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HOW DOES EXPOSURE TO PELVIC HEALTH CONTENT IN ENTRY LEVEL PHYSICAL
THERAPY CURRICULA IMPACT STUDENTS' COMFORT LEVEL DISCUSSING
SEXUAL HEALTH WITH FUTURE PATIENTS?

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A Dissertation
Submitted to the Faculty of the
College of Health Professions, Bellarmine University
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For the Degree of

Doctor of Philosophy
in Health Professions Education

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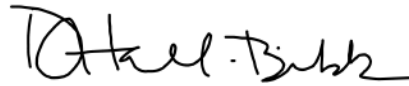
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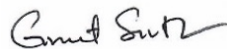
A Dissertation Approved on

November 9th, 2022

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DEDICATION

This dissertation is dedicated to the patients whose stories have yet to be heard.

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Without the support of several significant people, this dissertation would not have been possible. To my committee members – Dawn, Grant, Patrick, and Whitney. Your expertise and support have transformed this work into something I could have only dreamed of in the beginning. To Bellarmine’s PhD in Health Professions faculty – thank you for showing me how to grow and remain true to myself. To Mom and Dad – you have always supported me in life’s endeavors, no matter how crazy they may seem. You have shown me what it means to care for others. To do what is right even though it might not be easy. This process has been far from easy, but it has always been right. To Matthew – thank you for being my inspiration and role model growing up. You have shown me that anything is possible. I hope that one day I can become half the academic you are, although I will likely still message you about correct grammar. To Andrew, my rock – there are not enough thanks to give that would display how grateful I am for you. You have picked me up in the hard times and never let me give up on my dreams. I love you and our fur babies with all my heart. Now it’s on to the next adventure.

ABSTRACT

The purpose of this quantitative study was to investigate the relationship between exposure to pelvic health content in physical therapy school curricula and Doctor of Physical Therapy (DPT) students' comfort levels discussing sexual health issues with future patients. As holistic, autonomous health care providers, physical therapists must be confident in addressing all aspects of health with patients, including sexual health. Lack of attention to patients' sexual issues may result in aspects of health going unaddressed, leading to poor patient care. The research hypothesis was that increased exposure to pelvic health topics within entry level physical therapy education will improve students' comfort levels discussing sexual issues with future patients. This study electronically surveyed a cluster sample of randomly selected physical therapy students within the United States. While no guidelines exist regarding how sexual health topics should be addressed within entry level education, the American Physical Therapy Association Section on Women's Health has provided the most thorough and recent recommendations for physical therapy programs to implement pelvic health topics into curricula. Those recommendations were used to design an electronic survey assessing exposure to and comfort with pelvic health content within students' physical therapy programs, titled the Pelvic Health Curricular Exposure Scale (PHCES). Participants also completed an adapted version of the Students' Attitudes Towards Addressing Sexual Health (SA-SH) questionnaire. Inferential statistics were used to determine the correlation between exposure to pelvic health content in didactic and clinical coursework and students' comfort levels. Results revealed a positive correlation between exposure to pelvic health topics in DPT curriculum and comfort discussing sexual health in future patients. There was also a positive correlation between participating in a pelvic health elective or clinical experience and comfort discussing sexual health in future patients. Based on these findings, DPT programs must make a dedicated effort to implement pelvic health into curriculum and provide students with pelvic health electives and clinical experiences. Future research may consider exploring the best way to integrate pelvic health topics into DPT curriculum using the PHCES as a starting point to assess students' baseline level of informedness and comfort with pelvic health topics.

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DEFINITION OF TERMS

Definition of Sex

The definition of sex is not well understood. Oftentimes, the meaning of sex is implied or not defined at all (Macleod & McCabe, 2019; Sewell & Strassberg, 2015). Lack of a concrete definition contributes to decreased understanding of the concept which negatively impacts policy, research, and practice (Macleod & McCabe, 2019). When comparing different intimate acts, individuals in heterosexual relationships tend to consider “penetrative sex” as a clear-cut example of sex (de Heer et al., 2021). There may be a less finite definition of sex amongst individuals who identify as Lesbian, Gay, Bisexual, Transgender, Queer, Plus, (LGBTQ+) particularly amongst women, as little research exists outside heteronormative relationships regarding this topic (de Heer et al., 2021; Sewell et al., 2017). Within the current study, the term “sex” will refer to any physical component of a sexual act, including penile-vaginal intercourse, receptive anal intercourse, insertive anal intercourse, oral vaginal stimulation, oral anal stimulation, and the manual stimulation of the genitals by means of a body part or device (Sewell et al., 2017). Due to the abstract nature of many of the terms used within this research study, all terms have been defined so that the reader can fully understand the concepts described.

Definition of Sexual Health

The World Health Organization ([WHO], 2017) describes sexual health as “a state of physical, emotional, mental and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction or infirmity” (p. 3). This study will use this definition of sexual health, recognizing that sexual health pertains not only to biological processes, but involves an interplay of emotional, mental, and social systems.

Definition of Sexuality

There is also variability in the meaning of the term “sexuality” within existing literature.

As defined by the WHO, the working definition of “sexuality” is:

a central aspect of being human throughout life encompasses sex, gender identities and roles, sexual orientation, eroticism, pleasure, intimacy and reproduction. Sexuality is experienced and expressed in thoughts, fantasies, desires, beliefs, attitudes, values, behaviours, practices, roles and relationships. While sexuality can include all of these dimensions, not all of them are always experienced or expressed. Sexuality is influenced by the interaction of biological, psychological, social, economic, political, cultural, legal, historical, religious and spiritual factors. (WHO, 2006)

Additionally, a systematic review by Macleod and McCabe (2019) sought to define sexuality in older heterosexual individuals. Of the of 32 articles included within the study, 31 used “sexual expression/behaviors” as a way to define sexuality, both explicitly and in an implied manner.

Therefore, within this study sexuality will be defined as “any behavior related to sexual expression.” This study recognizes the complex relationship between internal and external factors that influence sexuality, and thus, how sexuality is expressed differently by individuals.

Definition of Sexual Dysfunction

“Sexual dysfunction” is an all encompassing term that includes sexual disorders and their physical, emotional, and mental side effects. Lewis et al. (2010) used the term “sexual dysfunction” to describe a variety of sexual disorders, although they did not separate biological from psychogenic causes. This, in and of itself, implies that sexual dysfunction extends far beyond physical symptoms. This study will define “sexual dysfunction” as any medical

condition that negatively impacts one's ability to engage in sex or express one's sexuality. The terms "sexual issues" and "sexual problems" will be used as synonyms to "sexual dysfunction," and will include both physical, emotional, and mental aspects of health.

Definitions of Physical Therapy and Physiotherapy

The terms "physical therapy" and "physiotherapy" will be used as synonyms to describe the practice of "patient and client management, which includes diagnosis and prognosis, to optimize physical function, movement, performance, health, quality of life, and well-being across the lifespan" (American Physical Therapy Association [APTA], 2017, p. 1). This reflects the abundance of literature that has been conducted outside the United States which uses the term "physiotherapy" rather than "physical therapy" to describe the same profession.

Definitions of Pelvic Health and Women's Health

The terms "pelvic health" and "women's health" will also be used synonymously and have historically been used to represent the conditions and topics covered in the "Women's Health Physical Therapy Description of Specialty Practice," which is a document that has been used to guide women's health physical therapy specialty practice, covering foundational, clinical, and behavioral sciences related to pelvic health conditions (APTA, 2021c). For the purpose of this study, "pelvic health" and "women's health" content will be defined as "any medical condition or physical impairment that negatively impacts an individual's pelvic muscle function." This definition is inclusive of everyone along the gender spectrum (e.g., cisgender, non-binary, transgender, etc.), as these conditions do not discriminate based on biological sex, sexual orientation, or gender identity (Jacobson & Joel, 2019).

Chapter 1: Introduction

Sex is a topic that is both taboo yet critical to one's self-identity (Gabb, 2022; Haesler et al., 2016; Pascoal et al., 2017; Senturk Erenel & Cicek Ozdemir, 2020; Træen & Villar, 2020; Traumer et al., 2019; Verschuren et al., 2013; Wittkopf et al., 2018). Addressing sexual issues in a health care setting may seem like a profound idea, yet is a common desire vocalized by an abundance of patient populations seeking to improve all aspects of their health (Barsky et al., 2006; Colson, 2016; Lewis et al., 2010). While a variety of factors contribute to the presence of sexual dysfunction, chronic disease is a frequent component (Barsky et al., 2006; Collins et al., 2018; Colson, 2016). Medical conditions contributing to sexual dysfunction are highly prevalent in today's society including diabetes, obesity, cardiovascular disease, cancer, psychological disorders, and globally poor health (Aba et al., 2020; Benson et al., 2012; Flynn et al., 2012; Lewis et al., 2010). Research indicates that as many as 40-45% of adult women and 20-30% of adult men have some form of sexual dysfunction, with rates rising as high as 90% for individuals with chronic disease (Aba et al., 2021; Bahouq et al., 2013; Benson et al., 2012; Lewis et al., 2010).

Sexual dysfunction also occurs as a result of certain medications, surgeries, and common mobility impairments such as total joint replacements and amputations that affect movement of the body (Aba et al., 2021; Bahouq et al., 2013; Benson et al., 2012; Conaglen & Conaglen, 2013; Geertzen et al., 2009; Ladermann et al., 2018; Morris et al., 2017; Paneerselvam et al., 2021). As movement system experts, physical therapists are the health care providers that will likely be involved in the care of these patient populations, and thus, must be prepared to address sexual health concerns.

Sexual issues such as erectile dysfunction, pelvic pain, decreased arousal, and problems with orgasm influence sexual self-esteem and sexual satisfaction (Kedde et al., 2010). Additional psychological and emotional consequences of sexual dysfunction include shame, guilt, grief, sadness, and issues related to body image (Traumer et al., 2019). Many studies emphasize the importance of addressing patients' sexual health concerns, with benefits ranging from improved mental and physical health, improved quality of life, and relationship success (Gabb, 2022; Haesler et al., 2016; Pascoal et al., 2017; Senturk Erenel & Cicek Ozdemir, 2020; Træen & Villar, 2020; Traumer et al., 2019; Verschuren et al., 2013; Wittkopf et al., 2018). A study by Colson (2016) even correlated improvements in sexual health to improvements in disease states. Sexual health appears to be important to many individuals, regardless of health status. In a study by Flynn et al. (2016), sexual health was seen as a very important aspect of quality of life, even among individuals in poor health. Similarly, research also indicates that sexuality has the same importance to both people with and without physical limitations (Kedde et al., 2010).

Despite the recognized benefits of talking about sexual health with patients, Traumer et al. (2019) describe discussing sexuality in a health care setting as a "two-way taboo," where both patients and providers avoid initiating these conversations (p. 58). Over time, lack of communication can lead to sexual problems worsening (Katz et al., 2021). While patients prefer that the provider initiate conversations about sexual health, those patients who bring up sexual issues often feel rejected or dismissed as a result of health care providers' lack of comfort with and attitudes towards discussing sexual health and sexuality (Healy et al., 2019; Julien, 2010; Traumer et al., 2019). Despite the fact that health care professionals must engage in discussion about sexual health with patients to provide holistic care, studies suggest that providers are not comfortable in doing so (Arikan et al., 2014; Byrne et al., 2010; Cherpak & Santos, 2016;

Kotronoulas et al., 2009; Pascoal et al., 2017; Saunamaki et al., 2010). A variety of provider-related reasons why sexual health goes unaddressed are identified in the literature, including but not limited to: embarrassment, lack of training, lack of experience, time constraints, differences in gender or sexual orientation, issues related to culture and religion, perception that it is someone else's responsibility, and fear of offending the patient (Areskoug-Josefsson & Gard, 2015b; Areskoug-Josefsson, Juuso, et al., 2016; Areskoug-Josefsson, Larsson, et al., 2016; Arikan et al., 2014; Brandenburg & Bitzer, 2009; Byrne et al., 2010; Cherpak & Santos, 2016; Dockter et al., 2021; Dyer & das Nair, 2013; Eeltink et al., 2019; Fennell & Grant, 2019; Haesler et al., 2016; Leonardi-Warren et al., 2016; McGrath & Lynch, 2014; Pascoal et al., 2017; Shindel et al., 2010; Ussher et al., 2013). Similar barriers to engaging in dialogue about sexual health with patients have been reported by students in the health professions, including physical therapy students (Areskoug-Josefsson & Gard, 2015a; Areskoug-Josefsson, Larsson, et al., 2016; Dockter et al., 2021; Pynor et al., 2005; Wittkopf et al., 2018).

Background & Significance

A diverse array of health care professionals cite sexual health care as the responsibility of their profession including rehabilitation providers (Gianotten et al., 2006). As autonomous health care providers, physical therapists must be capable of evaluating all functional limitations, even those pertaining to sexual health. In the United States, physical therapists can, to some extent, evaluate and treat patients without the oversight of a physician, termed direct access (APTA, 2022). Physical therapists who received their degree in another country or prior to 2016 can still participate in clinical practice with a bachelor's or master's degree. However, current entry level physical therapists in the United States must attain a professional doctorate degree and pass a national licensure exam, which prepares them to perform a review of body systems, including a

review of the genitourinary and reproductive systems (APTA, n.d.). This is a foundational skill for all physical therapists according to the *Guide to Physical Therapist Practice*, which is a document established by the profession's governing body (APTA, 2021a).

As health care providers who often serve as the first point of patient contact, physical therapists must be capable of addressing a wide variety of health related issues “grounded in basic, behavioral, and clinical sciences (APTA, 2017, p. 1). As outlined in the *Guide to Physical Therapist Practice*, physical therapists are:

health care professionals who help individuals maintain, restore, and improve movement, activity, and functioning, thereby enabling optimal performance and enhancing health, well-being, and quality of life. Their services prevent, minimize, or eliminate impairments of body functions and structures, activity limitations, and participation restrictions. (APTA, 2014)

As demonstrated by this description of the profession, physical therapists seek to maximize patient function. The emergence of a board certification in women's health physical therapy in 2006 acknowledged the importance of treating sexual health needs within the scope of physical therapy (Academy of Pelvic Health Physical Therapy, 2022a). Sexual dysfunction is a common diagnosis seen by those physical therapy specialists performing pelvic health rehabilitation, but treatment should not be isolated to this group alone. According to the “Guidelines for Women's Health Content in Professional Physical Therapist Education,” entry level physical therapists should have some level of familiarity with pelvic health topics, including sexual issues (Section on Women's Health, 2005). Despite the holistic nature of physical therapy practice, many providers without post-graduate training in pelvic health may be uncomfortable in dealing with topics related to sexual health.

Because of the high prevalence of sexual dysfunction in a variety of patient populations, entry level physical therapists practicing in other settings should be competent to address sexual concerns (Barsky, 2006; Colson, 2016; Lewis et al., 2010). The impact of neuromusculoskeletal deficits on sexual function are soundly supported in the literature. Specifically, sexual dysfunction is a common concern of individuals with mobility impairments, including those with orthopedic issues such as low back pain, obesity, shoulder pain, joint replacements, and amputations.

Low back pain causes more disability around the world than any other condition (Centers for Disease Control and Prevention [CDC], 2022a). Up to 72% of patients with low back pain report some form of sexual dysfunction, including decreased libido and decreased sexual satisfaction (Bahouq et al., 2013; Paneerselvam et al., 2021). A study by Ferrari et al. (2020) interviewed patients with low back pain to determine the relationship between low back pain and factors related to their sexual life. Participants expressed fears about making their back condition worse and a need for physical and emotional support regarding their concerns. Nearly 90% of respondents indicated that physical therapists were qualified to provide advice related to movement during sexual activity and were also viewed as capable of providing emotional support and reassurance to the patient (Ferrari et al., 2020).

Individuals who classify as obese are also at an increased risk for sexual problems. In 2017-2018, there was a 42.4% prevalence of obesity in the United States (CDC, 2021). In one case control study, 68.7% of women with obesity (body mass index equaling 30 kg/m² and above) had sexual dysfunction compared to 43.5% of women who were of normal weight (Aba et al., 2021). Men who are obese may be even more at risk for sexual dysfunction. A study by Ho et al. (2019) found that 72% of a group of men with severe obesity had erectile dysfunction. The

presence of diabetes mellitus within this group was believed to be another significant factor contributing to sexual problems.

Diabetes mellitus is a well-known risk factor for sexual dysfunction, with 35-90% of diabetic men reporting erectile dysfunction (Maiorino et al., 2017). Sexual problems related to diabetes may hinder glucose control and ability to manage other diabetic symptoms (Colson, 2016). Additionally, erectile dysfunction is considered a “marker of future cardiovascular events,” and it was associated with an increase in cardiovascular morbidity and mortality by two-fold in one study (Maiorino et al., 2017, p. 785). While sexual dysfunction has not been shown to be an independent risk factor for future cardiovascular events in women with diabetes, there has been an association with other chronic medical conditions such as hypertension, hyperlipidemia, depression and obesity (Maiorino et al., 2017; Pontiroli et al., 2013). Women with diabetes are also more likely to report female sexual dysfunction than controls, particularly if their body mass index is greater than 24 kg/m² (Pontiroli et al., 2013).

Individuals with shoulder pain are also at risk for sexual dysfunction. A study by Lädermann et al. (2018) demonstrated the impact of specific sexual positions on subacromial space height. Participants were examined using patient-specific 3D models of the shoulder obtained with MRI and motion analysis demonstrating common sexual positions. Results supported the hypothesis that certain sexual positions can stress the rotator cuff muscles due to decreased subacromial height space, suggesting that those with limitations in shoulder mobility and strength may benefit from education on sexual positions to maintain shoulder integrity (Lädermann et al., 2018).

Concerns related to positioning during intercourse are also reported in the amputee population. Geertzen et al. (2009) conducted a systematic literature review to investigate the

research on sexual health in amputees. All studies included in the review indicated some form of sexual dysfunction following amputation, many of which discussed positioning as a concern. The review stated that 13-75% of amputees are not satisfied with their sexual life, despite continued interest in sex following their amputation (Geertzen et al., 2009). Similar findings were discovered in a study by Woods et al. (2018) who examined sexual function and psychological factors in individuals with lower extremity amputations. Results showed that 60% of the participants who were still sexually active experienced sexual dysfunction. Sexual dysfunction was also correlated with higher levels of anxiety, depression, and issues related to body image during sexual activity (Woods et al., 2018).

Patients receiving joint replacements are also impacted by mobility deficits and subsequent sexual dysfunction. According to Couch et al. (2018), sexual intercourse poses a risk for dislocation following hip arthroplasty. These findings were also supported by Charbonnier et al. (2014), who indicated that women were even more at risk for dislocation than men based on their anatomy. Despite these risks, a study by Ugwuoke et al. (2020) suggests that surgeons do not routinely discuss sex with their patients after hip replacement. Greater than 90% of patients surveyed stated that they wanted the surgeon to discuss the subject with them (Ugwuoke et al., 2020). A systematic review by Neonakis et al. (2020) reported that surgeons who do discuss sex with their patients spend less than five minutes on the topic. As physical therapists are likely to spend more time with patients, they may be the professional better suited to provide education on safe positioning during sex following a hip replacement.

Undergoing total knee arthroplasty is also known to temporarily limit patient active knee flexion and ability to kneel or bear weight on the surgical side, contributing to problems maintaining sexual positions (Kazarian et al., 2017). Research suggests that there is a disconnect

between pre-operative expectations and post-operative outcomes in regard to sexual function following a knee replacement. Kazarian et al. (2017) surveyed 91 sexually active patients who had received a total knee arthroplasty and found that while 21% of patients expected their sexual function to improve after surgery, only 6% reported a positive change at 12 months follow up. Sexual positioning and orthopedic complaints are interrelated, demonstrating the need for physical therapists to address issues such as body mechanics and proper positioning in the patient care plan. Based on the findings of these studies, it is likely that a substantial number of individuals across the world may suffer from sexual dysfunction as a result of limited mobility and chronic disease.

Similar concerns related to sexual function are vocalized by oncology patients (Flynn et al., 2012; Gilbert et al., 2016; Kaplan & Pacelli, 2011; Kotronoulas et al., 2009; Leonardi-Warren et al., 2016; Ussher et al., 2013). An estimated 80% of cancer patients experience sexual dysfunction (Traumer et al., 2019). Despite a high prevalence, health care providers do not routinely discuss sexual health with patients diagnosed with cancer. A study by Gilbert et al. (2016) examined the experiences of 657 individuals and their partners related to discussing sexuality with health care providers following a cancer diagnosis. Survey results indicated that discussions about sexuality were more likely to occur with male patients than with female patients following cancer, and with female partners compared to male partners (Gilbert et al., 2016). Additionally, of those same individuals, 79 were selected to participate in interviews related to the delivery of sexual health information by health care providers. Qualitative analysis revealed reports of unwillingness of health care providers to initiate conversations related to sexuality, leading to unaddressed questions regarding sexual issues.

The negative impact of radiation treatment for prostate cancer on sexual well-being is well supported in the literature. Erectile dysfunction is the most frequently reported long term side effect of prostate cancer treatment, with an incidence of 20-90% (Albaugh et al., 2017; Benson et al., 2012). Of those with prostate cancer, 50% report that their sexual health needs remain unmet (Cormie et al., 2013). Individuals often report anxiety, depression, and frustration related to the sexual dysfunction (Albaugh et al., 2017). With a lifetime risk of 1 in 6, prostate cancer is a disease impacting many older adults utilizing health care services (Benson et al., 2012). Similar side effects are seen with radiation therapy to treat uterine, cervical, vaginal and anorectal cancers. Vaginal stenosis, a shortening and tightening of the vaginal canal, has an incidence of 1.25-88% following radiation therapy to treat gynecological cancers (Morris et al., 2017). Vaginal stenosis often contributes to subjective complaints of pain with intercourse, which can lead to subsequent frustration and negative consequences in intimate relationships (Faccin et al., 2021). Literature suggests that cancer survivors' sexuality should be routinely assessed, including at diagnosis and after treatment. This includes examining the pelvis for abnormalities and pelvic floor muscle strength, which lies within the scope of physical therapy practice (Mishra et al., 2021).

Additionally, Rhoten et al. (2020) examined how patients prefer to receive information related to sexuality following a diagnosis of head or neck cancer. Over half the participants indicated that they preferred to receive information from a health care provider, as opposed to printed, web-based, or no educational material. In addition, self-report scales of sexual function did not adequately address issues related to physical impairments, indicating the importance of face to face interaction with patients regarding sexual function following a cancer diagnosis (Rhoten et al., 2020). As rehabilitation providers are often an integral component of patient care

following a cancer diagnosis, it is important that these professionals address patients' sexual health concerns.

Individuals with neurological disorders are also at risk for sexual dysfunction, including but not limited to multiple sclerosis, spinal cord injury, stroke, traumatic brain injury, dementia, epilepsy, Parkinson's disease, spina bifida, cauda equina injury, and neuromyelitis optica (Hentzen et al., 2022). Not only do these diseases change how an individual processes sexual stimuli, but they also contribute to deficits that limit one's ability to physically participate in sexual intercourse. Additionally, bowel and bladder function are often impaired, contributing to additional emotional stress and potential embarrassment about losing control bladder and bowels during intimate moments with loved ones (Calabrò, 2018). A survey by Manninen et al. (2022) found that general practitioners are less likely to inquire about sexual issues amongst patients with neurological diseases than those without, even during an appointment related to a gynecological issue. While sexual dysfunction in these populations may originate in the brain and spinal cord, secondary factors such as spasticity, pain, and fatigue can also contribute to sexual issues (Hentzen et al., 2022). Physical therapists working with patients with neurological disorders must be prepared to address sexual issues that arise secondary to changes to the nervous system.

As the general population continues to age, there is an increasing rate of polypharmacy to treat chronic health conditions. A recent review of literature by Khezrian et al. (2020) suggests that as many as 10-90% of adults over sixty-five engage in polypharmacy, defined as taking five or more medications. In the United States, the general polypharmacy rate has risen from 6.3% to 10.7% from the early 1990's to the mid 2000's (Khezrian et al., 2020). Sexual dysfunction is a side effect of common medications used to treat medical conditions such as hypertension,

depression and mood disorders, and prostate cancer (Brody & Gu, 2020; Carey, 2006; Cetin et al., 2013; Dennis et al., 2020; Fang et al., 2022; Geerkens et al., 2020; Santana et al., 2019; Zhong & Anderson, 2022). These prescription medications contributing to sexual dysfunction include antihypertensives, antidepressants, antipsychotics, and antiandrogens (Carey, 2006; Conaglen & Conaglen, 2013).

High blood pressure is a growing problem in the United States, with as many as 29.4-40% of Americans reporting a hypertension diagnosis (Samanic et al., 2020). Standard treatment for high blood pressure includes medication and lifestyle changes (Fang et al., 2022; Santana et al., 2019). Medication use for this condition ranges from 54.3-84.7%, with increased medication use observed in more rural areas, among older age groups, women, and among non-Hispanic black individuals (Samanic et al., 2020). While antihypertensives have been more frequently studied in men than women, beta blockers have been shown to have a negative effect on sexual function in both men and women compared to other medications (Carey, 2006; Zhong & Anderson, 2022). Literature suggests that 69.2% of women and 20% of men taking beta blockers have sexual dysfunction (Conaglen & Conaglen, 2013; Zhong & Anderson, 2022).

Depression is another medical condition that affects many Americans. In 2018, 7.2% of Americans reported a major depressive episode (Brody & Gu, 2020). The prevalence of self-reported depression is even higher, with 20% of adults reporting symptoms of depression (Shim et al., 2011). Treatment for depression often includes medication use, including anti-depressants (Brody & Gu, 2020). Brody and Gu (2020) found that 13.2% of adults reported anti-depressant use in the last month, with increased medication use observed in women, non-Hispanic white individuals, and adults with some college education. A study by Pratt et al. (2017) found that 25% of people taking anti-depressants have done so for 10 years or more. Additionally, a study

by Carey (2006) stated that 34.2% of men and 32.5% of women taking these medications reported anti-depressant induced sexual dysfunction. The use of anti-depressants is on the rise, particularly in women, indicating a potential rise in sexual dysfunction within this group (Brody & Gu, 2020).

Antipsychotics are another, separate category of medications which are used to treat other forms of mental illnesses. This includes treatment for schizophrenia, bipolar disorder, major depressive disorder, sleep disorders, or other mood and anxiety disorders (Dennis et al., 2020). A study by Dennis et al. (2020) found that approximately 3.8 million adults in the United States take anti-psychotics. Individuals were primarily between the ages of 45-64, had lower levels of education, were obese, self-reported worse health, and were more likely to smoke. Frequency of sexual dysfunction related to anti-psychotics varies by drug, but have been reported to range from 18.2-42.3% (Carey, 2006).

Sexual dysfunction is also a common side effect of antiandrogens, which are used as an intervention for individuals with prostate cancer (Cetin et al., 2013; Geerkens et al., 2020). According to Geerkens et al. (2020), androgens help to maintain libido and erectile function. Additionally, antiandrogen therapy has been associated with other psychological and physical side effects such as depression, weight gain, and insulin resistance (Geerkens et al., 2020). A study by Cetin et al. (2013) suggested that in 2008 nearly 200,000 men over 45 years old in the United States received androgen deprivation therapy for treatment of nonmetastatic prostate cancer for over a 6-month period. Antiandrogens can also be used as treatment for transgender women seeking further feminization (Angus et al., 2021). Transgender individuals who have undergone this type of treatment are at an increased risk for medical conditions such as osteoporosis, cardiovascular disease, diabetes, and deep vein thrombosis (Copti et al., 2016).

Although not every individual taking antiandrogens experiences sexual dysfunction due to use of this medication, it is possible that a significant number may experience sexual problems as a result of other unintended medical issues that arise during treatment. Even when sexual issues result due to medication use, physicians still remain hesitant to discuss sexual function. One study found that while the majority of general practitioners believed patients' sexual dysfunction was a side effect of medication, only 17.9% of them followed up about the patients' concerns (Manninen et al., 2022). While many people are taking medications for chronic conditions in the United States, the negative sexual side effects are not being well managed.

Recreational drugs such as alcohol, narcotics, stimulants, and hallucinogens also have a negative effect on sexual function (Carey, 2006; Conaglen & Conaglen, 2013). According to the CDC, illegal drug and alcohol use have increased in the last several years (CDC, 2022b). In 2019, 24.9% of individuals ages 18-25 were using illicit drugs and 23% were using marijuana. Additionally in 2019, 54.3% of individuals ages 18-25 were engaging in alcohol use, as well as 64.3% ages 26-34. Research indicates that excessive alcohol use contributes to decreased libido, arousal, and problems with ejaculation and orgasm (Carey, 2006). As drug and alcohol use is on the rise in the United States, increased prevalence of sexual dysfunction may result.

It is clear that sexual health concerns are common for individuals experiencing physical barriers, receiving surgery for health conditions, and who take prescription or recreational drugs. Sexual dysfunction is widespread across patient populations in which physical therapists will interact. Although rehabilitation providers are well equipped to treat neuromuscular impairments and associated functional mobility deficits of these patients, they often report difficulty engaging in conversation about sexuality with patients despite its close connection to overall well-being (Gabb, 2022; Haesler et al., 2016; McGrath & Lynch, 2014; Pascoal et al., 2017; Senturk Erenel

& Cicek Ozdemir, 2020; Træen & Villar, 2020; Traumer et al., 2019; Verschuren et al., 2013; Wittkopf et al., 2018).

As the importance of sex and sexuality become more acknowledged and openly discussed by the American public, concerns related to sexual issues may arise more frequently in physical therapy practice, regardless of the setting. Thus, entry level physical therapists need to be comfortable discussing sexual issues with a diverse array of patients with a wide variety of needs. However, research related physical therapy students' comfort level discussing sexual health with future patients is lacking.

While there is limited research examining physical therapy students' comfort levels discussing sexual issues with patients, it is evident that a wide array of factors may influence students' comfort levels, with perceived lack of training and education frequently cited as a barrier (Areskoug-Josefsson, Juuso, et al., 2016; Areskoug-Josefsson, Larsson, et al., 2016; Dockter et al., 2021; Jones et al., 2005; Pynor et al., 2005; Witkopf et al., 2015). One study that surveyed healthcare providers found that 60% of practicing physical therapists, speech therapists, and occupational therapists felt that they were "trained very insufficiently" on the topic of sexuality (Gianotten et al., 2006). If practicing clinicians do not feel that they have received enough training to adequately address patient sexuality, it can be presumed that their entry-level education has not prepared them to do so.

Purpose Statement

No study to date has examined physical therapy curricula to determine if exposure to specific pelvic health content in entry level physical therapy education impacts students' comfort levels discussing sexual health with future patients. Investigating components of physical therapy curricula will help to determine if students feel that they are being adequately prepared to consult

patients on aspects of sexual health care and will help to identify topics in which students are not receiving sufficient training.

Thus, the purpose of this quantitative research study was to determine if exposure to pelvic health topics in physical therapy entry level education impact Doctor of Physical Therapy (DPT) students' comfort levels discussing sexual issues with future patients.

Specific Aims

As physical therapists are autonomous self-directed health care providers, it is essential that they are comfortable addressing all aspects of health, including sexual health. Based on the current research, physical therapy students are not comfortable discussing sexual health with patients, despite the benefits to patient well-being (Gabb, 2022; Haesler et al., 2016; McGrath & Lynch, 2014; Pascoal et al., 2017; Senturk Erenel & Cicek Ozdemir, 2020; Træen & Villar, 2020; Traumer et al., 2019; Verschuren et al., 2013; Wittkopf et al., 2018). No literature exists regarding how exposure to pelvic health content in physical therapy entry level education impacts student comfort levels. This quantitative study aims to examine the correlation between exposure to pelvic health content delivered in physical therapy curricula and students' comfort levels discussing sexual health issues with future patients. The research hypothesis was that increased exposure to pelvic health topics in entry level physical therapy education will increase students' comfort levels discussing sexual health with future patients.

Aim 1: To evaluate physical therapy students' comfort level discussing sexual health utilizing an adapted version of the Students' Attitudes Towards Addressing Sexual Health questionnaire (SA-SH) as an indicator of comfort. The SA-SH been shown to be both a reliable and valid tool in previous research with Swedish physical therapy students (Areskoug-Josefsson, Juuso, et al., 2016).

Aim 2: To provide a framework for understanding how physical therapy curricula impacts students' comfort level discussing sexual health. The current study is the first of its kind to examine physical therapy curricula at accredited schools across the United States from a student's perspective and will help to identify topics in which students are not receiving sufficient training.

Aim 3: To determine if students feel that they are being adequately prepared to consult patients on aspects of sexual health care. Educators will then be able to ascertain whether gaps in the curriculum exist that need to be addressed to improve students' comfort levels.

Chapter 2: Literature Review

A review of the literature was conducted using online databases including EBSCOhost, Science Direct and PubMed accessible through Bellarmine University. Journals of specific interest included but were not limited to: *International Journal of Sexual Health, Sexuality and Disability, The Journal of Sexual Medicine, Journal of Women's Health Physical Therapy, and Disability and Rehabilitation*. A preliminary search was conducted using terms such as *sexual health, attitudes, comfort, health care professionals, physical therapy, physiotherapy, physical therapy education, physical health professional students, and patients*. Additionally, reference lists of selected articles were explored for relevant sources that met search criteria. Inclusion criteria included articles or books published in the last twenty years that could be obtained through Bellarmine University Library. Exceptions were made for those articles discussing original outcome measures or seminal studies published prior to 2002. Both qualitative, quantitative, and mixed methods studies were included. Exclusion criteria included literature examining the pediatric population.

Theoretical Framework

The History of Sex

In early American history, conversations related to sex typically occurred in the home (Huber & Firmin, 2014). Abstinence until marriage was a moral expectation, grounded in religious beliefs and the idea that sex should be utilized as a means of procreation (Huber & Firmin, 2014). Sex as a recreational activity was not visible in mainstream society until the 1920's. During this time, public discussions began to occur regarding the purpose of sex and sex education in schools. Advocates for sex education argued that "mystery and silence were not effective in keeping young people sexually abstinent" (Huber & Firmin, 2014, p. 30). While sex

education at this time was primarily designed to help adolescents and young adults control their sexual desires and prevent sexually transmitted infections, the emergence of sex education served as a precedent for the need to openly discuss sexual health. The 1960's and 1970's were considered the sexual revolution era, where topics such as sexual gratification, sex without emotional connection, and sex for pleasure were on public display (Huber & Firmin, 2014). Into the 1980's, organizations such as the Sexuality Information and Education Council of the United States, Advocates for Youth, and Planned Parenthood received increased federal funding, which promoted additional public awareness and further discussion on the purpose of sexual education (Huber & Firmin, 2014). Furthermore, the discovery of the human immunodeficiency virus (HIV) contributed to ongoing discourse regarding the impact of unprotected sex and same sex relationships. Despite steady efforts to raise awareness regarding sexual health, discomfort regarding sexual topics continued to have deep roots in American culture.

Social Constructionism and Sexual Stigma

Prior to the 1960's, the roots of sexuality were not frequently questioned (Jackson et al., 2010). Sexuality was seen through the lens of psychoanalysis, with biological and psychological underpinnings, highly influenced by the work of Sigmund Freud. Freud described sexuality as a developmental process, in which individuals went through a series of stages (Johnson, 2015). Sexuality was believed by sexual health professionals to have origins in hormones, drives, and genetics (Johnson, 2015). The first theory of the social construction of sexuality emerged from the work of John Gagnon and William Simon. In opposition to Freud's works, Gagnon and Simon posited that "sexual conduct and the sexual self are fully social, embedded in wider patterns of sociality" (Jackson et al., 2010, p. 14).

This study is framed through the lens of social constructionism, which is defined as “the perspective which believes that a great deal of human life exists as it does due to social and interpersonal influences” (Gergen, 1985, p. 265 as cited in Galbin, 2014). Language helps to shape reality which is socially constructed (Galbin, 2014). It is through this lens that the lack of discussion related to sexual health in health care has negatively contributed to health outcomes. Consequently, our beliefs and views of the world are also socially constructed. Categories that describe sexuality are socially produced and obtain meaning through social, cultural, and historical resources (Johnson, 2015). Factors such as societal attitudes, an individual’s development, experience, and personal value system all contribute to sexuality (Fisher et al., 1988 as cited in Cohen et al., 1994). Additionally, differences in society are socially constructed through relations of power and privilege (Kang et al., 2017). In essence, individuals who deviate from social norms are seen as inferior. Social influences on sexuality contribute to sexual stigmas associated with a variety of populations including those who are mentally or physically impaired and the elderly. For example, titles are given to these individuals including “asexual, childlike and innocent” (Ditchman et al., 2017, p. 245). According to Mona et al. (2017), people with disabilities are the largest minority group in world. In individuals with disabilities, sexual health is critical to mood management and emotional wellness (Mona et al., 2017). Lack of attention to sexual health in these groups demonstrates health care discrimination based on ability.

Sexual minorities, including individuals who are attracted to people of the same gender or those who identify as lesbian, gay, bisexual, transgender, or queer (LGBTQ), are another group that also face stigma related to sexual health and sexual practices (CDC, 2019). Sexual orientation and gender identity are evolving in a progressive world. According to the Household

Pulse Survey conducted by the U.S. Census Bureau (2021b), 7.7% of respondents identified as either gay, lesbian, or bisexual. Four percent of respondents also identified as “something else” or responded, “I don’t know” to the question regarding sexual orientation. According to Fredriksen-Goldsen et al. (2013), this number is expected to increase. By 2030, it is anticipated that over 6 million Americans over age 50 will identify as lesbian, gay, or bisexual (Fredriksen-Goldsen et al., 2013). These individuals may face discrimination and stigma during their lives, resulting in a higher stress response and thus, worse physical health statuses (Bogart et al., 2013). Recent literature has indicated that groups experiencing sexual stigma, such as lesbian, gay male, and bisexual older adults, tend to have poor levels of overall health, disability, and depression (Fredriksen-Goldsen et al., 2013). Despite more recent attempts to provide non-discriminatory health care practices, many populations are still suffering from negative health outcomes due to sexual stigma and healthcare providers that are uninformed and insensitive (Copti et al., 2016).

From a social constructionism lens, it appears that beliefs about the purpose of sex have been altered by society, stemming back to the early 1900’s. Any diversion from the early ideas that sex should be used primarily for procreation are still to this day seen as deviant in many cultures and countries. Consequently, groups stigmatized by common societal views, such as those identifying as LGBTQ+ or disabled, have been impacted by the views that sex should occur in specific ways, and be reserved for only specific populations. These early beliefs about sex remain deeply ingrained in American culture. When conversations about topics related to sex occur, society still views them as abnormal and uncomfortable. Topics do not have to directly involve the physical act of sex to be seen as uncomfortable. This negative association may occur while discussing other topics, such as anatomy of the pelvis, sexually transmitted infections, contraceptives, fertility, and relationships (Kendall et al., 2003; Witkopf et al., 2015). While

social constructionism explains in part why conversations regarding any aspect of sexual health do not occur, the role of environmental, personal, and behavioral factors cannot be ignored.

Social Cognitive Theory

This study is also framed through the lens of social cognitive theory. This theory states that “human behavior is the product of the dynamic interplay of personal, behavioral, and environmental influences” (Glanz et al., 2008, p. 170). Personal factors such as attitudes, beliefs, assumptions, and knowledge about sex influence a person’s willingness to engage in conversations related to sex. Outcome expectations, or the expectations related to how people will evaluate our behavior, influence openness to initiate conversations related to sex (Glanz et al., 2008). If an individual perceives the risk about initiating dialogue as greater than the reward, conversation about sex will likely not occur. For example, an assumption that an individual would be offended if asked about sexual dysfunction may impact the likelihood of the conversation occurring. However, once an individual places value on a specific outcome, such as improving patient care, he or she is more likely to perform the necessary behaviors to achieve that result. This highlights the importance of promoting high quality patient care in clinical practice.

Environmental factors also impact a person’s willingness to engage in dialogue related to sex. Factors such as upbringing, social support, and social norms can contribute either positively or negatively to reinforce or abolish a behavior (Glanz et al., 2008). For example, if an individual has grown up in a household where the purpose of sex is for procreation rather than recreation, this then shapes how the person engages with others about conversations related to sex. Furthermore, the language from one’s environment that is heard regarding sex or conversations that go unspoken about sex also shape how an individual chooses to interact or disengage with

this topic. Engaging in regular, ongoing discussions related to sex in physical therapy entry level education can provide students with a learning environment that promotes future conversations.

Behavioral factors that influence individuals' actions include practice, skills, and self-efficacy, or the self-capacity to affect one's own life and outcomes (Glanz et al., 2008). Glanz et al. (2008) offers many suggestions on how to improve self-efficacy, including mastery experiences, social modeling, improving physical and emotional states, and verbal persuasion. Given these suggestions, it is clear that self-efficacy can be improved with proper implementation in entry level physical therapy education. Based on this aspect of the social cognitive theory, students would improve their self-efficacy addressing sexual health concerns with future patients through use of language meant to boost confidence, reducing stress and fear associated with these conversations, demonstrating and modeling the behavior, and ensuring the students' success through solving problems about sexual dysfunction in a clinical context (Glanz et al., 2008).

Outcome Measures

A variety of tools are available that examine student and practitioner comfort addressing issues related to sex and sexuality. The most common scales in recent literature are the Comfort Scale Questionnaire, the Knowledge, Comfort, Approach and Attitudes towards Sexuality Scale (KCAASS), the Scale of Knowledge, Comfort and Attitudes of Physiotherapy undergraduate Students (SKCAPS), the Students' Attitudes Towards Addressing Sexual Health (SA-SH) questionnaire, and adapted versions of these scales.

One of the earliest scales used in sexuality research was the Comfort Scale Questionnaire, developed by Cohen et al. (1994). The questionnaire consists of 19 items in which the rater self-reports comfort dealing with various situations related to sex and sexuality on a Likert scale. For

example, one question asks the participant to rate his or her comfort in regard to “conducting a physical examination that involves exposure of the breasts or genitalia” (Jones et al., 2005, p. 99). While first utilized to assess the impact of an interdisciplinary workshop on sexuality, the scale was later used to assess the attitudes of Australian occupational therapy students in clinical practice (Cohen et al., 1994; Jones et al., 2005). This study by Jones et al. (2005) utilized the original Comfort Scale Questionnaire with the addition of one question asking students to indicate whether their educational program had prepared them to deal with each of the questionnaire scenarios. Data analysis within this study provided a Cronbach’s alpha coefficient of .8987, indicating excellent reliability. This same modification to the Comfort Scale Questionnaire was used by Pynor et al. (2005) to assess the attitudes of physiotherapy students in clinical practice. While the information provided by Pynor et al. (2005) suggests that Cohen’s Comfort Scale had been previously validated, there were no references to the validation study and research validating the scale could not be identified through this literature search.

The Knowledge, Comfort, Approach and Attitudes towards Sexuality Scale (KCAASS) is also commonly reported and assesses domains including knowledge, comfort, approach, and attitudes towards sexual issues. Kendall et al. (2003) developed the KCAASS to initially use with a variety of health care providers treating individuals with spinal cord injuries. The questionnaire was based on the work of Dunn (1983), who examined comfort levels regarding situations related to sex that might occur with patients with spinal cord injuries. It consists of 45 items divided into four sections, measured on a four-point Likert scale. Within the article by Kendall et al. (2003), the knowledge domain assessed level of knowledge related to 14 topics, including but not limited to anatomy, fertility, contraception, and sexual preference. The comfort domain assessed level of comfort with 26 different scenarios including topics such as

masturbation, pornography, and orgasm. Participants were also provided with seven statements related to spinal cord injury and sexuality and were then asked to rate their level of agreement with the statements. Participants were then asked to state whether their answer would change if the individual did not have a spinal cord injury. This section covered both the approach and attitude domains. Content validity of the scale was determined by a panel of content experts in the field of spinal cord injury rehabilitation. The scale was refined following item analysis and reliability analysis (Kendall et al., 2003). While the scale demonstrated high internal consistency, the Attitude subscale showed weak correlation to the composite score indicating a need to view this subscale independently. The use of subscales is recommended to determine effectiveness of educational programming designed to impact each area (Kendall et al., 2003). The validity of this scale when used with other patient populations is questionable, likely due to its specificity towards providers working with individuals with spinal cord injuries. Pebdani and Saeki (2020) used exploratory factor analysis to determine the scale's validity with rehabilitation counseling students. Results indicated that KCAASS was not a valid instrument for use with rehabilitation counseling students, likely due to differences in education and training compared to the audience for which the scale was originally created (Pebdani & Saeki, 2020).

Rahman et al. (2016) sought to determine the reliability and validity of an adapted version of the KCAASS among Malaysian health care providers. This included physicians, occupational therapists, physiotherapists, and nurses. The scale was adapted by removal of the phrase "spinal cord injuries" and replacing it with "physical disability" in six of the statements. According to Cronbach's alpha values, the internal consistency was demonstrated to be acceptable to excellent for all domains ($\alpha = 0.785-0.966$), with the highest value in the comfort domain ($\alpha = .966$). Face and content validity were also determined to be good. Although

commonly used in research to assess health care providers' beliefs, little is known about the reliability or validity of these specific scales when used to investigate the beliefs of physical therapy students.

Several studies have attempted to validate other outcome measures with students. A study by Witkopf et al. (2015) examined the reliability and validity of the SKCAPS among physiotherapy students. Consisting originally of 50 items, the scale underwent phases of content validation, construct validation, reliability, and testing. The final version of the scale consisted of 37 items, which assessed four domains related to comfort, knowledge related to comfort, discomfort and attitudes. Two of the domains were assessed by having the student rate themselves on 11 questions with a Likert scale. Items included but were not limited to comfort with sexuality with physical disabilities, specific terminology related to diagnoses impacting the reproductive system, and contraception. The discomfort domain was measured by having the student rate their discomfort with seven questions related to hypothetical scenarios that could occur during a therapy session with a patient. Scenarios included questions such as, "how would you feel if a patient of the same sex invited you for a date?" Additionally, students were asked to rate their level of agreement with 8 statements to assess the attitude domain. For example, students were asked to rate their agreement with the following statement: "I do not consider the duty of the physiotherapist to guide patients about sexual activities." Any items where the Content Validity Index was less than .80 were excluded. Cronbach's alpha demonstrated good internal consistency ($\alpha = 0.861$). Construct and content validity were also determined to be good (Witkopf et al., 2015).

Furthermore, Areskoug-Josefsson, Jusso et al. (2016) examined the validity and reliability of the SA-SH questionnaire in a group of health professional students in Sweden. This

included nursing, occupational therapy, and physiotherapy students. The questionnaire includes 22 items measured on a five-point Likert scale, which investigate the attitudes of rehabilitation students towards working with sexual health in their future professions. Questions included but were not limited to comfort related to “initiating a conversation regarding sexual health with future patients,” “discussing sexual health issues with future patients regardless of their age,” and “discussing sexual health issues with future patients regardless of their sexual orientation.” Questions also inquire about the participant’s education, and other issues such as embarrassment and fear. According to Cronbach’s alpha values, internal consistency reliability was shown to be acceptable to good ($\alpha = .61$). This value increased ($\alpha = .71$) with the re-test group. Construct and face validity was also shown to be good (Areskoug-Josefsson, Juuso, et al., 2016).

Although an assortment of outcome measures have been used to assess health care providers’ beliefs related to sexuality, the SKCAPS and SA-SH appear to be the most valid and reliable tools to use with rehabilitation professional students.

Medicine, Nursing, and Sexual Health

While a variety of health care professions cite the importance of being involved in the sexual health care needs of patients, the majority of research stemmed from examining physicians’ and nurses’ experiences discussing sexual health with patients (Adams, 2014; Arikan et al., 2014; Brandenburg & Bitzer, 2009; Byrne et al., 2010; Cherpak & Santos, 2016; Kotronoulas et al., 2009; Pascoal et al., 2017; Saunamaki et al., 2010; Saunamaki & Engstrom, 2014; Tsimtsiou et al., 2006). Historically, physicians were seen as the gatekeepers to manage patients’ chronic disease (Barsky, 2006). As medical practices have begun to incorporate the biopsychosocial model into patient care, sexual issues are viewed as diseases processes with mental and emotional components (Barksy et al., 2006). Furthermore, recent literature suggests

that practitioners in the medical field receive little to no training to discuss sexuality and associated issues with patients. Criniti et al. (2016) surveyed 130 medical residents in a variety of specialties about their formal sexuality instruction. Results revealed that while 86.3% received some training while in medical school, only 68.0% had received additional training within their residency. Main topics of focus included anatomy and physiology, HIV/AIDS, and STD/STIs. Topics that were minimally or not covered included but were not limited to chronic illness and sexuality, disability and sexuality, male and female sexual dysfunction, and lesbian/gay/bisexual and transgender patients (Criniti et al., 2016). While physicians may receive basic education on sexual health in medical school, it appears that ongoing education within residency is limited in quantity and scope.

Pascoal et al. (2017) examined the practices of primary care physicians discussing sexual health with aging patients by administering an electronic survey to 37 primary care physicians and family medicine residents at an urban academic hospital in Ontario, Canada. Survey items related to frequency of sexual health discussions with patients of age 50 and above, as well as factors influencing the likelihood of discussion. Results indicated that physicians were most likely to engage in conversation about sex with men and women between the ages of 50-75 and less likely after the age of 75. Barriers included lack of time, patient comorbidities, perceived patient disinterest in sexual activity, and physician lack of expertise (Pascoal et al., 2017). Individuals with three or more chronic diseases have been shown to have more mobility deficits, and as a result, increased risk of sexual dysfunction (Collins et al., 2018). Despite this, a study by Colson (2016) suggests that as few as 10% of physicians inquire about the sexual health of their patients with chronic illnesses. Even with specialized training, gynecologists may have even fewer conversations about sexual issues with their patients. A Swedish study by Kottmel et al.

(2014) found that only 7.9% of gynecologists discussed sexual dysfunction with their patients. The fact that gynecologists do not routinely discuss sexual health with patients is a problem because the disease states of patients may worsen as a result.

A meta-analysis study by Kotronoulas et al. (2009) revealed similar findings about oncology nurses. This study reviewed 18 articles published over three decades aimed at examining the knowledge, attitudes, and behaviors of oncology nurses addressing sexual health concerns of patients. It also sought to identify factors which influenced nurses' ability to provide sexual health care. Results indicated that nurses "possess limited sexual knowledge and communication skills" and "often avoid or fail to effectively respond to patients' sexual concerns" (Kotronoulas et al., 2009, p. 479). Factors influencing nurses' behavior included personal comfort, knowledge, assumptions, environmental and cultural barriers, as well as professional and personal responsibilities.

Rehabilitation Students and Addressing Sexual Health with Patients

Physical therapy and occupational therapy students perceive similar obstacles to discussing sexuality with patients as those experienced by licensed health care professionals (Areskoug-Josefsson & Gard, 2015a; Areskoug-Josefsson, Larsson, et al., 2016; Pynor et al., 2005; Wittkopf et al., 2018). A study by Jones et al. (2005) examined 340 occupational therapy students' attitudes towards sexual issues in clinical practice using the Comfort Scale Questionnaire. Over half the students stated that they would not feel comfortable addressing the scenarios described by the questionnaire. The three scenarios that elicited the most discomfort related to patient masturbation and overt or covert sexual remarks made by patients (Jones et al., 2005).

Wittkopf et al. (2018) found similar findings related to the knowledge, comfort and attitudes towards human sexuality and sexual health of 203 undergraduate physiotherapy students in Brazil who completed the SKCAPS questionnaire. Results revealed that females were more likely to report discomfort related to human sexuality, particularly as it related to the opposite gender. Additionally, first- and second-year students reported less knowledge about sexual health than third- and fourth-year students, and fourth-year students reported decreased comfort compared to first year students (Wittkopf et al., 2018). This study implies that while knowledge related to sexual health and sexuality may improve with education, comfort may not. It also signifies how students nearing graduation are still not comfortable addressing sexual health with patients, despite needing to take on the responsibility to do so once becoming a licensed clinician. In addition to highlighting some of the limitations of the SKCAPS questionnaire, the results imply that students nearing independent clinical practice are not comfortable addressing issues related to sexual health.

Additionally, Pynor et al. (2005) examined physiotherapy students' attitudes towards issues related to sexuality in clinical practice in Australia. Three hundred and thirty-three students completed a modified version of Cohen's Comfort Scale Questionnaire. Of those students, over half stated that they would feel uncomfortable addressing 9 of 19 items. The three items that elicited the most discomfort were the same as those reported by Jones et al. (2005), including patient masturbation and overt or covert sexual remarks made by patients. It is also important to note that only one third of students in their fourth year stated that their academic program had prepared them for dealing with a patient making sexual remarks and 50% of all students felt that 17 of 19 items had not been adequately covered within their education (Pynor et

al., 2005). This information further emphasizes the importance of preparing students to address sexual issues with patients.

Areskoug-Josefsson and Gard (2015) conducted focus groups with 31 physiotherapy students in Sweden to determine their view of sexual health as part of their educational curriculum. Most students agreed that physiotherapists play an important role in the sexual function of patients, however, barriers were identified that contributed to the challenge of addressing sexual concerns of patients. Categories included “professional challenge, personal life experiences, communication—facilitators and barriers, perceptive patient understanding, environmental factors, and need for competence development” (Areskoug-Josefsson & Gard, 2015b, p. 513). Results also indicated that students believed sexual health should be addressed in physiotherapy school to improve future patient care (Areskoug-Josefsson & Gard, 2015b). The research of Dockter et al. (2021) also supports the notion that physical therapy students lack comfort discussing sexual health with patients, with only 41.5% of students agreeing that they have the necessary skills to address sexual issues. Based on the results of these studies, it is clear that students perceive barriers to addressing sexual health, and that their education is not preparing them to treat the sexual health needs of patients.

Another study suggests that physiotherapy students have more difficulty discussing sexuality than their rehabilitation peers. Areskoug-Josefsson, Larsson et al. (2016) studied the impact of educational levels, gender, age, and future profession on attitudes towards sexuality. One hundred eighty-six physiotherapy, occupational therapy, and nursing students completed the SA-SH questionnaire. A greater proportion of female students believed there was a need for sexual health training compared to their male counterparts. Additionally, physiotherapy students demonstrated fewer positive attitudes towards engaging in conversation about sexual health with

patients compared to nursing and occupational therapy students. Specifically, physiotherapy students noted significantly less comfort initiating conversations about sexual health compared to their peers (Areskoug-Josefsson, Larsson, et al., 2016). The results of this study indicate that physiotherapy students could be falling behind other health care professionals in their ability to deliver holistic patient care.

In addition to this issue, physical therapy students also exhibit difficulty understanding how their profession can provide relevant treatments to address sexual dysfunction. A study by Penwell-Waines et al. (2014) surveyed a group of 496 allied health students in the field of mental health, nursing, medicine, dentistry, occupational therapy, and physical therapy, and asked them to respond to a sexual dysfunction vignette. When comparing these groups, students rated physicians, mental health providers, and nurses as being the most relevant to the care of a patient with sexual dysfunction. Students were also more familiar with the treatment physicians, mental health providers, and nurses provide. If physical therapy students were more educated on treatment options for sexual dysfunction, they would likely see themselves as more of an integral part of the interprofessional health care team that is needed to treat a patient with sexual dysfunction.

Training Improves Sexual Healthcare

Despite hesitancy to engage in conversations about sexuality with patients, evidence suggests that training and education can improve individuals' comfort in discussing sexual issues (Feuz et al., 2019; Fronek et al., 2005; Gerbild et al., 2018; Hordern et al., 2009; Miller & Byers, 2012; Pieters et al., 2018; Post et al., 2007; Rosen et al., 2006; Shindel et al., 2010; Strada et al., 2016; Tessler Lindau et al., 2008; Weerakoon et al., 2008). The format of sexual health training can take various forms, all of which have been shown to be beneficial.

Gerbild et al. (2018) studied the impact of a two-week elective training course in sexual health rehabilitation on a group of 23 health science students in Denmark. The course covered three main content areas including basic knowledge of sexual health, sexual health problems, and sexual health promotion. The SA-SH-Danish version was used to measure attitudes towards sexual health at baseline, immediately after the course, and at a three month follow up. Results indicated that the course significantly changed the students' attitudes, decreasing their fears of offending the patients and increasing their feelings of comfort in communicating about sexual health, which were sustained at three month follow up (Gerbild et al., 2018).

Interdisciplinary training is also beneficial. Fronek et al. (2005) examined the impact of a sexuality training program on an interdisciplinary spinal cord injury rehabilitation team in Australia over an eight-month period when compared to a control group. The program included topics such as sexual/reproductive health and professional issues, sexual function before and after spinal cord injury, sexuality/sexual expression, basic sexual health counseling skills, management of erectile dysfunction, and issues related to fertility. The KCAASS was administered to participants in both the treatment and control groups pre-training, post-training, and at three months follow up. Results demonstrated significant improvements in knowledge, comfort, approach and attitude domains for the treatment group that were maintained at the three month follow up (Fronek et al., 2005). Interdisciplinary simulation has also been used to improve provider communication skills talking about sex with patients (Strada et al., 2016). The Program to Enhance Relational and Communication Skills (PERCS) was a simulation designed to aid in the management of patients with sexual issues by a variety of health care providers. Volunteers and trained actors were given a case scenario to depict a patient experiencing erectile dysfunction. Simulation was followed by discussion, reflection, and feedback from the actors.

Following the simulation, participants reported a significant improvement in preparation, confidence, communication, and relational skills to manage patients with sexual related issues (Strada et al., 2016).

Hodern et al. (2009) examined the immediate and long-term effects of participating in workshops focused on improving Australian oncology health professionals' participation in discussions related to sexuality. Eighty-nine professionals participated in twenty-one workshops, primarily composed of role play and simulation activities. Perceived barriers, confidence, and practices were assessed at baseline, immediately following the workshop, and at an eight week follow up. Results indicated that following the workshop, perceptions of barriers decreased, and confidence increased. At follow up, most changes were maintained. Conversations about sexuality with patients significantly increased at the time of follow up (Hordern et al., 2009).

Online education also improves student comfort. Weerakoon et al. (2008) studied the comfort level of Australian allied health professional students while participating in an online sexuality unit. Tasks included group discussion about sexual words and scenarios with people expressing sexual concerns. A modified version of Cohen et al.'s comfort scale (1994) was utilized to evaluate student's comfort levels pre- and post-instruction. Results indicated that following the course, students felt more comfortable discussing sexual practices, sexual orientation, and questions about sexuality (Weerakoon et al., 2008). Regardless of format, previous research suggest training improves the comfort of providers and students in addressing sexual issues with patients.

Historical Foundation of Pelvic Health

The Board-Certified Women's Health Clinical Specialist (WCS) examination was established to formally recognize physical therapists with advanced knowledge, skill, and

experience related to women's health clinical practice (Academy of Pelvic Health Physical Therapy, 2022b). Until 1995, this area of specialty focused solely on treatment of women. However, it was not until 2011 that the organization updated its mission and vision statements to reflect the change to include men. A shift in terminology occurred to include care of men and women, and more recently, those who identify as transgender. In 2015, discussion began amongst clinicians to formally change the name from Section on Women's Health to Section on Pelvic Health, in part, to improve patient access and reflect all patient populations treated in clinical practice (Academy of Pelvic Health Physical Therapy, 2022a). As the specialty of pelvic health has continued to evolve, the Federation of State Boards of Physical Therapy (FSBPT) has begun to include pelvic health related content on the National Physical Therapy Examination (NPTE), which is a pre-requisite for physical therapy practice in all U.S. states. As of 2018, the NPTE includes four to seven total questions related to the genitourinary system (FSBPT, 2018). In order to prepare students to successfully pass the NPTE, Doctor of Physical Therapy programs have been challenged to educate students on pelvic health content.

Physical Therapy Curriculum

Little information exists regarding the extent to which sexual health is covered within physical therapy curriculum in the United States. While the Commission on Accreditation in Physical Therapy Education (CAPTE) provides programs with regulations on required elements of DPT curriculum, how to implement specific content into program design is determined by individual schools (CAPTE, 2020b). Topics such as sexual dysfunction are most likely to be covered in related coursework such as pelvic health electives and pelvic health clinical experiences. Sexual dysfunction may also be woven into the general curriculum. However, schools are not mandated to offer these types of learning opportunities to students.

According to Krum and Smith (2005), pelvic health topics are underrepresented in physical therapy education, despite their impact on individuals of all genders. Members of the Section on Women's Health of the American Physical Therapy Association were invited to respond to a survey regarding their women's health coursework while in physical therapy school. Globally, respondents claimed to have little to no training in women's health topics while in school, despite 61% stating that women's health topics were "very important" to include in the curriculum (Krum & Smith, 2005). In 2005, the Section on Women's Health published a curricular guideline titled, "Guidelines for Women's Health Content in Professional Physical Therapist Education" (Section on Women's Health, 2005). This document was designed to provide physical therapy programs with a framework for curricular planning. Later updated in 2014, the most updated version describes how familiar students should be with pelvic health topics, including topics related to sexual health (Section on Women's Health, 2014).

A study by Boissonnault (2016), surveyed all entry level physical therapy programs in the United States to determine importance of including women's health content within the curricula. Forty eight percent of responding programs (response rate of 64%) claimed that they lacked enough time to place women's health topics within the curriculum. Despite this, 75% or higher recommended that women's health content was important to integrate in the curriculum including topics such as aging and women, female anatomy lectures, female physiology and endocrinology, musculoskeletal dysfunction in women (osteoporosis, spine & extremity pathology, and sports injuries), obstetrics, oncology in women, pathology in women, pelvic floor exercises, pharmacology related to women's health, psychosocial aspects of women's health, urogenital concerns in women, and wellness/health promotion for women (Boissonnault, 2016).

Thurston et al. (2019) found that members of the Section on Women's Health of the American Physical Therapy Association believe that physical therapy students should participate in pelvic health clinical experiences. Of the 351 participants, 73.2% agreed that student physical therapists should participate in pelvic health clinical experiences including more than just general exposure, and 41.2% believed that students should be perform external perineal assessments and treatments. Results of this study not only indicate the importance of pelvic health experiences outside of the classroom, but that many clinicians expect students to be comfortable and capable of performing pelvic health examinations in a clinical setting.

Despite a general consensus on the importance of women's health within physical therapy curricula, the extent to which topics should be covered is still under debate. One of the most controversial topics remains whether students should be instructed in pelvic floor muscle assessment and if so, how this material should be integrated into the curriculum (Dockter et al., 2016). A study by Dockter et al. (2016) surveyed clinicians and those in academia about the best way to educate students on pelvic floor muscle assessment. Both groups agreed that examination of the pelvic floor muscles is a skill that should not be included in entry level physical therapy education. Just greater than 39% of clinicians believed that elective courses were the most useful way to instruct students on other pelvic health content, while 33.7% of academics believed that verbal instruction with anatomic pictures was sufficient (Docker et al., 2016). While Thurston et al. (2019) found that the minority of clinicians (41.2%) believed physical therapy students should perform external pelvic floor examinations in a clinical setting, there were still 34.7% of clinicians that reported students should perform intra-vaginal examinations within clinical education experiences.

Based on this information, no standard exists related to the amount and extent to which pelvic health content should be included within physical therapy curricula. Despite the recommendations by the Section on Women's Health and apparent benefits to patients and students, incorporation of pelvic health content into physical therapy curricula remains limited.

Chapter 3: Methodology

Research Question & Variables

The purpose of this study was to determine if exposure to pelvic health content in entry level physical therapy curricula impacts DPT students' comfort level discussing sexual health with future patients. The research hypothesis was that increased exposure to pelvic health topics within DPT curricula would increase students' comfort levels discussing sexual health with future patients. For the purpose of this study, the independent variable examined was level of exposure to pelvic health content and the dependent variable was comfort.

Design & Instrumentation

This study used a quantitative design. Survey research methodology was selected due to its known benefits including ease of obtaining information from a large population, ease of administration, and ease of obtaining information about students' comfort levels (Glasow, 2005). This study examined physical therapy students' comfort level discussing sexual health with future patients using a modified version of the Student's Attitudes Towards Addressing Sexual Health questionnaire (SA-SH). The SA-SH was first developed in 2015 to measure students' attitudes towards addressing sexual health in their future professions (Areskoug-Josefsson et al., 2016a). Participants in the original study included nursing, occupational therapy, and physiotherapy students in Sweden. The original survey consists of 22 items measured on a Likert scale (disagree, partly disagree, partly agree, agree, strongly agree) (see Appendix A). The original author performed analysis to determine the face validity and the construct validity of the SA-SH, which were good. Internal consistency reliability was also shown to be acceptable to good ($\alpha = .61$). This value increased with the re-test group ($\alpha = .71$). This survey was selected because of its established psychometric properties and the fact that it is an appropriate survey for

students without work experience, as it asks students about comfort with future, rather than current patients. For the purpose of this study, the first 11 questions of the SA-SH were utilized to decrease respondent fatigue (see Appendix A).

Physical therapy students rated their exposure to pelvic health topics within their entry level education by indicating whether they had participated in a pelvic health elective or pelvic health clinic (Yes or No). Additionally, exposure to pelvic health topics and comfort addressing these same topics in future patients was examined by using two novel Likert scales. For the purpose of this study, these scales were combined to create the Pelvic Health Curricular Exposure Scale (PHCES) and will furthermore be referred to as such. The PHCES subscales are the PHCES (Exposure) and the PHCES (Comfort).

Selected pelvic health topics on the PHCES were determined by a group of five pelvic health physical therapist practitioners using the “Guidelines for Women’s Health Content in Professional Physical Therapist Education” revised version as a framework. This group of pelvic health physical therapy thought leaders were provided with a list of all topics outlined by the “Guidelines for Women’s Health Content in Professional Physical Therapist Education,” and were asked to rank their top 10 most important topics for entry level physical therapists. Topics were reduced in number in order to decrease the risk of respondent burden. Of the 29 original topics, 9 topics were selected to include within the present study if 3 out of 5 thought leaders believed the topic to be important (CVR = 0.20) (Lawshe, 1975). Final topics that were examined within this study included: cardiac disease in women, continence/incontinence, osteoporosis, bowel and colorectal health, lymphedema (unrelated to breast surgery), athletic injuries common in women, musculoskeletal dysfunction in pregnancy, pelvic floor dysfunction, and obstetrics. (Obstetrics includes: coccygodynia, diastasis recti abdominis, gallstones, high risk

obstetric status, labor and delivery pain management, musculoskeletal dysfunction during pregnancy, nerve compression, obstetric related depression, and thromboembolism). These topics were presented on a 5-point Likert scale (PHCES Exposure), assessing how informed students felt about each topic because of the information they received within their entry level physical therapy education (not all informed, slightly informed, somewhat informed, moderately informed, extremely informed). Students also completed another 5-point Likert scale (PHCES Comfort), assessing how comfortable they felt addressing each of these topics with future patients (very uncomfortable, uncomfortable, neutral, comfortable, very comfortable).

Participants & Sampling

The participants of this study included first, second, and third year physical therapy students enrolled at accredited universities within the United States. Exclusion criteria for this study were universities on probation at the time of the study as determined by CAPTE, and students enrolled in Bachelors, Masters and Transitional Doctor of Physical Therapy programs. Students enrolled in Doctor of Physical Therapy programs that are candidates or developing programs were also excluded. Participants had to be English speaking, without visual impairments, able to manipulate an online webpage, and enrolled at an accredited Doctor of Physical Therapy program in the United States (in person, online, or hybrid format) to be included within the study. A list of universities was obtained from the Physical Therapist Centralized Application Service (PTCAS) programs directory. Universities were then divided into regions of the United States according to the 2010 United States Census Bureau including: West, Midwest, South, and Northeast (United States Census Bureau, 2021a). According to CAPTE (2020a), the mean number of seats available for the physical therapy incoming class of 2020 was 46. As of 2022, there are 239 accredited physical therapy programs in the United

States (PTCAS, 2022). Based on this information, it is estimated that there are 32,982 physical therapy students enrolled in accredited PT programs. This number excludes students who are enrolled in candidacy PT programs. Schools in the West account for 14.23% of students. Students in the Midwest account for 22.59% of students. Students in the South account for 39.33% of students, and students in the Northeast account for 23.85% of students (PTCAS, 2022). Cluster sampling using a Google random number generator was used to recruit participants to fulfill a minimum sample size of at least 150 students (CI = 95%, +/- 8%), with an end goal of obtaining a minimum of 21 students from the West, 34 students from the Midwest, 59 students from the South, and 36 students from the Northeast.

Research Study Protocol

The entirety of this research project was conducted in a virtual setting. No physical space was required. Written permission was obtained by the original author to use the SA-SH for this research project. This study received IRB approval in May 2022. Following approval, a cover letter was sent via university email to the randomly selected physical therapy programs' department chair, reflecting the percentage of physical therapy students in each region (see Appendix C). The date selected to send this email was determined based on the majority of schools' academic calendars, anticipating that schools would be in session at the time of delivery. This email included a request to send the survey to all physical therapy students enrolled in the program. As two schools selected did not publicly list the department chair's email address, administrative assistants were contacted to obtain this information. One of the schools declined to provide this information and the second school agreed. Additionally, one department chair responded with a question regarding what cohorts needed to receive the email and a response was sent for clarification.

Prior to beginning data collection, participants were provided with an electronic informed consent outlining the purpose, risks, and benefits of the research (see Appendix B). The first question of the survey asked for participant consent and if he or she met the stated inclusion criteria. If the participant answered no to this question, this persons' data was not included within the analysis. Demographic information was also collected, including participant age, ethnicity, gender, year in physical therapy school, location (state) of physical therapy school attended, and two questions related to whether the student had completed a pelvic health elective or clinical experience while enrolled in the physical therapy program thus far. The participants then completed the PHCES, as well as the modified SA-SH. The survey was 37 questions in total merged into one electronic document, to allow for ease of completion (see Appendix D). All data was collected through Google Forms and was stored as an electronic file on the co-investigator's computer, which was password protected. Participants were only allowed to take the survey once, and the online link was closed without the ability to make edits to the original submission. Students were incentivized with the potential to win a fifty-dollar gift card, pending they provided their contact information (see Appendix E). Follow up invitations to the program directors were sent one week following the initial delivery. Responses were continuously monitored to assess the response rate. In the second week of data collection, additional schools were invited to participate to increase survey response rate. The same method was used to select the second set of schools, although the subject line of the survey email was modified to something more appealing. In the third week of data collection, the second set of schools received a follow up invitation. Data collection continued for four weeks total and was analyzed with the available information at that time.

Data Analysis

Data was analyzed using both descriptive and inferential statistics with SPSS® Statistics software. Central tendency values were obtained for all demographic data and Likert scales. Additionally, Pearson's correlational coefficient was calculated to determine the correlation between exposure to pelvic health content and comfort with addressing sexual issues with future patients as determined by the modified SA-SH. This provided relative comparisons between students' perceived knowledge areas, perceived comfort levels with those topics, and their willingness to discuss sexual issues with future patients.

Ethical Considerations

Informed Consent

Participation within this study was completely voluntary. Participants received an invitation to participate in the study. They also received an informed consent outlining the purpose, risks, and benefits of the research. Participants could elect to withdraw from the study at any time without penalty. They could also decline to answer questions on the questionnaire that may have elicited discomfort without penalty.

Anonymity

Participants remained anonymous throughout the research study. As the study did offer a monetary incentive, those participants electing to enter the incentive lottery were required to submit their university email address, phone number, and name to allow for prize distribution. All surveys were coded as to ensure anonymity if participants elected to enter the lottery for the monetary incentive. The students' personal information was not used for any other reason except to distribute the prize money. All data collected during the study was stored on the co-investigator's computer, which was password protected.

Potential for Harm

There was very little foreseeable harm for those participating in the study. As some of the questions were sensitive in nature, questionnaires could have elicited feelings of discomfort. Participants were strongly encouraged to contact their own university's counseling center should they have any lasting negative psychological or emotional effects from the study.

Results Communication

In an effort to improve survey response, the researcher offered to share the results of the study with the department chairs of the physical therapy schools invited to participate once the results are published, pending acceptance from a publisher.

Assumptions

Despite the taboo nature of sexual health, it was assumed that participants would answer the survey honestly. Anonymity was also ensured to mitigate the risk that students may feel judged for their answers. It was also assumed that participants would be able to thoroughly understand the survey. Inclusion criteria required participants be proficient in the English language and able to manipulate an online learning environment. It was assumed that if participants were preparing for the National Physical Therapy Examination (NPTE), which is only administered in English in an online format, that they could understand the survey. It was also assumed physical therapy programs would integrate sexual health with similar topics in DPT curriculum, and thus, students with increased exposure to similar topics may have increased exposure to sexual health topics as a result. This assumption contributed to the researcher's hypothesis, that with increased exposure to pelvic health content within entry level physical therapy training, students will report increased comfort addressing sexual health concerns with future patients.

Chapter 4: Results

Data Transformation

Prior to data analysis, missing values were replaced using SPSS® Statistics software by substituting the median of the nearby three points. Six questions had missing values (questions 5, 19, 20, 23, 25, 29), each one missing less than 5% of the overall number of responses. Three questions on the questionnaire (questions 36, 37, 38) were re-coded from a negative to a positive scale for ease of data analysis. Composite variables were then created by averaging the item values for the PHCES (Informed) scale, the PHCES (Comfort) scale, the modified SA-SH, and the entire questionnaire excluding demographic information.

Descriptive Statistics

All 167 participants met the inclusion criteria, and thus, were included in the data analysis. Descriptive statistics were calculated for all demographic information. The mean age of participants was 24.69 years old (SD = 2.98). The majority of the participants' self-identified as Caucasian (83.2%), followed by Hispanic or Latino (6.6%), Asian (4.2%), two or more (4.2%), African American (1.2%), and Native American (.6%). Participants were primarily female (77.2%), followed by male (22.2%) and non-binary (.6%). There was nearly equal representation of participants in each year of physical therapy school. There were 39.5% of participants within their 3rd year, 32.3% in their 2nd year, and 28.1% in their 1st year of physical therapy school. Participants were primarily from the South region (62.3%), followed by the West region (22.2%), Midwest region (12.6%), and Northeast region (3.0%). The majority of participants had not taken a pelvic health elective (91.6%) or participated in a pelvic health clinical (85.0%) in physical therapy school at the time of the survey.

Table 1: Descriptive Statistics Age

	N	%
21	8	4.8
22	24	14.4
23	30	18.0
24	40	24.0
25	26	15.6
26	12	7.2
27	8	4.8
28	2	1.2
29	4	2.4
30	1	.6
31	3	1.8
32	2	1.2
33	2	1.2
34	2	1.2
35	1	.6
36	2	1.2

Table 2: Descriptive Statistics Ethnicity

	N	%
Caucasian/White	139	83.2
African American	2	1.2
Asian	7	4.2
Hispanic or Latino	11	6.6
Native American	1	.6
Two or more	7	4.2

Table 3: Descriptive Statistics Gender

	N	%
Male	37	22.2
Female	129	77.2
Non-Binary	1	.6

Table 4: Descriptive Statistics Year in DPT Program

	N	%
1 st Year	47	28.1
2 nd Year	54	32.3
3 rd Year	66	39.5

Table 5: Descriptive Statistics DPT Program Location

	N	%
West	37	22.2
Midwest	21	12.6
South	104	62.3
Northeast	5	3.0

Table 6: Descriptive Statistics Elective

	N	%
Yes	14	8.4
No	153	91.6

Table 7: Descriptive Statistics Clinical

	N	%
Yes	25	15.0
No	142	85.0

Means were also calculated for the PHCES (Informed) scale, the PHCES (Comfort) scale, and the modified SA-SH. The PHCES (Informed) scale was presented on a 5-point scale of how informed the student felt on the topic (not at all informed, slightly informed, somewhat informed, moderately informed, extremely informed). For the purpose of this scale, a 1 represented “not at all informed” and a 5 represented “extremely informed.” Means for self-reported exposure to pelvic health topics based on the PHCES (Informed) scale ranged from 2.10-3.71. The PHCES (Comfort) scale was presented on a 5-point scale of how comfortable the student felt with the topic (very uncomfortable, uncomfortable, neutral, comfortable, very comfortable). For the purpose of this scale, a 1 represented “very uncomfortable” and a 5 represented “very comfortable.” Means for level of comfort towards pelvic health topics based on the PHCES (Comfort) scale ranged from 2.28-3.90. The modified SA-SH was presented on a 5-point scale assessing how much the student agreed or disagreed with a statement related to comfort with sexual health (disagree, partly disagree, partly agree, agree, strongly agree). For the

purpose of this scale, a 1 represented “disagree” and a 5 represented “strongly agree.” Means for level of comfort based on the modified SA-SH ranged from 3.20-4.26.

Table 8: Descriptive Statistics PHCES

	M	95% CI		z	SD	SE
		LL	UL			
Informed cardiac	2.74	2.56	2.91	-.28	1.13	.09
Comfort cardiac	3.10	2.95	3.26	.39	1.01	.08
Informed osteoporosis	3.71	3.55	3.87	1.52	1.04	.08
Comfort osteoporosis	3.76	3.62	3.90	1.61	.89	.07
Informed colorectal	2.29	2.12	2.45	-1.12	1.07	.08
Comfort colorectal	2.51	2.34	2.68	-.71	1.11	.09
Informed lymph	2.51	2.33	2.70	-.71	1.19	.09
Comfort lymph	2.59	2.43	2.75	-.56	1.05	.08
Informed athletic	3.63	3.46	3.81	1.37	1.13	.09
Comfort athletic	3.90	3.75	4.05	1.87	1.00	.08
Informed pregnancy	2.65	2.46	2.83	-.45	1.21	.09
Comfort pregnancy	2.86	2.68	3.03	-.06	1.15	.09
Informed PFD	2.71	2.53	2.89	-.34	1.17	.09
Comfort PFD	2.79	2.62	2.96	-.19	1.14	.09
Informed incontinence	2.94	2.74	3.14	.09	1.29	.10
Comfort incontinence	3.00	2.82	3.18	.20	1.17	.09
Informed obstetrics	2.10	1.93	2.26	-1.47	1.10	.09
Comfort obstetrics	2.28	2.12	2.44	-1.14	1.05	.08

	PHCES (Comfort)	PHCES (Informed)
1	Very uncomfortable	Not at all informed
2	Uncomfortable	Slightly informed
3	Neutral	Somewhat informed
4	Comfortable	Moderately informed
5	Very comfortable	Extremely informed

Table 9: Descriptive Statistics Modified SA-SH

	M	95% CI		z	SD	SE
		LL	UL			
Comfort informing SH	3.41	3.25	3.58	-.55	1.08	.08
Comfort initiating SH	3.35	3.18	3.51	-.74	1.09	.08
Comfort discussing SH	3.51	3.35	3.68	-.22	1.05	.08
Comfort gender SH	3.43	3.27	3.59	-.48	1.06	.08
Comfort age SH	3.42	3.26	3.58	-.51	1.06	.08
Comfort culture SH	3.56	3.39	3.72	-.05	1.07	.08
Comfort sexual or SH	3.56	3.40	3.73	-.05	1.10	.09
Comfort activities SH	3.20	3.03	3.38	-1.24	1.13	.09
Comfort unprepared SH	4.00	3.88	4.12	1.40	.78	.06
Comfort embarrass self SH	4.26	4.15	4.37	2.26	.71	.06
Comfort embarrass patient SH	3.63	3.54	3.73	.18	.64	.05

Modified SA-SH	
1	Disagree
2	Partly disagree
3	Partly agree
4	Agree
5	Strongly agree

Reliability

Internal consistency was determined using Cronbach's alpha, which was calculated for the modified SA-SH ($\alpha = .93$), the PHCES (Informed) scale ($\alpha = .90$), the PHCES (Comfort) scale ($\alpha = .89$), the composite PHCES scale ($\alpha = .94$), and the total composite questionnaire ($\alpha = .93$). Reliability was demonstrated to be good to excellent for all five scales.

Table 10: Reliability Statistics

	α	N
PHCES Informed	.90	9
PHCES Comfort	.89	9
Composite PHCES	.94	18
Modified SA-SH	.93	11
Total Composite	.93	29

Correlation Results: Demographics

Pearson's correlational coefficient was calculated to determine the impact of demographic data on comfort discussing sexual health and pelvic health topics. No correlation was noted between age, ethnicity, gender, year in physical therapy school, and location of the DPT program with student comfort with sexual health based on the modified SA-SH. There was however, a significant positive correlation between age and comfort with pelvic health topics, as well as a significant positive correlation between year in physical therapy school and exposure to and comfort with pelvic health topics. As there was only one participant who self-identified as non-binary, that participant was removed from the data file in order to perform an independent samples t-test to further examine the relationship between gender and comfort with sexual health. Based on these results, female participants ($M = 3.65$) exhibited significantly higher levels of comfort with sexual health than men ($M = 3.35$) at $\alpha < .10$ but not .05 level, despite Pearson's correlation not identifying a relationship. Additionally, a negative but insignificant correlation was found between year in school and comfort with addressing sexual health in future patients based on the modified SA-SH ($r = -.084, p = .278$).

Table 11: Pearson's Correlational Coefficient Demographics

	SA-SH composite	Informed	Comfort	Total
Age	.007	.145	.211**	.150
Ethnicity	.053	-.130	-.028	-.043
Gender	.111	-.030	-.031	.026
Year	-.084	.655**	.487**	.439**
Location	-.015	.001	-.038	.021

** ($p < 0.01$)

Correlation Results: Exposure to Pelvic Health Topics

Pearson's correlational coefficient was calculated to determine the correlation between students' self-reported exposure to pelvic health topics and comfort discussing sexual health. Results indicated that there was a small positive correlation ($r = .161, p = .038$) between exposure to pelvic health topics and comfort discussing sexual health with future patients based on the modified SA-SH. Exposure to pelvic floor dysfunction ($r = .286, p < .001$), obstetrical issues ($r = .234, p = .002$), colorectal health ($r = .221, p = .004$), and incontinence ($r = .201, p = .009$) were all positively correlated to comfort addressing sexual health with future patients. Additionally, comfort addressing pelvic floor dysfunction ($r = .462, p < .001$), incontinence ($r = .451, p < .001$), colorectal health ($r = .345, p < .001$), and obstetrical issues ($r = .344, p < .001$) in future patients had the strongest positive correlation with comfort addressing sexual health in future patients. All results were statistically significant.

Table 12: Pearson's Correlational Coefficient PHCES Scales and Modified SA-SH

	Modified SA-SH
Informed	.161*
Comfort	.257**

** ($p < 0.01$), * ($p < 0.05$)

Table 13: Pearson's Correlational Coefficient Pelvic Health Informed and Modified SA-SH

	Modified SA-SH
Informed cardiac	.037
Informed osteoporosis	.020
Informed colorectal	.221**
Informed lymph	-.009
Informed athletic	-.043
Informed pregnancy	.120
Informed PFD	.286**
Informed incontinence	.201**
Informed obstetrics	.234**

** ($p < 0.01$)

Table 14: Pearson's Correlational Coefficient Pelvic Health Comfort and Modified SA-SH

	Modified SA-SH
Comfort cardiac	-.061
Comfort osteoporosis	.016
Comfort colorectal	.345**
Comfort lymph	.024
Comfort athletic	-.116
Comfort pregnancy	.130
Comfort PFD	.462**
Comfort incontinence	.451**
Comfort obstetrics	.344**

** (p < 0.01)

Correlation Results: Exposure to a Pelvic Health Elective

There were also significant findings related to students' participation in pelvic health clinical experiences and course electives. Results demonstrated that there was a small positive correlation ($r = .198, p = .05$) between participating in a pelvic health elective and comfort discussing sexual health with future patients based on the modified SA-SH. This result was statistically significant (see Table 15).

Table 15: Pearson's Correlational Coefficient Electives, Clinicals, and Modified SA-SH

	Modified SA-SH
Elective	.198*
Clinical	.321**

** (p < 0.01), * (p < 0.05)

Correlation Results: Exposure to a Pelvic Health Clinical

There was a medium positive correlation ($r = .321, p < .001$) between participating in a pelvic health clinical and comfort discussing sexual health with future patients based on the modified SA-SH. This result was statistically significant (see Table 15).

Chapter 5: Discussion

This research study sought to examine three major aims, the first of which was to evaluate physical therapy students' comfort level discussing sexual health utilizing an adapted version of the Students' Attitudes Towards Addressing Sexual Health questionnaire (SA-SH) as an indicator of comfort. Results supported the research hypothesis, as there was an increase in student comfort with increased exposure to pelvic health topics (cardiac disease in women, continence/incontinence, osteoporosis, bowel and colorectal health, lymphedema unrelated to breast surgery, athletic injuries common in women, musculoskeletal dysfunction in pregnancy, pelvic floor dysfunction, and obstetrics) in DPT curriculum (see Table 13). Results indicated that exposure to pelvic floor dysfunction, obstetrics, colorectal health, and incontinence had the most profound impact on comfort discussing sexual health as indicated by the modified SA-SH (see Table 13). Comfort addressing these same topics in future patients also had the strongest correlation with comfort addressing sexual health in future patients (see Table 14). This could be due to the fact that all four topics more directly involve the pelvic floor musculature in contrast to other topics examined within this study, such as cardiac disease in women. The results of this study found small positive correlations between both exposure to and comfort with pelvic health topics and comfort addressing sexual health, thereby highlighting the importance and need for students to be comfortable with pelvic health diagnoses (see Table 12). Based on the findings of this study, it appears that pelvic floor dysfunction, obstetrics, colorectal health, and incontinence may be the most important topics for DPT programs to incorporate within their curricula to provide students with the tools to address sexual health in future patients.

In conjunction with this finding, there was a positive correlation between student comfort and having taken a pelvic health elective (see Table 15). While there are stipulations as

to what is taught in DPT curricula, no regulations exist related to content within course electives. However, it is likely that exposure to sexual dysfunction is higher in pelvic health courses compared to foundational curricular courses such as musculoskeletal, neurology, and cardiopulmonary. As electives are often optional courses in DPT curriculum, students may pursue an elective unrelated to pelvic health, particularly if they do not see the value in pelvic health coursework. Additionally, DPT programs may not offer a pelvic health elective at all. The prevalence of schools offering a pelvic health elective is difficult to obtain, as electives are sometimes offered based on student interest and faculty availability. According to the American Board of Physical Therapy Specialists (ABPTS), in 2021 less than 2% of the 32,704 Board-Certified Clinical Specialists in physical therapy were certified in Women's Health (ABPTS, n.d.). As DPT educators must demonstrate expertise in their area of teaching, it is possible that pelvic health electives may not be offered or taught to the level of discussing sexual health due to the low number of specialists in the field, contributing to the low percentage of students (8.4%) that reported participating in a pelvic health elective at the time of survey. For those universities that do offer a pelvic health elective, students who participate in these courses may be more prepared to consult future patients on aspects of sexual health based on the findings of this study. For universities that do not offer a pelvic health elective, it becomes essential to integrate pelvic health content into other courses.

Results of this study also demonstrated a correlation between student comfort and having taken a pelvic health clinical, which was the strongest factor related to comfort (see Table 15). This could be due to the length and depth to which sexual health is covered within clinical experiences. Additionally, students participating in pelvic health clinical experiences may receive opportunities to practice evaluative skills and care for patients with pelvic health

diagnoses that may not occur anywhere else in DPT curriculum. According to CAPTE, in the 2020-2021 school year DPT students spent on average 35.4 weeks in full time clinical education out of total 123.67 weeks (CAPTE, 2020a). Clinical experiences provide students with experiential learning environments where they can apply didactic information to hands on patient care (Ernstzen et al., 2009; Patton et al., 2018). Information is no longer theoretical and students get more opportunities to interact with real patients where they gain practice discussing sexual health and witness the consequences to their clinical decisions.

Additionally, clinical education is a time for students to demonstrate entry-level clinical performance (CAPTE, 2020b). According to the APTA (2009), there are foundational skills that all physical therapy graduates must be able to perform in a “competent and coordinated manner” upon entry to the workforce (pg. 1). These skills include screening the urinary system to assess urinary frequency, urgency, and incontinence, screening the gastrointestinal system for changes in bowel function, as well as describing sexual or menstrual dysfunction, difficulties, or concerns in men and women. In addition, physical therapists are expected to screen for sexual abuse and other red flags. More importantly, physical therapists are expected to know when to refer to appropriate providers for treatment when patient concerns are outside the scope of physical therapy, which requires an adequate screening. Providing students with authentic learning environments under guided supervision of a clinical instructor helps to ensure competence and readiness for independent clinical practice, which could, to some extent, explain why students participating in a pelvic health elective reported increased comfort discussing sexual health with future patients within this study (Rodger et al., 2008).

The second aim of this research study was to provide a framework for understanding how physical therapy curricula impacts students’ comfort level discussing sexual health. The tool

created for this study, the Pelvic Health Curricular Exposure Scale (PHCES), examined student self-reported exposure to and comfort with addressing pelvic health topics in future patients as a result of their DPT education. No other scale has yet been established that examines these factors as they relate to sexual health. The scale exhibited excellent reliability using Cronbach's alpha ($\alpha = .94$) and was demonstrated to have good face validity, thus, providing a way for DPT programs to adequately determine what specific pelvic health topics should be given priority to implement into coursework while curricular planning and assessing students' readiness to enter the workforce.

The third aim of this research study was to determine if students feel that they are being adequately prepared to consult patients on aspects of sexual health care. The means for each of the modified SA-SH items were between 3.20-4.26 on a 5-point scale indicating that on average, participants only partly agreed or agreed with the statements regarding comfort related to sexual health (see Table 9). Survey participants reported feeling the least comfortable discussing specific sexual activities with future patients as well as initiating conversations and informing patients about sexual health. This adds to the findings of several other studies claiming that health care providers do not initiate conversations about sexual health, thus contributing to aspects of health being unaddressed (Dyer & das Nair, 2013; Flynn et al., 2012; Gilbert et al., 2016; Katz et al., 2021; Kotronoulas et al., 2009; Manninen et al., 2022; Traumer et al., 2019). Furthermore, by avoiding these discussions, patients begin to normalize their impairments and the belief that nothing can be done to address their sexual problems (Brandenburg & Bitzer, 2009). Not only may this give rise to the belief that physical therapy is not effective, it can also lead to decreased access of health care services and worsen health outcomes (Bogart et al., 2013; Copti et al., 2016; Matsick et al., 2020).

Comfort related to patient age and gender also scored fairly low, indicating that on average, students do not feel entirely comfortable discussing sexual health with patients regardless of patient gender or age (see Table 9). This is also in alignment with other literature that suggests discrimination based on age or gender identity is still present within healthcare (Adams, 2014; Bogart et al., 2013; Cherpak & Santos, 2016; Copti et al., 2016; de Heer et al., 2021; Fredriksen-Goldsen et al., 2013; Haesler et al., 2016; Macleod & McCabe, 2020; McGrath & Lynch, 2014; Senturk Erenel & Cicek Ozdemir, 2020; Wittkopf et al., 2018).

Additional Findings

While the aim of this study was not to examine the impact of demographic information on student comfort discussing sexual health, there were several findings related to demographic data that is pertinent to previous research. It is important to note that no demographic factors except for gender impacted comfort discussing sexual health with future patients. This is in partial agreement with other existing research that suggests personal factors such as gender and culture may impact comfort with sexual health (Areskoug-Josefsson & Gard, 2015b; Dockter et al., 2021; Dyer & das Nair, 2013; Haesler et al., 2016; McGrath & Lynch, 2014; Ussher et al., 2013; Wittkopf et al., 2018). Several studies suggest that both health care providers and students lack comfort managing the sexual health of patients of the opposite gender (Dockter et al., 2011; Dyer & das Nair, 2013; Wittkopf et al., 2018). To add to existing research, the findings of this study found that female students were more comfortable addressing sexual health than male students. Additionally, Haesler et al. (2016) described how cultural norms can impact comfort with sexual health, stating that healthcare workers who have personally experienced discrimination are more likely be accepting of sexual behaviors in other cultures, particularly among individuals who identify as LGBTQ+. Areskoug-Josefsson & Gard (2015b) found similar

results, indicating that students who have been exposed to other cultures in life may be able to address patients' sexual health needs with improved comfort. Despite these previous findings, demographic factors such as location of DPT program and student ethnicity had no correlation to comfort discussing sexual health with future patients within the present study.

While unrelated to sexual health, age showed a small positive correlation to comfort addressing pelvic health topics in future patients ($r = .211, p = .006$). Additionally, year in DPT school showed a large positive correlation to how informed students were about pelvic health topics ($r = .655, p < .001$), and a moderate positive correlation with comfort addressing pelvic health topics in future patients ($r = .487, p < .001$). Based on these findings, it is likely that students receive more education on pelvic health topics as they progress through the curriculum. This could be due to many pelvic health skills being viewed as beyond entry level which may be introduced closer to graduation (Dockter et al., 2016). Based on the findings of this study, while age and year in DPT school may serve as pre-requisites to comfort with pelvic health topics, they do not impact comfort with sexual health directly.

While also not pertaining specifically to sexual health, results demonstrated that students felt less comfortable with certain pelvic health related topics than others. Of the nine topics examined (cardiac disease in women, continence/incontinence, osteoporosis, bowel and colorectal health, lymphedema unrelated to breast surgery, athletic injuries common in women, musculoskeletal dysfunction in pregnancy, pelvic floor dysfunction, and obstetrics), the three that students reported the least amount of comfort with were obstetrics, colorectal health, and lymphedema unrelated to breast cancer. Students also reported being least informed about these three topics. As the "Guidelines for Women's Health Content in Professional Physical Therapist Education" suggest that entry level clinicians be at least familiar with these topics, the results of

this study suggest that some students may not be meeting the minimum guidelines for entry level clinical practice as established by the APTA (2009). Particularly, lack of comfort related to colorectal health is concerning, as the APTA states that entry-level DPT graduates must be competent in screening for changes in bowel function (APTA, 2009). Lack of comfort related to these topics may ultimately impact comfort discussing sexual health and decreased ability to address the needs of a wide variety of patients. The pelvic health topics included within the PHCES did not describe specific sexual issues. However, since exposure to pelvic health topics showed a correlation to comfort with those same topics, it can be hypothesized that exposure to specific sexual health topics may also improve comfort addressing those topics in future patients.

An additional unanticipated finding of this study was that on average, students reported overall higher levels of comfort with pelvic health topics compared to their level of exposure. These findings suggest that despite being uninformed about specific topics, students are still somewhat comfortable addressing these issues in future patients. The reason why students feel more comfortable than they are informed about pelvic health topics cannot be fully explained by the findings of this study. However, this phenomenon has been described in previous research as the Dunning-Kruger effect, which claims that novices tend to overestimate their competence in a specific domain (Bradley et al., 2022). Participants may have over reported their comfort to appear more socially desirable or due to decreased understanding of the complexity of pelvic health diagnoses. If students were presented with clinical cases of patients with pelvic health concerns, their self-reported comfort addressing those issues may have been lower had the survey requested they provide relevant diagnostic or treatment information regarding the patient case. In essence, perceived understanding and knowledge required to address a pelvic health issue may be higher than clinical ability to perform those skills due to the cognitive bias

described by the Dunning-Kruger effect. Students may have also perceived questionnaire items in relation to the future, rather than how comfortable they were at the present time, highlighting one of the downsides to self-report scales.

Students may also be drawing on their knowledge in other related areas of physical therapy practice such as orthopedics to subconsciously boost their comfort addressing pelvic health issues. Participants reported the highest mean values for comfort with athletic injuries common in women and osteoporosis ($M = 3.9$; $M = 3.76$). For example, if students felt informed about bone pathophysiology, they may have rated their comfort with addressing osteoporosis higher despite not being very informed about this specific diagnosis. Thus, comfort related to similar topics may impact comfort with pelvic health. Lastly, conversations regarding sex and sexuality are becoming more common and openly discussed compared to previous generations. This culture shift may contribute to students' reports of increased comfort with sex and the belief that they will eventually be prepared to address sexual issues once they have completed their degree.

Curricular Recommendations

The results of this study indicate that exposure to pelvic health topics in didactic and clinical education increase student comfort discussing sexual health in future patients. Based on these findings, DPT programs must make a dedicated effort to incorporate pelvic health topics into DPT curriculum in order to prepare students to become well-rounded physical therapists. Specifically, priority must be given to implementing pelvic health electives or required pelvic health courses and providing students with the opportunity to participate in pelvic health clinical experiences. This is in agreement with the research of Thurston et al. (2019) who found that 73.2% of the Section of Women's Health members surveyed believe student physical therapists

should participate in pelvic health clinical education. Additionally, DPT programs should also prioritize hiring faculty members with specialized training in pelvic health and implement either required pelvic health courses or electives into the curriculum so that students are comfortable discussing sexual health with future patients.

Providing holistic health care entails addressing aspects of the human experience which are considered taboo in today's culture, such as sexual health. DPT programs must attempt to erase the "two-way taboo" that still exists between patients and health care providers, which is that neither party wants to initiate discussion related to the topic of sex (Traumer et al., 2019, p. 58). From a social constructionism framework where language has a large impact on behavior, creating an educational environment where conversations about sexual health are the norm will likely reinforce the importance of these conversations in clinical practice. Brandenburg & Bitzer (2009) offer specific patient-centered strategies to improve communication regarding sexual issues that may be of use for physical therapy educators. Strategies include allowing enough time and space for communication, using open ended and differentiating questions, and making shared decisions about treatment with the patient (Brandenburg & Bitzer, 2009). While not inclusive of every patient on the gender spectrum, this article provides a starting point that can easily be modified and implemented in foundational coursework where students learn subjective history taking.

Components of social cognitive theory suggest that curriculum meant to improve student self-efficacy related to sexual health may further improve comfort with patients' sexual health concerns. As various forms of training have demonstrated significant improvements in comfort discussing sexual health, DPT programs may consider incorporating activities such as sexual health simulations into the curriculum (Hordern et al., 2009; Strada et al., 2016). A significant

benefit to simulation in physical therapy education is that it can provide students learning opportunities that cannot be planned or may not occur in clinical education (Sabus & Macauley, 2016). Furthermore, students electing not to participate in a pelvic health clinical experience can still receive some level of training related to pelvic health or sexual health. Simulation can not only provide students with opportunities to improve their sexual history taking, but it can provide practice for improving communication and interpersonal skills relevant to all areas of physical therapy (Mori et al., 2015).

As demonstrated by the results of the present study, comfort addressing sexual health in individuals with different genders or ages is still a problem for physical therapy students (see Table 9). Penwell-Waines et al. (2014) provides insight into the important general components of sexual health curriculum in health professions education, including understanding the determinants of sexual health. This includes “basic anatomy and physiology, endocrinology, common medical comorbidities, and intrapersonal, interpersonal, and cultural aspects of sexuality, as well as issues unique to working with individuals across the lifespan, sexual orientations, and gender identities” (pg. 321).

Implicit bias refers to “the attitudes or stereotypes that affect our understanding, actions, and decisions in a non-conscious manner of which we are typically unaware” (Motzkus et al., 2019, p. 2). This type of bias has been linked to inequities in health care (FitzGerald & Hurst, 2017; Hall et al., 2015; Motzkus et al., 2019). The biases that were noted within this study demonstrate the importance of education on sexual health being multi-faceted, pertaining not only to disease processes, but a combination of emotional, mental, and social systems. Based on the suggestions provided by Penwell-Waines et al (2014), it would be beneficial to incorporate learning objectives into DPT curriculum that address the professions’ core value of inclusion

(APTA, 2021b). Encouraging students to reflect on personal biases in order address the needs of minority and stigmatized groups is a critical step in minimizing health care disparities as it relates to sexual health (Morris et al., 2019).

Theoretical Framework Revisited: A Pathway to Change

The results of this study describe how personal factors such as knowledge and attitudes impact students' willingness to engage in conversation about sexual health with future patients. It is evident that despite the American Physical Therapy Association's effort to promote more inclusive health care practices, limitations still exist in students' ability to acknowledge personal biases and engrained cultural beliefs regarding sex for certain populations (APTA, 2021b). Results of this study suggest that sexual stigma, particularly related to patient age and gender, is still deeply ingrained within society, even amongst those committed to non-discriminatory health care practices. The present study is limited in that it likely does not expose all biases that may exist related to the sexual health of other stigmatized groups. Thus, sexual discrimination may be under reported within the current study. In order to promote equitable physical therapy care for all individuals, efforts must be made by both the American Physical Therapy Association and Doctor of Physical Therapy programs to provide adequate educational opportunities to address these barriers and minimize health care disparities related to sexual health care.

Limitations

Despite a number of significant findings, this study is not without limitation. While the exact response rate cannot be determined due to the anonymity of the survey, total sample size ($n = 167$) suggests that the response rate was low. As 120 programs were invited to participate, approximately 16,560 students were intended to receive the survey, based on the average incoming class size ($n = 46$) (CAPTE, 2020a). The exact number of students who received the

survey from their program director/chair is unknown. While the best way to reach students enrolled in DPT programs appeared to be contacting the program director/chair, these individuals acted as unforeseen gatekeepers to the participants needed for the survey. Unwillingness to forward the survey to DPT students could be due to a variety of factors including time, effort, and an unrecognized negative bias towards encouraging students to participate in research related to sexual health. Thus, the results of this study may be biased by the program directors' personal beliefs, values, or hidden agenda.

The results of this study may also not be generalizable to the entire physical therapy student population, despite an adequate sample size (CI = 95%, +/- 8%). Compared to the reported DPT student population, individuals who are Hispanic or Latino were adequately represented within the present study. However, Caucasians were overrepresented and other ethnicities were underrepresented within this study (CAPTE, 2020a). Participants were also underrepresented from the Midwest and Northeast regions and overrepresented from the South and West regions (PTCAS, 2022). Additionally, while non-binary individuals were proportionally represented, women were overrepresented, and men were underrepresented (CAPTE, 2020a). While gender of male and female DPT students did appear to influence comfort levels addressing sexual health, it is unclear whether gender may impact the comfort levels of individuals not well represented in the current study, such as people who identify as transgender, non-binary, or gender non-conforming.

An adapted version of the SA-SH was used within this study to minimize respondent fatigue. While the modified version of the SA-SH demonstrated excellent reliability ($\alpha = .93$), results may have varied had the original SA-SH scale been used. Questions omitted from original SA-SH pertained primarily to education, perceptions of future work colleagues, and perceptions

of future work responsibilities. Specifically, there were two education related questions that were omitted which asked about whether students had been educated about sexual health within their PT program and whether students believed they needed a basic knowledge about sexual health in their education. While the original SA-SH demonstrated acceptable-good reliability ($\alpha = .61-.71$) for use with Swedish physiotherapy students, the adapted version used within this study appears to be a reliable tool for use with American physical therapy students and exhibited higher reliability than the original scale (Areskoug-Josefsson, Juuso, et al., 2016).

The pelvic health topics initially chosen to be included on the questionnaire were decided by a small number of pelvic health clinicians representing a narrow geographic area, which could be seen as a potential for bias and a limitation of the study. While Lawshe's content validity ratio was used to select the most appropriate pelvic health topics, different topics of importance have been described by other existing literature (Boissonnault, 2016; Lawshe, 1975; Section on Women's Health, 2014). Additionally, there were no topics included on the Likert scale that pertained specifically to sexual health, aside from the modified SA-SH. Thus, students receiving exposure to sexual health topics outside of a pelvic health clinical or elective course may not have been well-represented.

This study did not explicitly define sexual health within the survey instrument. Discrepancies in the meaning of sexual health may have contributed to participants' understanding of sexual health and what the term does and does not encompass. This limitation may have led to participant over or under confidence based on their own perception of the definition of sexual health.

Future Research

This study established a valid and reliable tool, the Pelvic Health Curricular Exposure Scale (PHCES), to assess student exposure to and comfort with pelvic health topics within DPT education. Future studies should seek to validate the scale in other populations, such as physical therapy clinicians and other health care professional students and providers. While the current study found a correlation between exposure to pelvic health topics and student comfort addressing sexual health in future patients, future research may examine the correlation between exposure to specific sexual health topics and comfort addressing sexual issues with future patients. Additionally, future research may consider using the full SA-SH in order to determine how exposure to pelvic health or sexual health topics within DPT education impacts the aspects of sexual health care outlined in the original scale that were excluded from the present study.

While the results of this study demonstrate the importance of incorporating pelvic health topics into DPT curriculum in order to improve student comfort related to sexual health, the exact way in which to implement these topics is an area for future research. As physical therapy programs cite lack of time as a barrier to pelvic health implementation, future research may investigate specific ways in which schools can overcome this barrier (Boissonnault, 2006).

Future research should also be transparent in defining sexual health, as the definition of the term is often not defined or is unclear (Macleod & McCabe, 2019; Sewell & Strassberg, 2015). Not only will this improve understanding of the term, but it will also minimize discrepancies in future policies and practice (de Heer et al., 2021; Macleod & McCabe, 2019; Sewell & Strassberg, 2015; Sewell et al., 2017). Lastly, future research must use more inclusive language regarding sex and sexual health in order to improve representation of individuals who do not conform to traditional gender binaries.

Conclusion

The results of this study support the hypothesis that increased exposure to pelvic health topics within DPT education improves student comfort addressing sexual health with future patients. It is evident that DPT programs must implement pelvic health content into their curriculum to provide a foundation for more holistic health care in order to address the growing number of patients impacted by sexual dysfunction. Arranging both pelvic health electives and clinical experiences for students will be beneficial to improve student comfort addressing sexual health concerns of future patients to a greater extent than exposure within curricula alone. The best way to integrate pelvic health topics into the curriculum remains an area for future research, although using the tool created for the purpose of this study, the Pelvic Health Curricular Exposure Scale, is a starting point for DPT programs to assess students' baseline level of exposure to and comfort with pelvic health topics. Without the willingness to initiate conversations regarding sexual health, physical therapists lose the ability to effectively treat or refer to specialized providers to manage sexual dysfunction and educate the patients on how their physical impairments can impact their sexual function (Tessler Lindau et al., 2008). With increasing levels of medication and drug use, surgeries, and mobility impairments impacting individuals living in today's society, entry level physical therapists must be able to practice as autonomous health care providers capable of addressing all aspects of health, including sexual health.

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Appendix A

Students' Attitudes Towards Addressing Sexual Health (SA-SH)

1. I feel comfortable about informing future patients about sexual health.
2. I feel comfortable about initiating a conversation regarding sexual health with future
3. I feel comfortable about discussing sexual health with future patients.
4. I feel comfortable about discussing sexual health issues with future patients regardless of their sex.
5. I feel comfortable about discussing sexual health issues with future patients regardless of their age.
6. I feel comfortable about discussing sexual health issues with future patients regardless of their cultural background.
7. I feel comfortable about discussing sexual health issues with future patients regardless of their sexual orientation.
8. I feel comfortable about discussing specific sexual activities with future patients.
9. I am unprepared to talk about sexual health with future patients.
10. I believe that I might feel embarrassed if future patients talk about sexual issues.
11. I believe that future patients might feel embarrassed if I bring up sexual issues.
12. I am afraid that future patients might feel uneasy if I talk about sexual issues.
13. I am afraid that conversations regarding sexual health might create a distance between me and the patients.
14. I believe that I will have too much to do in my future profession to have time to handle sexual issues.

15. I will take time to deal with patients' sexual issues in my future profession.
16. I am afraid that my future colleagues would feel uneasy if I brought up sexual issues with patients.
17. I am afraid that my future colleagues would feel uncomfortable in dealing with questions regarding patients' sexual health.
18. I believe that my future colleagues will be reluctant to talk about sexual issues.
19. In my education I have been educated about sexual health.
20. I think that I as a student need to get basic knowledge about sexual health in my education.
21. I have sufficient competence to talk about sexual health with my future patients.
22. I think that I need to be trained to talk about sexual health in my education.

All questions are answered on a Likert scale with 5 options: disagree, partly disagree, partly agree, agree, strongly agree.

Appendix B

Informed Consent

HOW DOES EXPOSURE TO PELVIC HEALTH CONTENT IN ENTRY LEVEL PHYSICAL THERAPY CURRICULA IMPACT STUDENTS' COMFORT LEVEL DISCUSSING SEXUAL HEALTH WITH FUTURE PATIENTS?

Dear Participant:

You are being invited to complete the following questionnaire about discussing regarding sexual issues with future patients and exposure to pelvic health topics within entry level physical therapy education. This research study is being conducted by Dr. Dawn Hall-Bibb and Dr. Elizabeth Levay and sponsored by the Department of Education at Bellarmine University. While there are few foreseeable risks, some of the questions are sensitive in nature. Questionnaires may elicit feelings of discomfort. You are strongly encouraged to contact your university's counseling center should you have any lasting negative psychological or emotional effects from the study. Your participation may or may not benefit you directly, however the information learned in this study may be helpful to others. The data you provide will help to improve entry level physical therapy curricula in order to better meet the sexual health needs of patients. Individuals will be invited to participate until approximately 400 participants are obtained. Participants must be English speaking, without visual impairments, able to manipulate an online webpage, and enrolled at an accredited Doctor of Physical Therapy program in the United States (in person, online, or hybrid format) to be included within this study. The questionnaire will be delivered electronically and will take approximately 10 minutes to complete. It will include 37 questions. Your completed questionnaire will be stored electronically on the co-investigator's computer, which is password protected. Individuals from Bellarmine University's Doctor of Philosophy in Health Professions Education and the Bellarmine University Institutional Review Board may inspect these records, although surveys will be de-identified. In all other respects, however, the data will be held in confidence to the extent permitted by law. Should the data be published, your identity will not be disclosed.

Please remember that your participation in this study is voluntary. By submitting the electronic questionnaire, you are voluntarily agreeing to participate, and allowing the researcher to use your responses as described. You are free to decline to answer any question that may make you feel uncomfortable, or which may render you prosecutable under law. Participants who provide their email address will be eligible to win a gift card not to exceed \$50. Should you decline to answer a particular question, you will still be eligible to win the gift card. By including your email address, you are agreeing to be contacted regarding the gift card. Your email address will not be used for any other purpose, except to notify you should you be selected to win the gift card. By providing your email address, be aware that absolute confidentiality cannot be guaranteed.

You acknowledge that all your present questions have been answered in language you can understand. If you have any questions about the study, please contact Dr. Elizabeth Levay (c: 606-584-0111) or Dr. Dawn Hall-Bibb (o: 502-272-8288) If you have any questions about your

rights as a research subject, you may call the Institutional Review Board (IRB) office at 502-272-8032. You will be given the opportunity to discuss any questions about your rights as a research subject, in confidence, with a member of the committee. This is an independent committee composed of members of the University community and lay members of the community not connected with this institution. The IRB has reviewed this study.

SURVEY LINK:

<https://forms.gle/BqP1ySMmpCZa5vYm7>

Sincerely,

Elizabeth Levay, PT, DPT

Board-Certified Women's Health Clinical Specialist

PhD in Health Professions Education Candidate, Bellarmine University

Appendix C

Cover Letter to Department Chair

Greetings,

I am Dr. Elizabeth Levay, PT, PhD candidate in Bellarmine University's Department of Education. Being the designated department chair/director for the Doctor of Physical Therapy program at your university, I am requesting and hoping that you would assist me in my data collection by sharing the following electronic questionnaire with the students enrolled in your physical therapy program. If you agree to allow your students to participate, all that is required of you is to forward this email and attachments to all current students enrolled in your program. Students are eligible to win a monetary prize of up to \$50.

This questionnaire examines physical therapy students' comfort discussing sexual issues with future patients and exposure to pelvic health topics within entry level physical therapy education. This research study is being conducted by Dr. Elizabeth Levay and Dr. Dawn Hall-Bibb and sponsored by the Department of Education at Bellarmine University. The data students provide will help to improve entry level physical therapy curricula in order to better meet the sexual health needs of patients.

I will send you intermittent reminders requesting that you continue to share this research opportunity with your students. I have attached the participant informed consent, as well as a link to the survey below.

Results of this research study will be shared with you following publication. Should you have any questions about the study, please contact Dr. Elizabeth Levay (c: 606-584-0111) or Dr. Dawn Hall-Bibb (o: 502-272-8288).

SURVEY LINK:

<https://forms.gle/BqP1ySMmpCZa5vYm7>

Sincerely,

Elizabeth Levay, PT, DPT

Board-Certified Women's Health Clinical Specialist

PhD in Health Professions Education Candidate, Bellarmine University

Appendix D

Survey Instrument

DPT Students' Exposure to Pelvic Health Topics

1. Do you agree to the following: I consent to participation in this research study and realize that my participation is completely voluntary AND meet the inclusion criteria: I am enrolled in an accredited Doctor of Physical Therapy program in the United States, am English speaking, without visual impairment, and can manipulate an online webpage.

Mark only one oval.

Yes

No

2. What is your age?

3. What is your ethnicity?

Mark only one oval.

Caucasian/White

African American

Asian

Hispanic or Latino

Native American

Pacific Islander or Native Hawaiian

Two or more

Other:

4. What is your gender?

Mark only one oval.

Male

Female

Transgender Male

Transgender Female

Non-Binary

Other:

5. What year are you in your physical therapy program?

Mark only one oval.

1st Year

2nd Year

3rd Year

6. In what state is your DPT program located?

7. Have you taken a women's health/pelvic health ELECTIVE within your entry level physical therapy program thus far?

Mark only one oval.

Yes

No

8. Have you participated in a women's health/pelvic health CLINICAL EXPERIENCE within your entry level physical therapy program thus far?

Mark only one oval.

Yes

No

9. As a result of your entry level physical therapy training, how informed do you feel about cardiac disease in women?

Mark only one oval.

Not at all informed

Slightly informed

Somewhat informed

Moderately informed

Extremely informed

10. As a result of your entry level physical therapy training, how comfortable do you feel addressing cardiac disease in future female patients?

Mark only one oval.

Very uncomfortable

Uncomfortable

Neutral

Comfortable

Very comfortable

11. As a result of your entry level physical therapy training, how informed do you feel about osteoporosis?

Mark only one oval.

Not at all informed

Slightly informed

Somewhat informed

Moderately informed

Extremely informed

12. As a result of your entry level physical therapy training, how comfortable do you feel addressing osteoporosis in future patients?

Mark only one oval.

Very uncomfortable

Uncomfortable

Neutral

Comfortable

Very comfortable

13. As a result of your entry level physical therapy training, how informed do you feel about bowel and colorectal health?

Mark only one oval.

Not at all informed

Slightly informed

Somewhat informed

Moderately informed

Extremely informed

14. As a result of your entry level physical therapy training, how comfortable do you feel addressing bowel and colorectal health in future patients?

Mark only one oval.

Very uncomfortable

Uncomfortable

Neutral

Comfortable

Very comfortable

15. As a result of your entry level physical therapy training, how informed do you feel about lymphedema UNRELATED to breast surgery?

Mark only one oval.

Not at all informed

Slightly informed

Somewhat informed

Moderately informed

Extremely informed

16. As a result of your entry level physical therapy training, how comfortable do you feel addressing lymphedema UNRELATED to breast surgery in future patients?

Mark only one oval.

Very uncomfortable

Uncomfortable

Neutral

Comfortable

Very comfortable

17. As a result of your entry level physical therapy training, how informed do you feel about athletic injuries common in women?

Mark only one oval.

Not at all informed

Slightly informed

Somewhat informed

Moderately informed

Extremely informed

18. As a result of your entry level physical therapy training, how comfortable do you feel addressing athletic injuries common in future female patients?

Mark only one oval.

Very uncomfortable

Uncomfortable

Neutral

Comfortable

Very comfortable

19. As a result of your entry level physical therapy training, how informed do you feel about musculoskeletal dysfunction in pregnancy?

Mark only one oval.

Not at all informed

Slightly informed

Somewhat informed

Moderately informed

Extremely informed

20. As a result of your entry level physical therapy training, how comfortable do you feel about addressing musculoskeletal dysfunction in pregnancy in future patients?

Mark only one oval.

Very uncomfortable

Uncomfortable

Neutral

Comfortable

Very comfortable

21. As a result of your entry level physical therapy training, how informed do you feel about pelvic floor dysfunction?

Mark only one oval.

Not at all informed

Slightly informed

Somewhat informed

Moderately informed

Extremely informed

22. As a result of your entry level physical therapy training, how comfortable do you feel about addressing pelvic floor dysfunction in future patients?

Mark only one oval.

Very uncomfortable

Uncomfortable

Neutral

Comfortable

Very comfortable

23. As a result of your entry level physical therapy training, how informed do you feel about incontinence?

Mark only one oval.

Not at all informed

Slightly informed

Somewhat informed

Moderately informed

Extremely informed

24. As a result of your entry level physical therapy training, how comfortable do you feel about addressing incontinence in future patients?

Mark only one oval.

Very uncomfortable

Uncomfortable

Neutral

Comfortable

Very comfortable

25. As a result of your entry level physical therapy training, how informed do you feel about obstetrics? (Obstetrics includes: coccygodynia, diastasis recti abdominis, gallstones, high risk obstetric status, labor and delivery pain management, musculoskeletal function during pregnancy, nerve compression, obstetric related depression, and thromboembolism)

Mark only one oval.

Not at all informed

Slightly informed

Somewhat informed

Moderately informed

Extremely informed

26. As a result of your entry level physical therapy training, how comfortable do you feel about addressing obstetrics in future patients? (Obstetrics includes: coccygodynia, diastasis recti abdominis, gallstones, high risk obstetric status, labor and delivery pain management, musculoskeletal function during pregnancy, nerve compression, obstetric related depression, and thromboembolism)

Mark only one oval.

Very uncomfortable

Uncomfortable

Neutral

Comfortable

Very comfortable

27. I feel comfortable about informing future patients about sexual health.

Mark only one oval.

Disagree

Partly disagree

Partly agree

Agree

Strongly agree

28. I feel comfortable about initiating a conversation regarding sexual health with future patients.

Mark only one oval.

Disagree

Partly disagree

Partly agree

Agree

Strongly agree

29. I feel comfortable about discussing sexual health with future patients.

Mark only one oval.

Disagree

Partly disagree

Partly agree

Agree

Strongly agree

30. I feel comfortable about discussing sexual health issues with future patients regardless of their sex.

Mark only one oval.

Disagree

Partly disagree

Partly agree

Agree

Strongly agree

31. I feel comfortable about discussing sexual health issues with future patients regardless of their age.

Mark only one oval.

Disagree

Partly disagree

Partly agree

Agree

Strongly agree

32. I feel comfortable about discussing sexual health issues with future patients regardless of their cultural background.

Mark only one oval.

Disagree

Partly disagree

Partly agree

Agree

Strongly agree

33. I feel comfortable discussing sexual health issues with future patients regardless of their sexual orientation.

Mark only one oval.

Disagree

Partly disagree

Partly agree

Agree

Strongly agree

34. I feel comfortable about discussing specific sexual activities with future patients.

Mark only one oval.

Disagree

Partly disagree

Partly agree

Agree

Strongly agree

35. I am unprepared to talk about sexual health with future patients.

Mark only one oval.

Disagree

Partly disagree

Partly agree

Agree

Strongly agree

36. I believe that I might feel embarrassed if future patients talk about sexual issues.

Mark only one oval.

Disagree

Partly disagree

Partly agree

Agree

Strongly agree

37. I believe that future patients might feel embarrassed if I bring up sexual issues.

Mark only one oval.

Disagree

Partly disagree

Partly agree

Agree

Strongly agree

Appendix E

Information for Gift Card Drawing (OPTIONAL)

1. First & Last Name:
2. University Email:
3. Cell Phone Number: