weisberg et al., 2005).

Vaginal dehydroepiandrosterone

Dehydroepiandrosterone (DHEA) is a precursor hormone that, when applied topically, can reduce the urogenital symptoms of menopause (Labrie et al., 2016). In a prospective,

randomized, double-blind, and placebo-controlled phase III clinical trial, a sample of 482 postmenopausal women were enlisted to test the effects of DHEA on moderate to severe GSM symptoms (Labrie et al., 2016). The study found DHEA to be highly effective at relieving localized symptoms and had negligent systemic absorption, leading to an absence of significant side effects (Labrie et al., 2016).

Ospemifene

Ospemifene is a selective estrogen receptor modulator, and the only oral medication that is FDA approved for the treatment of GSM. It is available by prescription only (DeGregorio et al., 2014). This medication has been extensively researched.

One randomized controlled trial followed 304 postmenopausal women on ospemifene for a full year and found this drug to improve vulvovaginal atrophy and significantly decrease dyspareunia (Simon et al., 2014). A similar randomized control trial conducted in the same year corroborated these findings, further noting no episodes of endometrial hyperplasia, cancer, or cardiovascular events (Eder, 2014). A newer study utilized a retrospective design to evaluate the efficacy and safety of ospemifene in 39 women with a history of recurrent urinary tract infections (Schiavi et al., 2017). The results revealed as significant decrease in the incidence of these infections without reported side effects (Schiavi et al., 2017). In 2019, a randomized, double-blind, placebo-controlled study further supported the effectiveness of ospemifene in the treatment of moderate to severe genitourinary symptoms (Archer et al., 2019).

It is interesting to note that, as an estrogen receptor modulator, ospemifene has been found in laboratory studies to have an inhibitory effect on estrogen-mediated cancer cells, although studies in this area are still quite limited (Eigeliene et al., 2016). This drug may, then, in

the future, prove to be an important option for women at risk for cancer who do not respond to first line treatments but do not wish to pursue estrogen-based therapies.

Provider Video-Based Education

As part of the educational component of this GSM quality improvement project, a video - assisted presentation was created to educate primary are providers. This educational modality was selected after a comprehensive search of current evidence-based literature supported its efficacy. Video-assisted interventions were shown to be efficient didactic tools for providers, improving knowledge and increasing targeted screening behaviors, although it is worthy to note that most studies focused on physicians.

In one cluster randomized controlled trial conducted in Belgium in 2005, researchers utilized video presentations to educate 36 primary care providers on routine chlamydia screening and concluded that these educational modalities significantly improved screening for this STI among these physicians (Verhoeven et al., 2005).

A pre-and post- testing design study utilized an educational video presentation in a sample of 239 pediatricians and nurses to promote the pediatric visual acuity screening and found that proper screening increased significantly following this intervention (Clausen et al., 2009).

A study targeting faculty and medical residents at an academic faculty utilized video educational series to promote professionalism in the workplace (Farnan et al., 2013). The study concluded that video-assisted presentations were helpful at promoting civility and decreasing unprofessional behavior (Farnan et al., 2013).

One study utilized a video-assisted presentation to educate and promote HIV screening among primary care providers in a publicly-funded healthcare setting (Arya et al., 2018). This

study utilized a pre- and post-testing design to evaluate video intervention effectiveness (Arya et al., 2018). The study found that video presentations were effective at improving knowledge on HIV testing guidelines and enhancing testing in practice (Arya et al., 2018).

Genitourinary Syndrome of Menopause: Screening Tools

Currently, there is no consensus on how to best screen for genitourinary syndrome of menopause and scholars are urging the development of a unified screening approach (Mension et al., 2021). One objective tool for evaluating GSM involves the use of the Vaginal health index (VHI) score, which evaluates observable and/or measurable parameters, such as vaginal pH and vaginal elasticity (Di Pace & Portuesi, 2018). Although this tool can provide appropriate objective measures, it may be too invasive for quick screenings, particularly in the primary care setting. Similarly, an infrequently-used tool is the Vaginal Maturation Index (VMI), which evaluates GSM based on measurements on vaginal cellular samples (Mac Bride et al., 2010).

The Female Sexual Function Index (FSFI) is a validated tool that focuses specifically on sexual activity but also addresses lubrication and pain (Sand et al., 2009), two key components in genitourinary syndrome of menopause.

One tool that has been used to screen for and assess the impact of GSM is the Day-to-Day Impact of Vaginal Aging (DIVA) questionnaire. It was developed in 2015 with the aim of assessing“ the impact of vaginal dryness, soreness, itching, irritation, and pain on functioning and well-being in postmenopausal women” (Huang et al., 2015). This tool was translated into Spanish and used in a 2018 cross-sectional study in Spain (Moral et al., 2018). This study supported the use of the DIVA questionnaire as an effective GSM assessment tool (Moral et al., 2018). (Archer et al., 2019)Similar reports were obtained in a study conducted earlier this year, in which this tool was translated into Turkish and validated for use in this cultural group (Sert &

Özgül, 2022). Another more recent study, a quality improvement project was conducted utilizing the DIVA questionnaire with the aim for improving identification of GSM among postmenopausal women (Mastroianni et al., 2020). The study found this tool to be effective and increasing identification of GSM in a large women's health practice (Mastroianni et al., 2020). The DIVA questionnaire also proved effective at identifying vulvovaginal symptoms among women who had undergone cancer treatment (Toivonen et al., 2021). Overall, studies show the DIVA questionnaire to be a competent tool in the identification of genitourinary symptoms of menopause. As such, this tool was selected and introduced to the providers in this study as an appropriate screening tool option.

Chapter III.

Purpose, PICO Clinical Question, Objectives

Purpose

As primary care is commonly a patient's principal point of entry into the healthcare system, providers in this realm need to be well-versed in the identification and management of genitourinary syndrome of menopause. The purpose of this quality improvement project is to determine whether a video-assisted educational presentation can improve awareness, knowledge, and screening of GSM among primary care providers in a large county hospital system in South Florida.

PICO Clinical Question

Does an informational video-assisted presentation enhance awareness, knowledge, and screening of genitourinary syndrome of menopause among primary care providers?

P- Primary care providers at a South Florida health system

I- Video-assisted educational presentation

C-Pre and post intervention surveys

O-awareness, knowledge & screening of GSM

Objectives

The main objective of this project is to improve primary care providers' awareness, knowledge, and screening of genitourinary syndrome of menopause.

To support the main objective the SMART criteria was utilized in setting goals for this DNP project. This mnemonic acronym helps delineate a set of objectives that are specific (S), measurable (M), achievable (A), relevant (R), and time-bound (T) to successfully guide projects from planning to completion (Lewis, 2007). The specific objectives for this project utilizing the SMART criteria are defined below.

Specific

This quality improvement project is designed to educate primary care providers at a South Florida health system on genitourinary syndrome of menopause, a chronic, life-impacting condition affecting most menopausal women (NAMS, 2020). This project also provides comprehensive information on current treatment options and screening guidelines. Additionally, this project introduces providers to the Day-to Day Impact of Vaginal Aging (DIVA) tool, a short questionnaire that has been proven effective at screening and identifying cases of GSM (Mastroianni et al., 2020).

Measurable

This project utilizes pre- and post-test Likert scale surveys to gauge awareness, knowledge, and screening of GSM before and after a video-enhanced educational presentation. This information is thus quantifiable and can be measured and analyzed utilizing Qualtrics, a

robust statistical platform that can help translate data into a meaningful evaluation of the effectiveness of this educational intervention.

Attainable

The implementation of this project is attainable. An exhaustive presentation was created utilizing knowledge from published subject experts and leading organizations, such as the North American Menopause Society (NAMS), all of which are readily available through Florida International University's (FIU) academic databases. The primary investigator in this project has also secured a membership with NAMS, thus facilitating access to additional evidence-based materials on menopause. Qualtrics, the survey management and data analysis platform utilized for this project is available free of charge to FIU students, thus not posing a financial impediment. Additionally, the video-assisted presentation were created with Microsoft PowerPoint tools, which was readily available to the researcher. The surveys and video presentation were made available to providers via email links which were accessible 24/7 and facilitated provider access and participation. The project was also conduced with full administrative backing from the target health system, a teaching institution in active support of health research.

Relevant

As previously examined, Genitourinary Syndrome of Menopause is pervasive and has the potential to broadly impact the physical, emotional, psychosocial, and even financial well-being of a significant number of menopausal women (Mastroianni et al., 2020). Furthermore, GSM can lead to increased medical costs and elevated resource utilization and healthcare burden (Assaf et al., 2017). Despite the availability of very effective therapies, however, GSM remains largely underdiagnosed and under-treated (Qi et al., 2020). The North American Menopause Society

(NAMS) urges increased awareness and screening of GSM to narrow the knowledge and treatment gap (NAMS, 2020). This Quality Improvement project is relevant, as it aims to bring attention to GSM and improve its management at women's main entry point in the healthcare system.

Time Bound

This project ran from January 2022 to November 2022, during which time it adhered to timelines and deadlines to guide it to successful completion. Adjustments were made only when necessary to accommodate institutional review processes and schedules.

Organizational Assessment and SWOT Analysis

Organizational Assessment

This quality improvement project took place at a large South Florida county health system. This non-profit academic tertiary care medical systems consists of several hospitals throughout the county and a network of outpatient primary care and specialty care clinics and urgent care centers.This institution is committed to providing high quality medical care for all persons who walk through its doors, regardless of residency, legal, or financial status, but is primarily focused on serving those living within the county borders. The city it serves is co prised of 65% Hispanic residents, 16.8% Black, non-Hispanic, and 15.1% white, non-Hispanic, making it a unique minority majority population (Health Council of South Florida [HCSF], 2018). This city's population is impacted by significant health and socioeconomic disparities, with 30% of African American residents and 20% of Hispanic residents living in poverty, compared to 11.6% of white non-Hispanics (HCSF, 2018). On its most recent Community Health Needs Assessment report, this health system identified several key priority areas requiring immediate attention: Availability of primary care and prevention, access to care,

chronic disease management, maternal and child care, and healthy lifestyles (HCSF, 2018). Keeping in line with these priority areas and in alignment with their mission to provide a single high-standard quality of care and to improve the health of the community (Jackson Health System [JHS], n.d.-a), this DNP project focuses on educating and updating primary care providers on genitourinary syndrome of menopause (GSM), a newly-minted, chronic and under-treated condition that impacts the health and well-being of the majority of menopausal women (NAMS, 2020). In this project, the main organizational targets consist of this health system's nine primary care clinics, which are currently staffed by twenty Internal and Family Medicine physicians, seven Adult and Family nurse practitioners, and one Physician Assistant. These providers care for predominantly underserved populations, typically >50% female, and currently manage an average of over 120,000 clinic visits per year (HCSF, 2018). Currently, there is no routine screening for GSM among primary care providers at these clinics. In their most recent position statement, North American Menopause Society (NAMS) has recommended provider education and routine assessment for GSM in order to narrow the knowledge and treatment gap that is currently prevalent (2020). Providing GSM education to primary care providers in this health system thus represents a unique opportunity to help reduce disparities and improve the lives of afflicted women in South Florida, while supporting this health system's vision of health equality.

SWOT Analysis

To ensure the appropriateness and feasibility of this quality improvement project, a SWOT analysis was conducted to evaluate the relevant strengths, weaknesses, opportunities, and threats at the target health system.

The main organizational strength of this health system is its size and ubiquitous presence as a health provider in South Florida. As previously mentioned, providers in this system conduct over 100,000 clinic visits every year and thus quality improvement projects have the potential to make a significant impact on the health and well-being of its citizens. Additionally, this health system is a teaching institution that encourages and support a vibrant research community. Creating a QI project in this setting is consistently met with encouragement and approval. Another important strength is this system's commitment to improve healthcare and reduce health disparities among those served. This QI project is thus well-aligned with this pledge.

One important weakness identified was the high caseload that each primary care provider has each day. On most days, each PCP has a panel with up to 26 scheduled patients. Although this volume is an advantage in terms of population impact, it may also prove to be a weakness given the limited time available to evaluate each patient and the possible provider reluctance to add additional screening items for every qualifying woman. These same time constraints could also impact completion of surveys and viewing of an educational presentation that is not mandated.

This QI project offers important opportunities for this health system. Increasing awareness and screening of GSM can help it meet current recommended guidelines and meet its own goals of narrowed health disparities. A focus on issues that are important to women can also serve to elevate this health system's community standing and attract additional customers, making it more competitive in the tough healthcare market.

A potential threat identified would be liability related to treatment recommendations. Topical hormonal treatments are one of the main therapies for GSM. Although topical formulations have been extensively studies and deemed safe for most women, there are some

women for whom estrogen may be contraindicated (NAMS, 2020). As such, it would be essential to ensure thorough provider education.

Table 1

SWOT Analysis of the South Florida health system

Strengths	**Weaknesses**
•Strong community presence •Commitment to reduce health disparities •Teaching institution	•High PCP caseload volume •Provider time constraints
Opportunities	**Threats**
•Help health system meet current recommended guidelines •Reduce health disparities •Support women's health	•Therapy contraindications •Liability concerns

Chapter IV.

Definition of Terms

Menopause: The period in a woman's life that marks the end of the childbearing years. It typically occurs between the ages of 45-55 and is defined as the cessation of menses for at least 12 consecutive months. Menopause can also be artificially induced prematurely through the surgical removal of the ovaries or by certain medical treatments (chemotherapy/radiation) or medical conditions or infections (Santen et al., 2014).

Perimenopause: This is the transitional period that precedes menopause. During this time, estrogen levels begin to decrease and can fluctuate significantly. Symptoms like skipped periods and hot flashes may be experienced during this time. This transition period can last many years (Delamater & Santoro, 2018).

Genitourinary Syndrome of Menopause (GSM): Newly-coined term that encompasses the progressive genital and urinary symptoms that are directly related to a woman's hypoestrogenic state of menopause (NAMS, 2020).

Hypoestrogenic: Refers to low levels of estrogen in the body, a main characteristic of menopause (Gandhi et al., 2016).

Atrophic vaginitis: Refers to the chronic thinning, drying and inflammation of the vaginal tissues as a result of hypoestrogenic states (Sobel & Sobel, 2014).

Dyspareunia: Genital pain before, during, or after intercourse (Belardo, 2021).

Chapter V.

Conceptual Underpinning and Theoretical Framework of the Project

The Theory of Planned Behavior (TPB) is a social cognitive theory which has been used extensively to support education and interventions that enhance guideline adherence among medical providers (Liang et al., 2017) and was used to guide the design and implementation of this DNP project. This theory views individuals as engaged participants who actively process available information before committing to intentions that guide behavior (Ajzen, 1991). These intentions are shaped by three central variables: Attitude, subjective norms, and perceived behavioral control (Ajzen, 1991). Attitude involves the rational assessment or beliefs about a particular behavior based on existing knowledge and exposure to information (Ajzen, 1991). Subjective norms (social pressure) are based on the perception of others' beliefs about a particular behavior and are impacted by the human proclivity to gain another's approval. Perceived behavioral controls (PBC) relate to a person's judgment on the ease or difficulty of performing certain behaviors (Ajzen, 1991). Utilizing the tenets of the Theory of Planned Behavior, this project introduces a video-enhanced educational presentation on GSM and its

impact, the latest evidence-supported treatment information, screening recommendations, and introduction of a screening tool that can be readily used in clinical practice. The assumption is that the information provided can help heighten and expand a provider's perspective or attitude towards GSM, which, according to the TPB, is a crucial first step in enacting change. Through this presentation, providers would gain insight into the plight of afflicted women, their compelling need for care, and the urgent endorsement for GSM screening by the North American Menopause Society. Guided by the TPB, this insight can be viewed as an awareness of the subjective societal norms which are the second important influencer of intention and predictor of change. As guideline adherence is often hindered by provider time constraints (Khatib et al., 2014), the introduction of a simple screening tool should positively impact perceived behavioral control, which is the TPB's final variable in predicting the likelihood that a behavior (in this case, GSM screening), will actually take place. The Theory of Planned Behavior provides a useful framework to steer this project from design to successful completion.

Chapter VI.

Methodology

Study Design

This quality improvement project utilized a quasi-experimental pre-test, post-test design to assess the value of an educational video-assisted presentation.

Setting

This QI project was conducted across nine outpatient primary care clinics at a large South Florida health system. These clinics serve insured, underinsured, and uninsured clients, and are particularly focused on serving the underserved.

Participants

The participants were primary care providers. Twenty-seven providers, including twenty Internal and Family Medicine physicians, seven Adult and Family nurse practitioners, and one Physician Assistant were recruited and a total of twelve (n=12) participants completed all three parts of this quality improvement intervention (pretest, educational video presentation, and posttest.)

Intervention

The first step in this project was securing the support of the targeted institution. This Letter of Institutional Support can be found in Appendix A. This first step allowed the DNP student to commence the formal steps of securing approval from both academic and health care institutions involved. The project proposal was presented to Florida International University and an Institutional Review Board Exemption was granted. This document can be located in Appendix B. Following this approval, formal steps were taken to secure approval from target health institution. Two approvals were obtained from the target South Florida health system: JHS Nursing Research & Evidence-based Practice Council (NREBPC) and CNO Council Approval Letter, found in Appendix C; and JHS Clinical Trials Office Approval Letter, found in Appendix D. Once all formal approvals had been secured, the DNP student began the recruitment of primary care providers at target institution via organizational email. This recruitment email introduced the DNP student and provided information about the QI project. Providers who agreed to participate in this study could then choose to access the Qualtrics pretest survey, YouTube informational video, and Qualtrics posttest survey directly from this email. Providers had access to this study for a two-week period. Reminders were sent during this time to encourage provider participation.

Instruments

Eleven-point Likert scale pretest and posttest surveys were utilized via Qualtrics to gauge three main research concepts: awareness (3 questions), knowledge (6 questions), and screening (1 question) of genitourinary syndrome of menopause among primary care providers before and after a 40-minute educational video-assisted presentation. An additional question in the pre-test and posttest surveys gauged the effectiveness of the introduction of a GSM screening tool during the presentation and was not tied to any of the three main research concepts. The educational intervention consisted of a forty-minute video-assisted PowerPoint presentation on GSM, including background, impact on women, and significance of treatment gap. It also provided a review of current evidence-based treatment options in stepwise fashion, including over-the-counter formulations, followed by prescription topical non-hormonal, oral, and topical hormonal treatment modalities. Statistical analysis of pretest and posttest data was conducted with the aid of GraphPad Prism version 9.4.1 by Dotmatics.

Data Collection

Recruitment emails were sent to primary care providers at the target South Florida health system by the DNP candidate. This email provided potential participants with information about the quality intervention project, including purpose, steps required for participation, approximate time commitment, privacy protections, and potential risks and benefits. The email also advised providers that they were under no obligation to partake in study, and that there would be no cost or payment should they opt to participate. Providers who chose to be included in this project could access study directly through recruitment email. Links were provided to Qualtrics pretest and posttest surveys to assess GSM awareness, knowledge and screening, as well as link to forty-minute YouTube educational video presentation on GSM. All surveys were anonymous and no

personal or identifying information was collected. Surveys were utilized to gauge impact of educational intervention on providers' awareness, knowledge, and screening of genitourinary syndrome of menopause.

Data Analysis

Collected data was analyzed using GraphPad Prism version 9.4.1.by Dotmatics. Collective Likert responses were grouped by concept and scored with a percentage and mean was calculated. Paired t-tests were used to compare mean awareness and knowledge, while unpaired t-test was used to compare screening impact. An additional unpaired t-test was utilized to calculate familiarity with Day-to-Day Impact of Vaginal Aging (DIVA). For all topic domains, t-values and p-values were obtained. A conventional alpha level of 0.05 was used for all statistical calculations.

Protection of Human Subjects

All investigators in this study completed and received certification for the Collaborative Institutional Training Initiative (CITI) program training, which focuses on the ethical and responsible research of human subjects. The project was reviewed by Florida International University's Institutional Review Board and, as no patients were participating, received an exemption on August 16, 2022. The project was also reviewed and approved by the target health system's Nursing Research & Evidence-Based Practice Council, Chief Nursing Officers Council (CNOC), and Clinical Research Review Committee (CRRC). The subjects of this study were primary care providers. They were advised that participation was strictly voluntary, with no penalty attached for not taking part in this project. They were also advised they could withdraw at any time. Participants were provided with a brief introduction to the project via email, prior to introducing the pre-test survey. This introduction detailed the purpose of the study, the steps

required to complete it, and the likely timeframe required for completion. Participants remained anonymous and no personal or identifying information was collected. Data was collected via Qualtrics, which utilizes Transport Layer Security (TLS) encryption. All data was kept private in a password and spyware-protected laptop in locked cabinet. Only investigators in this study had access to data.

Benefits

The main benefit of this Quality Improvement project was to enhance provider awareness, knowledge, and screening of genitourinary syndrome of menopause. It is expected that this enhancement will, in turn, benefit society by helping reduce the GSM treatment gap, improving the health and well-being of afflicted women and optimizing their societal engagement, and by reducing the financial and healthcare burden of untreated GSM.

Risks

Participants are not expected to experience any risks, harms, and/or discomforts through participation in this project. There are no costs or obligations and providers may withdraw from study at any time.

Chapter VII.

Results

The purpose of this quality improvement project was to evaluate the effectiveness of a video-assisted educational presentation on primary care providers' awareness, knowledge, and screening of genitourinary syndrome of menopause. Twenty-seven providers aware invited to participate in this study. A total of twelve (n=12) completed the pretest survey, educational presentation, and posttest survey.

Pre- and Post-Intervention Results

Awareness

Pre-intervention. The first concept assessed in this study was awareness of genitourinary syndrome of menopause. This concept was measured utilizing three Likert statements (#1, #2, and #3 in pre- and posttest surveys). A total of 12 providers answered all items. Prior to intervention, 8.33% (n=1) of providers strongly agreed and 33.33% (n=4) agreed with their familiarity with genitourinary syndrome of menopause. A total of 16.67% (n=2) were neutral on the subject, while a total of 41.67% (n=5) were unfamiliar with GSM. A total of 33% (n=4) strongly agreed and 41.67% (n=5) agreed that GSM should be routinely addressed and treated in the primary care setting. A total of 25% (n=3) were neutral on the subjects, while no providers disagreed with the importance of GSM management. Of the twelve participants, 8.33% (n=1) strongly agreed and 50% (n=6) agreed they were familiar with the impact of GSM on afflicted women, the healthcare system, and society in general. Of this sample, 8.33% (n=1) of participants disagreed and 8.33% (n=1) strongly disagreed with this statement.

Post-intervention. Following the video presentation, 83.33% (n=10) strongly agreed and 16.67% (n=2) agreed that they were familiar with the term GSM. No providers were neutral or disagreed with this statement. After the presentation, a total of 75% (n=9) strongly agreed and 25% (n=3) agreed that it was important to routinely address and manage GSM in primary care. No providers were neutral or disagreed with this statement. Similarly, a total of 75% (n=9) strongly agreed and 25% (n=3) agreed that they were familiar impact of GSM on afflicted women, the healthcare system, and society.

Table 2

Participant's awareness of genitourinary syndrome of menopause

Question	Pre-Intervention (n=12)	Post-Intervention (n=12)	% Change
I am familiar with the term Genitourinary Syndrome of Menopause (GSM)			
Strongly agree *	1 (8.33%)	10 (83.33%)	80.0 ↑
Agree	4 (33.33%)	2 (16.67%)	16.66 ↓
Neutral	2 (16.67%)	0 (0%)	16.67 ↓
Disagree	5 (41.67%)	0 (0%)	41.67 ↓
Strongly Disagree	0 (0%)	0 (0%)	0
I feel that GSM should be routinely addressed and treated in the primary care setting.			
Strongly agree *	4 (33.33%)	9 (75%)	41.67 ↑
Agree	5 (41.67%)	3 (25%)	16.67 ↓
Neutral	3 (25%)	0 (0%)	25↓
Disagree	0 (0%)	0 (0%)	0
Strongly Disagree	0 (0%)	0 (0%)	0
I am familiar with the impact of GSM on afflicted women, the healthcare system, and society in general.			
	1 (8.33%)	9 (75%)	66.67 ↑
Strongly agree *	6 (50%)	3 (25%)	25 ↓
Agree	3 (25%)	0 (0%)	25 ↓
Neutral	1 (8.33%)	0 (0%)	8.33 ↓
Disagree	1 (8.33%)	0 (0%)	8.33 ↓
Strongly Disagree			

Note: *= correct answer

Awareness Paired Sample t-Test.

A two-tailed paired sample t-test was used to determine if the mean difference of awareness of GSM from the pre- and post- intervention scores was significantly different from zero. The result of the two-tailed paired sample t- test was not statistically significant based on

an alpha value of 0.05, t= 3.2778, and p=0.0818. The findings suggest the mean difference from the pre- and post- survey was not significantly different from zero. In summary, there was no statistically significant change in awareness among primary care providers following educational video presentation. The results are presented in Table 3.

Table 3
Awareness paired t test results

	Pre-Intervention	Post-Intervention	t value	P-Value
Mean	3.33	3.08	0.2983	0.7936
SD	0.22	1.2		

Knowledge

Pre-intervention. The second concept assessed in this study was knowledge of genitourinary syndrome of menopause. This concept was measured utilizing six Likert statements (#6, #7, #8, #9, #10, and #11 in pre- and posttest surveys). A total of 12 providers answered all items. Prior to video presentation, 25% (n=3) strongly agreed and 50% (n=6) agreed they were confident in their knowledge of OTC options for management of GSM. There was a total of 8.33% (n=1) who was neutral and 8.33% (n=1) and 8.33% (n=1) who disagreed and 8.33% (n=1) who strongly disagreed with this statement. When querying for confidence in knowledge of prescription non-hormonal topical treatments for management of GSM, no providers reported strong agreement, 8.33% (n=1) while only 8.33% (n=1) agreed with this statement. A total of 41.67% (n=5) were neutral, while 41.67% (n=5) disagreed and 8.33% (n=1) strongly disagreed with this statement. Similarly, when measuring confidence in knowledge of prescription non-hormonal oral treatments for GSM, no providers reported strong agreement, while 33.33% (n=4) agreed with this statement. A total of 33.33% (n=4) were neutral in this area, while 16.67% (n=2) disagreed and 16.67% (n=2) strongly disagreed with this statement, or were not confident on their knowledge of prescription non-hormonal oral treatment options. The

results were slightly better for confidence in my knowledge of prescription hormonal topical treatments for GSM, where 33.33% (n=4) agreed they were confident. However, 33.33% (n=4) were neutral, and 33.33% (n=4) disagreed and 16.67% (n=2) strongly disagreed they were knowledgeable about prescription hormonal topical treatments. When asked if they were familiar with current guidelines on the safe use of topical hormonal treatments for GSM, no providers strongly agreed with this statement, while 25% (n=3) agreed. Half of providers (n=6) were neutral, while 8.33% (n=1) disagreed and 16.67% (n=2) strongly disagreed with this statement. When queried about overall confidence in ability to effectively address GSM, no providers were in strong agreement, 16.67% (n=2) were in agreement, 58.33% (n=7) were neutral, while 8.33% (n=1) disagreed and 16.67% (n=2) strongly disagreed with this statement, or were not confident in their ability to manage GSM.

Post-intervention. Following the video presentation, 83.33% (n=10) of providers strongly agreed they were confident in my knowledge of OTC options for management of GSM. A total of 16.67% (n=2) agreed, while no providers were either neutral or disagreed with this statement. A similar change was reported post intervention on confidence regarding knowledge of prescription non-hormonal topical treatments, where 75% (n=9) showed strong agreement, while 25% (n=3) showed agreement with this statement. No providers were neutral or disagreed with this statement. When reporting confidence in knowledge of prescription non-hormonal oral treatments for GSM, 75% (n=9) strongly agreed and 8.33% (n=1) agreed with this statement, and 16.67% (n=2) were neutral. No providers reported lack of confidence in knowledge of prescription non-hormonal oral treatments. Post intervention, confidence on knowledge of prescription hormonal topical treatments for GSM increased, with 75% (n=9) strongly agreeing and 16.67% (n=2) agreeing they were confident in their knowledge, while 8.33% (n=1) was

neutral. There were no providers who were not confident on their knowledge of prescription hormonal topical treatments. Familiarity with current guidelines on the safe use of topical hormonal treatments for GSM increased post intervention, with 66.66% (n=8) showing strong agreement and 25% (n=3) showing agreement with confidence level. A total of 8.33% (n=1) were neutral, and no providers reported lack familiarity with current guidelines. Finally, general confidence on ability to effectively address GSM increased, with 58.33% (n=7) reporting strong agreement and 25% (n=3) reporting agreement. A total of 16.67% (n=2) were neutral, and no providers reported lack of confidence in their overall ability to manage GSM.

Table 4

Participant's knowledge of genitourinary syndrome of menopause

Question	Pre-Intervention (n=12)	Post-Intervention (n=12)	% Change
I am confident in my knowledge of OTC options for management of GSM.			
	3 (25%)	10 (83.33%)	58.33 ↑
Strongly agree *	6 (50%)	2 (16.67%)	33.33 ↓
Agree	1 (8.33%)	0 (0%)	8.33 ↓
Neutral	1 (8.33%)	0 (0%)	8.33 ↓
Disagree	1 (8.33%)	0 (0%)	8.33 ↓
Strongly Disagree			
I am confident in my knowledge of prescription non-hormonal topical treatments for management of GSM.	0 (0%)	9 (75%)	75 ↑
	1 (8.33%)	3 (25%)	16.67 ↑
Strongly agree *	5 (41.67%)	0 (0%)	41.67 ↓
Agree	5 (41.67%)	0 (0%)	41.67 ↓
Neutral	1 (8.33%)	0 (0%)	8.33 ↓
Disagree			
Strongly Disagree			
I am confident in my knowledge of prescription non-hormonal oral treatments for GSM.	0 (0%)	9 (75%)	75 ↑
	1 (8.33%)	1 (8.33%)	0

Strongly agree *	1 (8.33%)	2 (16.67%)	8.34 ↑
Agree	6 (50%)	0 (0%)	50 ↓
Neutral	4 (33.33%)	0 (0%)	33.33 ↓
Disagree			
Strongly Disagree			
I am confident in my knowledge of prescription hormonal topical treatments for GSM.	0 (0%)	9 (75%)	75 ↑
	4 (33.33%)	2 (16.67%)	16.66 ↓
Strongly agree *	4 (33.33%)	1 (8.33%)	25 ↓
Agree	2 (16.67%)	0 (0%)	16.67 ↓
Neutral	2 (16.67%)	0 (0%)	16.67 ↓
Disagree			
Strongly Disagree			
I am familiar with current guidelines on the safe use of topical hormonal treatments for GSM.	0 (0%)	8 (66.66%)	66.66 ↑
Strongly agree *	3 (25%)	3 (25%)	0
Agree	6 (50%)	1 (8.33%)	41.67 ↓
Neutral	1 (8.33%)	0 (0%)	8.33 ↓
Disagree	2 (16.67%)	0 (0%)	16.67 ↓
Strongly Disagree			
In general, I feel confident in my ability to effectively address GSM with my patients.	0 (0%)	7 (58.33%)	58.33 ↑
	2 (16.67%)	3 (25%)	8.33 ↑
Strongly agree *	7 (58.33%)	2 (16.67%)	41.66 ↓
Agree	1 (8.33%)	0 (0%)	8.33 ↓
Neutral	2 (16.67%)	0 (0%)	16.67 ↓
Disagree			
Strongly Disagree			

Knowledge Paired Sample t-Test.

A two-tailed paired sample t-test was used to determine if the mean difference of knowledge of GSM from the pre- and post- intervention scores was significantly different from

zero. The result of the two-tailed paired sample t- test is considered to be very statistically significant based on an alpha value of 0.05, t= 4.5110, and p=0.0063. The findings suggest the mean difference from the pre- and post- survey was significantly different from zero. The results indicated that there was a significant change in GSM awareness post-intervention. The results are presented in Table 5.

Table 5
Knowledge paired t test results

	Pre-Intervention	Post-Intervention	t value	P-Value
Mean	2.76	3.88	4.5110	0.0063
SD	0.59	0.08		

Screening

Pre-intervention. The third concept assessed in this study was screening of genitourinary syndrome of menopause. This concept was measured utilizing one Likert statement (#5 in pre- and posttest surveys). A total of 12 providers complete this item. Prior to intervention, providers were asked to report their level of agreement with their regular screening for GSM. No providers were in strong agreement, while 16.67% (n=2) were in agreement. Half of providers (n=6) were neutral, and 25% (n=3) disagreed and 8.33% (n=1) strongly disagreed that they regularly screened for GSM.

Post-Intervention. After the educational presentation, providers were asked if they would regularly screen for GSM, and a total of 66.66% (n=8) strongly agreed and 25% (n=3) agreed they would. Only 8.33% (n=1) were neutral, while no providers disagreed on plans to screen for GSM.

Table 6

Participant's screening of genitourinary syndrome of menopause

Question	Pre-Intervention (n=12)	Post-Intervention (n=12)	% Change
I regularly screen or plan to routinely screen for GSM in my current practice.			
	0 (0%)	8 (66.66%)	66.66 ↑
Strongly agree *	2 (16.67%)	3 (25%)	8.33 ↑
Agree	6 (50%)	1 (8.33%)	41.67 ↓
Neutral	3 (25%)	0 (0%)	25 ↓
Disagree	1 (8.33%)	0 (0%)	8.33 ↓
Strongly Disagree			

Note: *= correct answer

Screening Unpaired Sample t-Test.

An unpaired sample t-test was used to determine if the mean difference of screening for GSM in the pre- and post- intervention scores was significantly different from zero. The result of the unpaired sample t- test is considered to be statistically significant based on an alpha value of 0.05, t= 2.1424, and p=0.0435. The findings suggest the mean difference from the pre- and post-survey was significantly different from zero. The results are presented in Table 7.

Table 7

Screening unpaired t test results

	Pre-Intervention	Post-Intervention	t value	P-Value
Mean	2.75	3.92	2.1424	0.0435
SD	0.83	1.70		

Familiarity with the DIVA Questionnaire

Pre-intervention. As described in the Instruments section of this paper, the genitourinary syndrome of menopause presentation also introduced providers to the screening tool, Day-to-Day Impact of Vaginal Aging (DIVA) questionnaire. This effectiveness of this introduction was assessed with one Likert statement (#4 in pre- and posttest surveys). A total of 12 providers

completed this item. Prior to the introduction, no providers agreed they were familiar with this tool. A total of 8.33% (n=1) were neutral, while 16.67% (n=2) disagreed and 75% (n=9) strongly disagreed on their familiarity with this tool.

Post-intervention. Following the introduction of this tool, 75% (n=9) of providers strongly agreed and 25% (n=3) agreed they were familiar with this tool. No providers were neutral or reported disagreement with their familiarity with the DIVA questionnaire.

Table 8

Familiarity with Day-to-Day Impact of Vaginal aging (DIVA) questionnaire

Question	Pre-Intervention (n=12)	Post-Intervention (n=12)	% Change
I am familiar with the Day-to Day Impact of Vaginal Aging (DIVA) questionnaire			
Strongly agree *	0 (0%)	9 (75%)	75 ↑
Agree	0 (0)	3 (25%)	25 ↑
Neutral	1 (8.33%)	0 (0%)	8.33 ↓
Disagree	2 (16.67%)	0 (0%)	16.67 ↓
Strongly Disagree	9 (75%)	0 (0%)	75 ↓

Note: *= correct answer

Familiarity with DIVA Questionnaire Unpaired Sample t-Test.

An unpaired sample t-test was used to determine if the mean difference of familiarity with DIVA questionnaire in the pre- and post- intervention scores were significantly different from zero. The result of the unpaired sample t- test is considered to be extremely statistically significant based on an alpha value of 0.05, t= 4.2209, and p=0.0004. The findings suggest the mean difference from the pre- and post- survey was significantly different from zero. The results indicated that providers were effectively familiarized with this screening tool during the presentation. The results are presented in Table 9.

Table 9

Familiarity with DIVA questionnaire unpaired t test scores

	Pre-Intervention	Post-Intervention	t value	P-Value
Mean	1.33	3.80	4.2209	0.0004
SD	0.62	1.93		

Chapter VIII.

Discussion

The overall results from this quality improvement project reveal that an educational video intervention can improve knowledge and screening of genitourinary syndrome of menopause among primary care providers. The most consequential change occurred in the level of knowledge post intervention. Prior to the video presentation, providers were relatively confident in their knowledge of over-the-counter treatment options about GSM, but a majority were either neutral or not confident in their level of knowledge regarding prescriptions non-hormonal topical treatments, prescription non-hormonal oral treatments, and prescription hormonal topical treatments. Additionally, most provider were either neutral or not confident in their knowledge of current guidelines for safe use of topical hormonal treatments or their overall knowledge of GSM management. Following the educational video presentation, results from paired t-tests revealed a very statistically significant change, confirming improved knowledge across the board. All providers either agreed or strongly agreed that they felt confident in their knowledge of over-the-counter treatments and prescription non-hormonal topical treatments. Similarly, a majority of providers agreed or strongly agreed they felt confident in their knowledge of non-hormonal oral treatments and prescription hormonal topical treatments. A small minority were neutral, and no providers reported feeling a lack of confidence in their GSM knowledge of these treatment options. Most providers also agreed or strongly agreed that they felt confident in their

knowledge of current guidelines safe use of topical hormonal treatments (91% compared to 33.33% prior to intervention), and a majority of providers felt generally more confident in their overall knowledge of GSM management (60.33% compared to 16.67% prior to intervention). No providers reported lack of confidence in their overall knowledge of GSM management.

According to the results of paired t-test analysis, there was also a statistically significant improvement in GSM screening after video presentation. Prior to intervention, only 16.67% of providers agreed that they regularly screened for GSM, while 91.66% planned to screen for GSM after watching video. The significant improvement in this area is particularly important, as screening for genitourinary syndrome for menopause represents an essential step in helping reduce the current treatment gap ((NAMS, 2020).

The only concept measured in this study that did not demonstrate a significant improvement post intervention was awareness of GSM. In general, this group of providers agreed with the importance of routine management of GSM and were familiar with GSM impact on afflicted women, the healthcare system, and society in general. Although the change was not significant, there was an overall increase in provider awareness of GSM after watching the educational video.

The results from this quality improvement study are encouraging and point to the value of dedicated education on genitourinary syndrome of menopause in increasing provider awareness, knowledge, and screening of this currently underdiagnosed and under-treated condition.

Chapter IX.

Limitations

There was important information gained from this quality improvement project, but there were also several limitations that were identified that may have impacted the final results. The

most notable limitation was small sample size. For this study, a total of twenty-seven providers were recruited, but only twelve completed all required steps. This may be partly due to the limited time frame which was granted for completion of the study. Originally, the DNP student had planned to provide access to surveys and educational presentation for a four-week period. However, delays in IRB approvals and institutional permissions made it necessary to abbreviate this time-frame. Another factor that may have impacted participation was the time commitment required from each provider. The video presentation was 40-minutes long and each of the two surveys could take up to five minutes to complete. A fifty-minute time commitment for busy providers who were only granted a limited time-frame to access the study may have restrained engagement. There is also evidence that interest and attention during a medical presentation can drop significantly after the 15-20 minute mark (Bordes et al., 2020), so the length of this study's video intervention may have disengaged providers who may have otherwise been ready to participate.

Another limitation of this study is the lack of demographics of participants. While all subjects were primary care providers, a breakdown of educational background (NP, PA, MD), length of experience, and even age and sex may have provided important insight into the knowledge gaps and management of genitourinary syndrome of menopause among a variety of provider groups.

The pre- and post-test surveys utilized for this research study were simple Likert scale tools designed to quickly ascertain a change in awareness, knowledge, and screening of GSM. These tools, however, were not tested for validity or reliability. Additionally, the lack of a control group limits the relevance of the study's final results.

One final limitation in this study is the introduction of only the English version of the Day-to-Day Impact of Vaginal Aging (DIVA) questionnaire. Efforts were made to secure the validated Spanish version of this tool without success. Screening for GSM in various languages would be of crucial importance to ensure health equity for all women.

Chapter X.

Implications for Advanced Nursing Practice

The health and well-being of women are undeniably important; thus, the current GSM treatment gap represents a regrettable discrepancy in the health care system. The results of this QI project demonstrates that a knowledge gap is indeed present and that providers can greatly benefit from interventions that aim to improve their women's health knowledge. Genitourinary syndrome of menopause, in particular, requires dedicated attention given its pervasive impact. Several renowned organizations, including the North American Menopause Society and the International Society for the Study of Women's Sexual Health are advocating for the destigmatization of menopause and call for increase education on GSM (NAMS, 2020). An important first step in improving identification and treatment of GSM would be to establish GSM education in advanced nursing practice curriculums. In this manner, nurse practitioners can be ready and poised to make a positive impact on the lives of perimenopausal and menopausal women as soon as they enter the healthcare system. Additionally, healthcare institutions should offer regular education and refreshment courses on GSM management. Lastly, regular screening protocols could be established to further ensure GSM does not go unnoticed or untreated.

Dissemination and Sustainability

Nurse practitioners, particularly those at the doctoral level, have a responsibility to contribute to public health not just through clinical practice, but also through clinical leadership,

improvement of healthcare systems, and dissemination of evidence-based research. In alignment with this commitment to enhance healthcare outcomes, this QI project was presented at the Nurse Practitioner Council Meeting "Strategies to Strengthen Healthcare Delivery Through Quality Improvement Initiatives" (Goldin et al, 2022), and will also be presented to the South Florida healthcare system targeted for this study. A case will be made to this institution's Nursing Research & Evidence-Based Practice Council, Chief Nursing Officers Council (CNOC), and Clinical Research Review Committee (CRRC) for the regular education of primary care providers on the topic of genitourinary syndrome of menopause. In this manner the positive results obtained from this small sample of providers can be expanded and sustained over time. Finally, an abstract for this QI project will be presented for consideration at FNA conferences in the upcoming year.

Chapter XI.

Conclusion

Genitourinary Syndrome of Menopause is an underdiagnosed and under-treated disorder that impacts the health and well-being of most menopausal women. This chronic, progressive, and life-impacting condition can dramatically alter a woman's well-being, quality of life, and productivity. If untreated, it can also significantly increase the burden of care on an already strained medical system. The QI project presented in this paper showed very promising results on the value of GSM education among primary care providers. A future larger-scale study can offer more comprehensive and meaningful judgment on the impact of this education. Follow-up studies can also help determine the long-term impact and tenability of this training. In the meantime, this small study offers support for the importance of dedicated GSM education. Through increased awareness, knowledge, and screening of GSM, nurse practitioners and other

primary care providers can be well poised to reduce treatment gaps among afflicted women, helping decrease health disparities and medical costs. Most importantly, primary care providers who are knowledgeable on GSM management can help significantly enhance the health and well-being of women during the menopausal years.

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Appendix A

Letter of Institutional Support

June 21, 2022

Dana Sherman, DNP, APRN, ANP-BC, FNP-BC
Clinical Assistant Professor
Nicole Wertheim College of Nursing and Health Sciences
Florida International University

Dear Dr. Sherman,

Thank you for inviting Jackson Health System (JHS) to participate in the DNP project of Patricia Diaz. It is understood that Ms. Diaz will be conducting this quality improvement project as part of the requirements for the Doctor of Nursing Practice at Florida International University. After reviewing the project titled, *"Effectiveness of an informational video-assisted presentation on primary care provider awareness, knowledge, and screening of genitourinary syndrome of menopause, a quality improvement project"*, she has been granted permission to conduct her project in this organization.

It is understood that this project will take place from July 10th, 2022, to December 10th, 2022. Ms. Diaz will recruit up to 28 of our primary care providers and conduct a video-assisted educational presentation on genitourinary syndrome of menopause. This educational presentation will be made available through a link shared with participating providers via institutional email. Pre and posttest surveys will be utilized to assess impact. The main goal of this project is to improve awareness, knowledge, and screening for this syndrome and help narrow the treatment gap that currently exists among affected women.

We look forward to participating in this DNP project and contribute to this important work.

Sincerely,

Maurizio Sepe

Maurizio Sepe, MD
Jackson Health System
Jefferson Reaves Sr. Health Center
1009 NW 5th Avenue
Miami, FL 33136

Appendix B

FIU IRB Exemption Letter

FIU | FLORIDA INTERNATIONAL UNIVERSITY

Office of Research Integrity
Research Compliance, MARC 414

MEMORANDUM

To: Dr. Dana Sherman
CC: Patricia Diaz

From: Maria Melendez-Vargas, MIBA, IRB Coordinator

Date: August 16, 2022

Protocol Title: "Effectiveness of an informational video-assisted presentation on primary care provider awareness, knowledge, and screening of genitourinary syndrome of menopause: a quality improvement project"

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-22-0368 **IRB Exemption Date:** 08/16/22
TOPAZ Reference #: 112066

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.
3) 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.

MMV/em

Appendix C

JHS Nursing Research & Evidence-based Practice Council (NREBPC) and CNO Council Approval Letter

Jackson HEALTH SYSTEM
Miracles made daily.

Nursing Research & Evidence Based Practice Council

October 14, 2022

Dear Ms. Diaz (Patty),

This letter is to inform you that your Quality Improvement project proposal titled**: " Effectiveness of an informational video-assisted presentation on primary care provider awareness, knowledge, and screening of genitourinary syndrome of menopause: a quality improvement project"** has been reviewed and approved by the Nursing Research & Evidence-Based Practice Council and the CNO Council at Jackson Health System (JHS).

The next step is approval from the JHS Clinical Trials Office. I have added Kristina Maradiaga, Research Coordinator, to the accompanying email, who will guide you through the final approval steps.

Should you have any questions please feel free to contact me.

Sincerely,

Bridgette Johnson
Bridgette M. Johnson, PhD, APRN
Director of Clinical Practice & Regulatory Compliance
Chair, Nursing Research & Evidence-Based Practice Council
(305) 585-8361
Bridgette.johnson@jhsmiami.org

cc: Carol Biggs, MBA-HA, DHSc
Senior Vice President & Chief Nursing Executive
Chair, CNO Council
Jackson Health System

cc: Katuska Barbery, MBA
Director of Clinical Trials Office
JHS Clinical Trials Office
Jackson Health System

cc: Kristina Maradiaga
Research coordinator
Dedicated Research Unit
Jackson Health System

Appendix D

JHS Clinical Trials Office Approval Letter

JHS Office of Research
Jackson Medical Towers, Ste. 803
1500 NW 12th Avenue
Miami, FL 33136

Oct. 20 2022

Dr. Dana Sherman
Principal Investigator: Patricia Diaz

The JHS Clinical Trial Office on 10/18/2022 reviewed the Non-Human Subject Research protocol approved by JHS Council and CNO Council. This quality improvement project focused on is now approved and may commence at Jackson Health System.

Study Title: Effectiveness of an informational video-assisted presentation on primary care provider awareness, knowledge, and screening of genitourinary syndrome of menopause: a quality improvement project"

Principal Investigator: Dana Sherman/ Patricia Diaz

Type of Study: Quality improvement project

Enrollment Target: Local Site: Up to 28 Participants

Study Approved Time: 8weeks

Study fees waived in support of Nursing Program

It is noted, the Office of Research Integrity Research Compliance, from Florida International University Evaluated a Non-Human Subjects Research application FIU

" Effectiveness of an informational video-assisted presentation on primary care provider awareness, knowledge, and screening of genitourinary syndrome of menopause: a quality improvement project".

Principal Investigator must notify to the Research Integrity Division of Research at Florida International University and JHS Office of Research if the proposed activity changes and becomes human subject research.

- **A participant enrollment form must be submitted to Clinical Trials Office <ClinicalTrialsOffice@jhsmiami.org> on a timely basis.**

- **If any manuscript resulting from this research is accepted by a Medical Journal for publication, please notify the Clinical Trials Office by submitting a copy to jhs-pub-notifications@jhsmiami.org**

This study must be conducted in accordance with the JHS approval.

Thank you for working with the JHS Office of Research.

Veronica Del Prete
Research Program Coordinator of Clinical Trials

Kristina Maradiaga
Research Coordinator

Katuska Barbery, MBA
Director of Clinical Trials

Appendix E

Informational Letter

Effectiveness of an Informational Video-Assisted Presentation on Primary Care Provider Awareness, Knowledge, and Screening of Genitourinary Syndrome of Menopause: A Quality Improvement Project

Hello, my name is Patricia Diaz, APRN, MSN, DNP student. You have been chosen to be in a research study about genitourinary syndrome of menopause management in the primary care setting. The purpose of the study is to increase genitourinary syndrome of menopause (GSM) awareness, knowledge, and screening and determine the efficacy of a video-assisted PowerPoint educational presentation to meet these objectives.

Participation in this study will take between 45-50 minutes of your time. If you agree to be in the study, I will ask you to do the following things:

1. Complete a pre-test survey to gauge current awareness, knowledge, and screening practices of GSM. This pre-test is expected to take 2-5 minutes of your time.
2. Watch an educational video-assisted PowerPoint presentation on GSM, including recommendations for screening and current evidence-based treatment options. This presentation will also introduce a GSM screening tool that may be utilized in practice. This presentation will take 40 minutes of your time.
3. Complete a post-test survey to assess impact of presentation. This post-test is expected to take 2-5 minutes of your time.
4. Pre-test and post-test surveys as well as educational presentation will be made available via electronic link. The survey questions will be administered and analyzed via Qualtrics, a secure data management company, and you will remain anonymous.

There is no cost or payment to you. There are no foreseeable risks for participating in this study. Potential benefits to participants include improved awareness and knowledge of genitourinary syndrome of menopause. It is expected that this increased awareness and knowledge will, in turn, benefit society by helping reduce the GSM treatment gap, enhancing the health and well-being of afflicted women and optimizing their societal engagement, and reducing the financial and healthcare burden of untreated GSM.

If you have questions for one of the researchers conducting this study, you may contact the primary investigator Dana Sherman, DNP, ARNP, ANP-BC at (305) 348-2247, FNP-BC or Patricia Diaz, APRN, MSN, DNP student at (305) 776-6935.

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.

Your participation in this research is voluntary, and you will not be penalized or lose benefits if you refuse to participate or decide to stop. You may keep a copy of this form for your records.

Appendix F

Pretest Survey

Dear Participant:

The purpose of this study is to improve awareness, knowledge, and screening of genitourinary syndrome of menopause among primary care providers. Your participation is valued and appreciated.

Please rate the degree to which you agree or disagree with each statement:

Statement	1 Strongly Disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly Agree
1. I am familiar with the term Genitourinary Syndrome of Menopause (GSM)					
2. I feel that GSM should be routinely addressed and treated in the primary care setting.					
3. I am familiar with the impact of GSM on afflicted women, the healthcare system, and society in general.					
4. I regularly screen for GSM in my current practice.					
5. I am familiar with the Day-to Day Impact of Vaginal Aging (DIVA) questionnaire.					
6. I am confident in my knowledge of OTC options for management of GSM.					
7. I am confident in my knowledge of prescription non-hormonal topical treatments for management of GSM.					
8. I am confident in my knowledge of prescription non-hormonal oral treatments for GSM.					
9. I am confident in my knowledge of prescription hormonal topical treatments for GSM.					
10. I am familiar with current guidelines on the safe use of topical hormonal treatments for GSM.					
11. In general, I feel confident in my ability to effectively address GSM with my patients.					

Appendix G

Posttest Survey

After completion of the genitourinary syndrome of menopause presentation, kindly complete the post-test survey below.

Please rate the degree to which you agree or disagree with each statement:

Statement	1 Strongly Disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly Agree
1. I am familiar with the term Genitourinary Syndrome of Menopause (GSM)					
2. I feel that GSM should be routinely addressed and treated in the primary care setting.					
3. I am familiar with the impact of GSM on afflicted women, the healthcare system, and society in general. I.					
4. I plan to routinely screen for GSM in my current practice. II.					
5. I am familiar with the Day-to Day Impact of Vaginal Aging (DIVA) questionnaire. III.					
6. I am confident in my knowledge of OTC options for management of GSM.					
7. I am confident in my knowledge of prescription non-hormonal topical treatments for management of GSM. IV.					
8. I am confident in my knowledge of prescription non-hormonal oral treatments for GSM. V.					
9. I am confident in my knowledge of prescription hormonal topical treatments for GSM. VI.					
10. I am familiar with current guidelines on the safe use of topical hormonal treatments for GSM. VII.					
11. In general, I feel confident in my ability to effectively address GSM with my patients.					

Appendix H

Day-to-Day Impact of Vaginal Aging (DIVA) Questionnaire

The Day-to-Day Impact of Vaginal Aging Questionnaire

We are interested in understanding the impact of vaginal symptoms such as vaginal dryness, soreness, irritation, and itching on your day-to-day life. For each question below, please check the answer that best describes how your activities, relationships, and feelings have been affected by any of these symptoms during the past four weeks.

PART A. During the past four weeks, how much have vaginal symptoms such as dryness, soreness, irritation, or itching made it uncomfortable or interfered with your ability to:

1. Walk at your usual speed?

☐0	☐1	☐2	☐3	☐4
Not at all	A little bit	Moderately	Quite a bit	Extremely

2. Wear the clothing or underwear you want?

☐0	☐1	☐2	☐3	☐4
Not at all	A little bit	Moderately	Quite a bit	Extremely

3. Use the toilet or wipe yourself after using the toilet?

☐0	☐1	☐2	☐3	☐4
Not at all	A little bit	Moderately	Quite a bit	Extremely

4. Sit for more than an hour?

☐0	☐1	☐2	☐3	☐4
Not at all	A little bit	Moderately	Quite a bit	Extremely

5. Get a good night's sleep?

☐0	☐1	☐2	☐3	☐4
Not at all	A little bit	Moderately	Quite a bit	Extremely

PART B. During the past four weeks, how often have vaginal symptoms such as dryness, soreness, irritation, or itching caused you to feel:

6. Depressed or down?

☐0	☐1	☐2	☐3	☐4
Never	Rarely	Sometimes	Fairly often	Very often

7. Embarrassed?

☐0	☐1	☐2	☐3	☐4
Never	Rarely	Sometimes	Fairly often	Very often

8. Frustrated or resentful?

☐0	☐1	☐2	☐3	☐4
Never	Rarely	Sometimes	Fairly often	Very often

9. Bad about yourself?

☐0	☐1	☐2	☐3	☐4
Never	Rarely	Sometimes	Fairly often	Very often

PART C. The following questions ask about the impact of your symptoms on vaginal sexual intercourse as well as other types of sexual activity such as self-stimulation or masturbation. During the past four weeks, have vaginal symptoms such as dryness, soreness, irritation, or itching affected:

10. Your desire or interest in having sexual intercourse or other types of sexual activity (including self-stimulation or masturbation)?

☐0	☐1	☐2	☐3	☐4
Not at all	A little bit	Moderately	Quite a bit	Extremely

11. How frequently you had sexual intercourse or other types of sexual activity (including self-stimulation or masturbation)?

☐0	☐1	☐2	☐3	☐4
Not at all	A little bit	Moderately	Quite a bit	Extremely

12. Your ability to become aroused during sexual activity (including self-stimulation or masturbation)?

☐0	☐1	☐2	☐3	☐4
Not at all	A little bit	Moderately	Quite a bit	Extremely

☐Not applicable – I have not had sexual activity of any kind recently

13. Your ability to be spontaneous about sexual activity (including self-stimulation and masturbation)?

☐0	☐1	☐2	☐3	☐4
Not at all	A little bit	Moderately	Quite a bit	Extremely

☐Not applicable – I have not had sexual activity of any kind recently

15. The amount of pleasure you experienced during sexual activity (including self-stimulation or masturbation)?

☐0	☐1	☐2	☐3	☐4
Not at all	A little bit	Moderately	Quite a bit	Extremely

☐Not applicable – I have not had sexual activity of any kind recently

16. Your desire or interest in being in a sexual relationship?

☐0	☐1	☐2	☐3	☐4
Not at all	A little bit	Moderately	Quite a bit	Extremely

17. Your confidence that you could sexually satisfy a partner?

☐0	☐1	☐2	☐3	☐4
Not at all	A little bit	Moderately	Quite a bit	Extremely

18. Your overall satisfaction with your sex life?

☐0	☐1	☐2	☐3	☐4
Not at all	A little bit	Moderately	Quite a bit	Extremely

PART D. The following statements describe ways in which your vaginal symptoms may have affected your feelings about yourself and your body. Please indicate how true each of the following statements has been for you during the past four weeks.

19. My vaginal symptoms make me feel like I'm getting old.

☐0	☐1	☐2	☐3	☐4
Not at all true	A little true	Somewhat true	Mostly true	Definitely true

20. I feel undesirable because of my vaginal symptoms.

☐0	☐1	☐2	☐3	☐4
Not at all true	A little true	Somewhat true	Mostly true	Definitely true

21. When I think about my vaginal symptoms, I feel like I have lost something.

☐0	☐1	☐2	☐3	☐4
Not at all true	A little true	Somewhat true	Mostly true	Definitely true

22. My vaginal symptoms make me feel like my body is deteriorating.

☐0	☐1	☐2	☐3	☐4
Not at all true	A little true	Somewhat true	Mostly true	Definitely true

22. I feel less sexy because of my vaginal symptoms.

☐0	☐1	☐2	☐3	☐4
Not at all true	A little true	Somewhat true	Mostly true	Definitely true

Thank you!

Recommended scoring

Total scores for each domain scale are computed by calculating the average of scores for the corresponding individual items. The possible score range for all domain scales is 0 to 4, with higher scores denoting greater impact of vaginal symptoms.

Two versions of the sexual functioning scale are available: 1) a short, 5-item version that can be administered to all postmenopausal women, regardless of sexual activity status; and 2) a longer, 9-item version that includes 4 additional items (12, 13, 14, and 15) that are only appropriate for women with a history of recent sexual activity.

Activities of daily living domain: items 1, 2, 3, 4, 5
Emotional well-being domain: items 6, 7, 8, 9
Sexual functioning domain (short version): items 10, 11, 12, 16, 17, 18
Sexual functioning domain (longer version): items 10, 11, 12, 13, 14, 15, 16, 17, 18, Self-concept and body image domain: items 19, 20, 21, 22, 23

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- Please refer to the questionnaire using its complete name – the Day-to-Day Impact of Vaginal Aging questionnaire - and provide the appropriate citation.
- Modifications may be made without written permission. However, please clearly identify any modifications in any publications as having been made by the users. Please let the corresponding author know of any changes for our records.

Huang AJ, Gregorich SE, Kuppermann M, et al. Day-to-Day Impact of Vaginal Aging questionnaire: a multidimensional measure of the impact of vaginal symptoms on functioning and well-being in postmenopausal women. Menopause. 2015;22(2):144–154. doi:10.1097/GME.0000000000000281