Improving Provider Comfort with the Assessment and Treatment of Erectile Dysfunction

Jennifer Burbage-Vieth

University of Missouri-Kansas City

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Abstract

Sexuality and optimal erectile function are essential aspects of holistic care. Healthcare providers, however, do not routinely assess erectile function in male patients during the annual wellness exam. Men are more likely to seek medical attention for erectile dysfunction than other medical conditions, allowing providers to discover and treat underlying comorbidities sooner. Earlier identification and treatment of erectile dysfunction and accompanying comorbidities will reduce long-term medical costs and patient suffering. Primary health care providers are often the initial point of contact for patients with sexual health concerns. Existing practice often focuses on other aspects of disease and prevention, avoiding the discussion of sexual health and erectile function. A needs assessment survey gathered data from nurse practitioners belonging to the Texas Nurse Practitioners professional organization to assess reasons for perceived discomfort surrounding the topic of erectile dysfunction and sexual health, the desire for additional education about erectile dysfunction, and treatment practices. A total of 166 nurse practitioners completed the survey. The majority of nurse practitioners expressed an interest in additional training in sexual health assessment and treatment. Use of the International Index of Erectile Function or similar questionnaire, as the standard of practice during the annual exam for all male patients 40 years and older, will aid in facilitating the discussion and identification of erectile dysfunction and possible underlying comorbidities.

Keywords: comfort, erectile dysfunction, middle-aged men, nurse practitioner, sexual medicine, and sexual health

Improving Provider Comfort with the Assessment and Treatment of Erectile Dysfunction

Holistic care encompasses sexuality and erectile function as an essential aspect of overall wellness (Fisher et al., 2015; Foley, 2015; Goldstein, Chambers, Tang, Stecher, & Hassan, 2018). However, healthcare providers do not routinely discuss the topic of sexual health with patients (Almigbal & Schattner, 2018; Arikan, Meydanlioglu, Ozcan, & Ozer, 2014; Dyer & das Nair, 2013; Hughes & Wittmann, 2015; Shindel et al., 2013). A thorough synthesis of evidence allows insight into the subject of erectile dysfunction (ED), provider discomfort discussing ED, and lack of ED assessment in an annual wellness exam. Exploring reasons for the discomfort providers perceive and enhancing education to mitigate this discomfort will facilitate the incorporation of sexual wellness as the standard of care.

Sexual wellbeing improves the quality of life for the male patient and his partner (Capogrosso et al., 2016). Erectile dysfunction is often a precursor to more serious medical issues such as elevated cholesterol levels, hypertension (HTN), cardiovascular disease (CVD), depression, and diabetes mellitus (DM; Burnett et al., 2018; Raheem, Su, Wilson, & Hsieh, 2017). Identification of ED and possible underlying comorbidities allows for earlier treatment and reduced healthcare costs (Raheem et al., 2017). Incorporating the International Index of Erectile Function five (IIEF-5; Appendix A) question test, also known as the Sexual Health Inventory for Men (SHIM), as part of the annual wellness exam for all male patients 40 years and older can aid in facilitating the discussion of ED (American Urological Association [AUA], 2018; Rosen et al., 1999).

Local Issue

Research conducted by Travison et al. (2011) states that over 50% of American men over the age of 40 are affected by some form of ED. Men are more likely to seek medical care for ED

than other medical conditions, which can assist providers in discovering and treating underlying comorbidities such as HTN, DM, and CVD, thus reducing long-term medical costs and patient suffering (Burnett et al., 2018; Pastuszak et al., 2015; Rew & Heidelbaugh, 2016). The literature documents the discomfort surrounding the subject of sexual health and the lack of training perceived by medical providers (Arikan et al., 2014; Criniti, Crane, Woodland, Montgomery, & Hartmann, 2016; Dyer & das Nair, 2013; Green & Kodish, 2009). Without a concrete policy and standardized questionnaire in place to address sexual health and erectile function during the annual wellness exam, the potential for physical and psychological harm increases (Fisher et al., 2015; Kirkman, Fox & Dickson-Swift, 2016; Raheem et al., 2018).

Primary health care professionals are usually the initial point of contact for patients with sexual health concerns (Ab Rahman, Al-Sadat & Low, 2011; Dyer & das Nair, 2013; Green & Kodish, 2009; Kirkman et al., 2016). Existing practice often focuses on other aspects of disease and prevention, avoiding the discussion of sexual health (Criniti et al., 2016). Providers report a lack of training surrounding the topics of sexual health and ED as the primary reason for avoiding assessment (Criniti et al., 2016; Dyer & das Nair, 2013; Haesler, Bauer, & Fetherstonhaugh, 2016; Hughes & Wittmann, 2015).

Diversity Considerations

Growing up in various regions of the country, religious beliefs, and foreign-born status are some of the factors that influence comfort levels and perceived barriers surrounding the discussion of erectile dysfunction (Almigbal & Schattner, 2018; Arikan et al., 2014). The level of education, traditional classroom setting versus online learning, as well as a provider's gender and sexual orientation influence comfort with the topic of ED (Childers, 2015; Haesler et al., 2016). Additional diversity considerations are socioeconomic status, race, generation of the medical

provider, type of medicine practiced, and the patient base served (Almigbal, & Schattner, 2018; Arikan et al., 2014). A predominantly heterosexual or homosexual male patient population may also affect a provider's comfort level with erectile function discussions (Barbonetti et al., 2019).

Problem Statement

Avoiding the assessment of erectile function in male patients 40 years and older is linked to an increased risk of undiscovered comorbidities as well as psychological damage to the patient and his partner (Capogrosso et al., 2016; Colson, Cuzin, Faix, Grellet, & Huyghes, 2018). Without the regular assessment of erectile function in male patients 40 years and older, missed diagnoses, damage to love relationships, and damage to a patient's self-esteem are risk factors (Fisher et al., 2015). Holistic healthcare focuses on all aspects of wellness which includes sexual health (Goldstein et al., 2018).

Intended Improvement

Assessing the reasons for provider discomfort with ED discussions and finding ways to increase providers' comfort levels surrounding the assessment of erectile function is the intended purpose of the DNP project. Improving providers' understanding of the implications that ED has on a patient's physiologic as well as psychological health by incorporating sexual health education into formal provider programs is essential (Fisher et al., 2015; Haesler et al., 2016).

Patients express a desire to discuss ED with their providers but would prefer the provider to initiate dialogue versus bringing up the subject of ED themselves (Mellor et al., 2013). Many topics discussed routinely with patients, such as depression, domestic violence, and substance use, were once taboo topics (Vertino, 2014). The discussion of erectile dysfunction has improved since the introduction of the phosphodiesterase-5 (PDE-5) inhibitors and direct to consumer advertising, but is still overlooked and under-discussed in primary health care (Ab

Rahman et al., 2011; Dyer & das Nair, 2013; Spencer et al., 2016). Routine distribution of the IIEF-5 questionnaire to all male patients 40 years and older, on an annual basis, is the investigator's aim for future standard practice in the clinic setting.

Facilitators and Barriers

A primary facilitator for project implementation was evidence showing the need to increase provider comfort while incorporating the IIEF-5 during annual wellness exams for male patients 40 years and older, improving the quality of care. Additional facilitators included investigators of a 2009 study, project mentor, Texas Nurse Practitioners (TNP) administrators, UMKC faculty mentors, and TNP members.

Surveys have a substantial cost and logistical advantage and introduce no sample bias. Response rates for online surveys, averaging around 20%, are lower than paper-based surveys (Brtnikova et al., 2018). To mitigate low survey response rates, a large population received the link to the survey as well as receiving an email response reminder. The investigator's current clinic setting was a barrier due to frequent changes in upper-level management, creating difficulty enlisting stakeholders.

Inquiry

In nurse practitioners working with male patients 40 years and older, will an online survey assess knowledge, comfort levels, perceived barriers, and treatment practices related to the discussion of erectile dysfunction support the need for educational enhancement and routine use of the International Index of Erectile Function 5 (IIEF-5) questionnaire during annual wellness exams in future practice?

Search Strategies

The evidence topics of ED and sexual health encompasses medical, nursing, and psychological aspects (Utomo, Blok, Pastoor, Bangma, & Korfage, 2015). A search utilized PubMed, Scopus, CINAHL, Cochrane, and ProQuest databases as well as the search engine Google Scholar. Websites used in the literature search included the United States Department of Health and Human Services and the American Urological Association. Comfort, erectile dysfunction, middle-aged men, nurse practitioners, sexual medicine, and sexual health were the keywords (Appendix B). Inclusion criteria were humans, males, ages between 40-65 years old, English language articles, medical providers, and studies done within the last ten years. Exclusions were foreign-language articles, studies greater than ten years old, animal research, and men less than 40 years old.

Evidence by Themes

The inquiry yielded 25 academic journal articles with date ranges between 2011 to 2019, with one summarization of the psychometric validation of the IIEF published in 2002 (Appendix C). Identification of four themes included curriculum change to enhance provider comfort with the discussion of ED, underlying comorbidities associated with ED, practice guidelines, and utilization of the IIEF-5 and similar questionnaires (Appendix D).

Curriculum Change to Enhance Provider Comfort with the Discussion of ED

Nine studies reviewed and synthesized for the DNP project highlighted the need for curriculum change to enhance provider comfort with the topic of erectile dysfunction. Two level II studies (Foley, 2015; Haesler et al., 2016) and seven level III studies (Almigbal & Schattner, 2018; Arikan et al., 2014; Criniti et al., 2016; Dyer & das Nair, 2013; Hughes & Wittman, 2015;

Mellor et al., 2013; Shindel et al., 2013). Research completed by Green and Kodish (2009), discussing the survey tool utilized for the DNP project, was also included.

Patients are often hesitant to discuss ED without being prompted, preferring the medical provider to initiate the topic (Ab Rahman et al., 2011; Criniti et al., 2016; Dyer & das Nair, 2013). Despite the widespread recognition of ED, addressing the topic with male patients is often overlooked, with some studies showing less than 10% of providers asking high-risk patients about erectile function (Almigbal & Schattner, 2018). The literature review highlighted healthcare provider discomfort surrounding the topic of sexual health and erectile function, with the lack of education cited as the common denominator (Criniti et al., 2016; Mellor et al., 2013). Providers agree on the importance of education surrounding the topic of sexual health in middle-aged and older patients (Haesler et al., 2016). Providers reported receiving some formal training on sexual health knowledge, with content mainly revolving around topics such as sexually transmitted diseases and infertility (Haesler et al., 2016). Providers report feeling educationally unprepared and uncomfortable discussing sexual health and erectile function (Hughes & Wittmann, 2015).

Countries renowned for more conservative views on sexuality showed the least amount of comfort in discussing the topic of erectile function with patients. China is cited as the most traditional, followed by the Middle-Eastern countries, and the United States ranking third concerning sexually conservative viewpoints (Arikan et al., 2014). European countries are the least conservative and most likely to explore the topic of ED with male patients in the primary care setting (Arikan et al., 2014). The review of evidence shows strong support for curriculum change, but gathering data and statistics versus providing suggestions for process change is a common accusation of the researcher (Foley, 2015; Hughes & Wittmann, 2015). Advocating for

educational enhancement to foster knowledge and increase provider comfort with the assessment of erectile function in middle-aged and older male patients will enhance preventive health measures (Kirkman et al., 2016).

Erectile Dysfunction and Underlying Comorbidities

Six studies discussed erectile dysfunction (ED) and underlying comorbidities. The studies included two level II studies (Capogrosso et al., 2017; Dursun, Besiroglu, Cakir, Otunctemur, & Ozbek 2018), three level III studies (Colson et al., 2018; Goldstein et al., 2018; Raheem et al., 2017), and one level V study (Pastuszak et al., 2015).

Erectile dysfunction is not a natural or unpleasant side effect of aging, but rather a barometer of overall wellness that can point to underlying comorbidities (Raheem et al., 2017; Rew & Heidelbaugh, 2016). Identification of these comorbidities and treatment in the primary or secondary stages can reduce a patient's financial and psychological burden (Pastuszak et al., 2015). ED is often a symptom pointing towards underlying comorbidities such as DM, obesity, depression, CVD, and HTN (Capogrosso et al., 2016; Colson et al., 2018; Dursun et al., 2018; Raheem et al. 2017).

Discovery of an unusual and unexpected side effect occurred in the 1990s during the research of a new class of antihypertensive medication, the phosphodiesterase-5 (PDE-5) inhibitor (Goldstein, Burnett, Rose, Park & Stecher, 2019). The first PDE-5 inhibitor was sildenafil, otherwise known by the brand name Viagra©, and had the unusual side effect of promoting erections in otherwise healthy men (Goldstein et al., 2019). The discovery would become a revolutionary breakthrough in men's health and create a widespread shift throughout society, loosening the taboos surrounding ED and sexuality (Goldstein et al., 2019). Men began

seeking medical treatment more readily for ED, enabling the identification of underlying comorbidities sooner (Goldstein et al., 2019).

Two systematic reviews published in 2017 and 2018 provided guidelines for the identification of ED and associated comorbidities (Colson et al., 2018; Raheem et al., 2017). The reviews analyzed epidemiological studies and causal links between disease and risk factors (Colson et al., 2018; Raheem et al., 2017). Associations between ED and comorbidities allow for preventive measures against potentially dangerous future medical events (Goldstein et al., 2018; Raheem et al., 2017).

Evidence-based Practice Guidelines: Screening Patients for Erectile Dysfunction

The review discovered two level I evidence-based practice guidelines for the identification and treatment of ED (Goldstein et al., 2019; American Urological Association [AUA], 2018), one level II study (Rew, & Heidelbaugh, 2016), and one level III study With the discovery of sildenafil, treatment options, and guidelines for the management of ED have advanced (Goldstein et al., 2019). The American Urological Association (AUA) guidelines have changed the classification of ED to a medical condition (AUA, 2018).

Clinical guidelines provide a strategy for the diagnosis and treatment of ED (AUA, 2018). The discussion of ED has improved since the introduction of the PDE-5 inhibitors and direct to consumer pharmaceutical advertising (Ab Rahman et al., 2011; Spencer et al., 2016; Ventola, 2011) but is still an overlooked and under-discussed issue in primary health care (Dyer & das Nair, 2013). Direct to Consumer Pharmaceutical Advertising (DTCPA) allowed restrictions, initially placed on pharmaceutical companies that prevented direct advertisement to the public, to lift as early as 1981 and take full effect in 1997 (Ventola, 2011). With DTCPA and the discovery of a new drug created by the Pfizer Pharmaceutical Company in 1998, a little blue

pill presented into the consumer spotlight (Goldstein et al., 2019). The inconvenient side effect, mentioned earlier, presented men with a new opportunity to seek care for a medical condition that was swept under the rug for decades, fostering AUA guideline changes in the management of ED (Goldstein et al., 2019).

Per the AUA (2018) practice guidelines, thorough medical, sexual, and psychosocial histories should be performed on all men presenting with ED symptoms. Physical examination, validated questionnaires, and selective laboratory testing are recommended to assess the severity of ED (AUA, 2018; Burnett et al., 2018). Questionnaires provide an opportunity for providers to evaluate ED when sexual concerns are not the primary presenting health issue (AUA, 2018). A systemic review completed by Rew and Heidelbaugh (2016) provides guidelines for the use of the IIEF-5 as a screening tool for the rapid identification of ED as well as recommended guidelines and available treatment options for male patients. Integrated care to treat ED is recommended as a guideline to improve standardization and address the multidimensional aspects of ED (Colson et al., 2018).

Utilization of the IIEF-5 for Identification of Erectile Dysfunction

Six studies identified the utilization of the IIEF-5 in practice. The six studies include one level I study (Rosen, Cappelleeri, & Gendrano, 2002), three level II studies (Chung, 2016; Limoncin et al., 2019; Yule, Davison, & Brotto, 2011) and two Level III well-designed control trials without randomization (Tang et al., 2014; Utomo et al., 2015).

The International Index of Erectile Function test was created for use as a validated and reliable tool during the Pfizer Pharmaceutical sildenafil drug trials (Rosen et al., 2002). The original test consisted of 15 questions. In the general practice setting versus specialty settings, a short form comprised of five questions from the more detailed original questionnaire, known as

the IIEF-5 or SHIM, is cited as the most appropriate tool for the assessment of erectile function (AUA, 2018). Research by Tang et al. (2014) shows the IIEF-5 to be a valuable tool, allowing for the differentiation between organic versus psychological causes of ED. The distinction between the two causes of ED can assist patients and providers with the most appropriate treatment options. The IIEF-5 shows some limitations in use for accurately assessing the degree of ED in men who are engaging in activities other than intercourse (Yule et al., 2011). The IIEF is now validated in 32 languages and used successfully in more than 50 clinical trials with its most validation in the Netherlands in 2014 (Utomo et al., 2015).

Two studies by Yule et al. (2011) and Limoncin et al. (2019) suggest the need for a new tool, the Masturbation Erection Index (MEI), for use in male patients who are not sexually active. The MEI is the first new tool since the inception of the IIEF in 1997 (Limoncin et al., 2015). Another new tool, for use in patients suffering from ED with diabetes as the underlying comorbidity, is discussed in research by Chung et al. (2016). The questionnaire is titled Sexual Dysfunction in Asian Men with Diabetes (SAD-MEN). The study determined the tool to be valid and reliable, with only one study conducted and no follow-up research discovered. Guidelines suggest the use of the IIEF-5 in clinical practice as the best tool for the measurement of ED allowing for rapid clinical assessment of this condition (AUA, 2018; Rew & Heidelbaugh, 2016).

Theory

Comfort as a concept has historical significance based in nursing since the time of Florence Nightingale (Kolcaba, 1991). Kolcaba (1991) states that comfort is the optimal standard of nursing care (Appendix E). Terms such as relief, ease, peace, relief from mental anguish, pleasure, encouragement, and support are the essence of the concept of comfort (Kolcaba, 1991).

Based on these terms, assessing provider comfort surrounding the topic of sexual health and ED will further the need for educational enhancement. Determining perceived barriers to achieving comfort has important implications for providing the highest level of care in practice settings. Studies show patients want to discuss ED with their providers, preferring this discussion be initiated by the provider, yet only a small percentage of providers begin this dialogue (Almigbal & Schattner, 2018; Criniti et al., 2016).

Methods

IRB Approval

The investigator received permission to disseminate a needs assessment survey from the University of Missouri-Kansas City (UMKC) Institutional Review Board (IRB). The project was determined exempt research by the UMKC IRB on July 10, 2019 (Appendix F). Participants remained anonymous with no identifying data captured. Participation was voluntary, with completion of the survey constituting participant consent.

Site Approval

Administrators of the Texas Nurse Practitioners (TNP) professional organization granted permission to disseminate a recruitment email and link to an online survey for data collection. The submission process required IRB approval or exemption and a $100 fee. TNP members, designated by the TNP president, validated the research proposal before the beginning of the study. Texas Nurse Practitioner organization provided approval, allowing for the conduction of the study (Appendix G). TNP requires publishing of research results in the TNP Pulse newsletter and on the TNP website after the study is complete.

Ethical Issues

The Research Electronic Data Capture software (REDCap©) assured privacy and confidentiality and did not include identifying questions of the individuals who agreed to participate. The student investigator did not identify any research conflicts.

Funding

The expense of the project consisted of the student investigator's time to create and disseminate a needs assessment survey, as well as presentation at a national conference, and a $100 fee for utilization of the TNP member database for survey distribution. Travel between Wichita Falls and Dallas, Texas to meet with the investigator's project mentor also factored into the costs. The UMKC provided the REDCap © survey software free of charge. Printed materials required for the poster presentation are included in the cost table (Appendix H). A $400 travel stipend offset costs through the UMKC Graduate Student Travel Grant as well as an $800 Dr. Harriette Yeckel Memorial Award scholarship, awarded by the UMKC Women's Council.

Setting and Participants

A needs assessment survey obtained and collected self-reported descriptive information via the web-based program REDCap©. Nurse practitioners belonging to TNP, currently 5,100 members, received the needs assessment survey via an email containing a survey link. Inclusion criteria were nurse practitioners working in the adult, family practice, and psychiatric settings with male patients ages 40-65. Exclusions included nurse practitioners who are not currently practicing, working in pediatric or surgical settings, or with a patient base older than 65 years of age.

The study used a convenience sampling method. Survey completion was voluntary, without monetary compensation. The investigator anticipated a 10-20% return rate per the

literature review (Brtnikova et al., 2018). The study assessed provider comfort with discussing erectile dysfunction with patients, the desire for continuing education, and treatments provided to patients for erectile dysfunction.

Evidence Based Practice Intervention

The first phase of the project began during the summer 2019 semester with the development of a needs assessment survey. The Texas Nurse Practitioner (TNP) professional organization granted permission to disseminate the needs assessment survey to members at the beginning of the fall 2019 semester. Dissemination consisted of a letter of consent explaining the reason for the research study as well as the link to access the survey on REDCap©. Access to the survey began on September 15 and ended on October 31, 2019. Analysis of the survey results occurred during the spring 2020 semester. The student investigator presented the DNP project topic at the Society for Urologic Nurses and Associates National Conference in Orlando, Florida in October of 2019 (Appendix I).

Change Process Model and EBP Framework

The project utilized the Model of Change theory, written by Kotter and Cohen (2002). Kotter and Cohen (2002) explain that people change how they do things from being shown a truth that influences their thought process. The framework focuses on eliciting a sense of urgency, which will assist in promoting change. The documentation contained in the literature highlight the importance of identifying ED and possible underlying comorbidities. Ease in using the IIEF-5 during annual exams, for all men age 40 and older, should empower medical providers to embrace the change (AUA, 2018; Nehra et al., 2013).

The Iowa Model is applicable for use in various academic as well as clinical settings (Gawlinski & Rutledge, 2008). The Iowa Model allows for the combination of quality

improvement combined with research that nurses understand. Evidence Based Practice (EBP) begins with a clinical problem and sets a project in motion. The Iowa Model asks three critical questions; the reason to focus on a clinical problem, identification of sufficient research to support further exploration of a particular clinical issue, and proposal of change that is most appropriate for adaption into practice (The Iowa Model Collaborative, 2017).

Over 50% of American men 40 years and older are affected by some form of ED, with ED prompting a man to seek medical care (Rew & Heidelbaugh, 2016). Identification of ED can assist providers in discovering and treating underlying comorbidities such as HTN, DM, depression, obesity, and CVD sooner, thus reducing long-term medical costs and patient suffering (Nehra et al., 2013; Pastuszak et al., 2015; Raheem et al., 2017). Evidence supports further exploration of the clinical issue, which highlights the second aspect of the Iowa Model and adaptation to change (The Iowa Model Collaborative, 2017). Educational enhancement that underscores the importance and ease of discussing ED with male patients, through the distribution of the IIEF-5 during the annual exam, is a realistic expectation with reasonable sustainability in future practice (Appendix J).

Study Design

The descriptive study attempted to identify patterns and trends in the discussion and treatment of erectile dysfunction by nurse practitioners. The study also ascertained whether nurse practitioners were associating ED and underlying comorbidities, desiring additional education on ED, as well as acknowledging the importance of broaching the ED topic with male patients 40 years and older.

Validity

Green and Kodish (2009) did not report validity and generalizability formally in the original study. Dissemination of the investigator's DNP project survey to nurse practitioners belonging to one professional state organization allowed for possible bias and may affect the validity of survey results. The investigator does not have any direct reports, eliminating investigator bias. Dissemination of an online survey may result in a small sample size of responses, which can also affect the validity (Brtnikova et al., 2018). The nature of the survey questions, however, allows for the application of results to be generalized to a larger population. Replication is possible across other samples and settings, such as physician assistants and physicians, supporting the external validity of the study.

Outcomes

Assessing nurse practitioners' communication strategies, comfort level with the topic of ED, current patterns of treatment for ED, and the desire for additional educational enhancement were the primary goals of the DNP project. The secondary outcome of the DNP project is routine administration of the IIEF-5 to all male patients 40 years and older as part of the annual wellness exam and enhancing education during the formal educational process and at professional conferences (Appendix K).

Measurement Instrument

Oral and written permission for the use of the survey instrument and permission to edit was granted by both Dr. Roger Green, DNP and Dr. Slavica Kodish, Ph.D. (Appendix L). The DNP project used the survey designed by Dr. Roger Green, DNP, with slight modification of some questions for clarity and accurate data collection (Appendix M). The survey consisted of

21 questions, arranged in four domains. The four domains included demographic characteristics of survey participants, amount of education received during formal nurse practitioner education pertaining to ED, interest in continuing education and education enhancement, and current treatment practices utilized in the clinic setting. (Green & Kodish, 2009).

Quality of Data

Data collected from the study attempted to ascertain if the topic of ED is addressed in the clinic setting regularly with male patients 40 years and older and the identification of perceived barriers. Identifying ED in the early stages is imperative to improving patient care, reducing long term medical costs associated with delayed identification, and treating possible underlying comorbidities. Results that support the need for educational enhancement were the desired outcome. The survey enabled nurse practitioners to express perceived barriers, allowing for change measures that are most meaningful for future practice. Incorporation of future educational enhancement will indicate whether the individuals impacted by the change are benefiting, because measuring individual progress can be a leading indicator of overall project success.

Analysis

Descriptive statistics were used to report a summary of observations from the demographics and survey items.

Results

Setting & Participants

One hundred and sixty-six surveys were completed, for a completion rate slightly more than 3% (Appendix N). Fifty-six percent of respondents were 50 years or older, followed by respondents between the ages of 40-49 (24.1%), 17.5% between 30-39 years, and four

respondents (2.4%) between the ages of 20-29 years old. The majority of respondents (78.9%) identified as female, 21.1% male, and no respondents identifying as other gender. The majority of nurse practitioners surveyed (58.4%) work in the family health setting, followed by adult health (22.9%), and 3% in psychiatric settings. The category of "other healthcare setting" comprised 15.7% of the remaining responses.

Forty percent (40%) of respondents practiced for ten years or longer, 22.3% practiced for less than 5-10 years, 25.3% practiced for 1-5 years, and 12% practiced for less than one year. One survey participant had a Bachelor of Science in Nursing, 79.5% held a Master's degree, and 19.9% held a Doctoral degree.

Intervention Course

The DNP project consisted of a needs assessment survey to assess comfort providers perceive concerning the topic of erectile dysfunction, desire for continuing education pertaining to ED and sexual health, as well as the current treatment patterns for patients diagnosed with ED.

Outcome Data

Of the 166 nurse practitioners who completed the survey, 60.8% stated that sexual health and ED were topics covered during their education, but 53.0% said sexual health and wellness encompassed less than 5 hours of their formal education (Appendix O). The majority of NPs (84.9%) stated they were somewhat to very interested in attending a conference with continuing education offered on the topic of ED and evidence based treatment (Appendix P). No response indicated that NP curriculum should exclude the topic of ED (Appendix Q).

Education. The majority of NPs surveyed felt confident with their assessment and communication skills, with only 17.5% stating they would like training to improve their assessment of ED. Knowledge of disease management in the clinic setting was desired by 60.2% of the respondents who felt this was an area needing improvement (Appendix R). Interest in

attending continuing education course related to EBP guidelines for the treatment of erectile dysfunction was expressed by 141, out of 166, survey participants.

Treatment Practices. A majority of respondents (68.6%) treat patients for ED in their practices. Nearly the same number (64.5%) report writing prescriptions to manage symptoms with 41.0% stating they prescribe treatments other than the phosphodiesterase-5 (PDE-5) inhibitors. The most common alternative treatment to PDE-5 inhibitors was listed as hormone replacement therapy (N=58). Per the AUA (2018) guidelines, "Men should be advised that testosterone therapy is not an effective mono-therapy for erectile dysfunction" (Guideline Statement 12, p. 34). Yet even with this guideline, 37.2% of respondents state they utilize hormone replacement therapy (HRT) as monotherapy treatment. While HRT is considered a Grade C recommendation as an adjunct to PDE-5 inhibitors, serum testosterone levels should be checked before initiating HRT and only utilized as adjunct therapy for patients with a total testosterone level <300 ng/dl (AUA, 2018).

Ninety-eight respondents (59.0%) stated they do not offer any treatments, other than PDE-5 inhibitors, or they simply refer patients to specialists for treatment. One hundred fifty-six survey participants answered the question about what additional treatments they offered. Vacuum erection devices accounted for 11.5% of the responses, psychosexual therapy 10.3%, Intracavernous injections 9.6%, surgical referral for penile prosthesis 9.0%, and intraurethral suppositories were prescribed for 1.9% of the clinician's patients (Appendix S). On the subject of influence on prescribing practices among NPs who collaborate with a physician, 77 respondents (46.7%) reported feeling somewhat to highly influenced by their collaborative physician, with 87 survey participants (53.0%) stating the physician had little to no influence over the clinician's prescribing patterns.

Comfort. The majority of respondents (N=149, 89.7%) stated they felt somewhat to extremely comfortable discussing ED with their patients, and 15 respondents (9.1%) reported feeling uncomfortable. Nearly 70% (N=116, 69.8%) of NPs treating patients for CVD, HTN, or DM reported sometimes, rarely, or never broaching the topic of erectile dysfunction (Appendix T). Of those respondents that discuss ED with patients, half of the providers bring up the issue, and the other half wait for the patient to bring up the topic. Studies show that most patients would prefer the provider to initiate dialogue pertaining to ED versus initiating the subject themselves (Almigbal & Schattner, 2018; Arikan et al., 2014; Criniti et al., 2016; Foley, 2015; Hughes & Wittmann, 2015).

Discussion

Successes

Successes of the study included 166 survey responses, with only 13 incomplete surveys. Two respondents failed to answer seven questions, and one question had 156 out of 166 participants answer. The two participants who did not answer the seven questions may be attributed to the providers treating patients for erectile dysfunction or working in a setting otherwise specified in the recruitment email. The study showed that a majority of participants desire additional education pertaining to ED. The DNP project supports the need for further provider education on assessment and management of erectile dysfunction in all male patients 40 years and older. Uncovering the diagnosis of ED for physiologic as well as psychological reasons is paramount to best healthcare practice.

Study Strengths

The project had many strengths. The education staff at the TNP professional organization approved the project in less than 48 hours and disseminated the recruitment letter

and survey link to all TNP members. Enthusiasm and support from UMKC faculty as well at the medical reference librarian at Texas Woman's University were invaluable. The project was relatively low in cost, with a small amount offset by a travel stipend as well as a scholarship from the UMKC Women's Graduate Assistance Fund. The survey received positive feedback from several NPs wanted assistance with surveys for improvement projects. Study results show both a need as well as a desire for educational enhancement as well as continuing education offerings related to the assessment and treatment for erectile dysfunction.

Results Compared to Evidence in the Literature

Both nurse practitioners (NPs) and physician assistants (PAs) participated in the Green and Kodish (2009) study. Only NPs participated in the DNP project study. Similar to the Green and Kodish study, more females than males completed the questionnaire. Both studies showed a majority of respondents ages 40 and older as well as holding master's degrees. Family health represented the largest practice setting for both studies. "Other" was the second-largest field of practice in the Green and Kodish study. In contrast, the adult setting represented the second largest number of participants in the current study. The same number of participants, 12%, reported less than one year in practice for both studies. More NPs and PAs were in practice for 1-10 years (23%) in the initial research, but nearly double the number of participants (40%) in the current study were in practice for ten years or longer.

Findings from the 2009 study reported nearly 78% of the respondents underwent some form of ED training during formal education, with only 61% of the 2019 study respondents reporting any ED education during training to become a nurse practitioner. With the inclusion of both NPs and PAs in the 2009 study, the difference in educational focus between nurse practitioners and physician assistants may attribute to the difference in a larger number of

participants from the 2009 study reporting formal training pertaining to ED. In the 2009 study, 77% of the respondents stated receiving ED education, with only 60% of current study participants reporting ED training during formal studies. The number of hours dedicated to assessment and management of ED was small for both groups, with only 5.6% receiving over five hours of training in the 2009 study, increasing to 8% in the 2019 survey. The majority of survey participants, in both studies, received zero to less than five hours of formal sexual education (94.4% in 2009, 92% in 2019).

A vast majority of respondents, 86% in both study groups, showed interest in attending programs discussing ED in primary care. A small number of participants (13.6% in 2009, 15% in 2019) reported no interest in ED education. Almost double the study respondents, 36% in 2009 compared with 60% in 2019, stated medical management of ED is of most interest for continuing education. In 2009, 21% of those surveyed felt their communication skills would benefit from continuing education compared with 13% in the current study, showing improved comfort level discussing ED compared to a decade ago. Comfort levels discussing ED with patients did not vary greatly from the 2009 study but showed an improvement compared with the original study (Appendix U).

The 2019 study reports an equal number of respondents either bring up the topic of ED or allow the patient to initiate the discussion, while the research from 2009 listed four open-ended categories in communication strategies. The four categories in the 2009 study were directly initiating the topic, discussing ED during introduction, discussing ED in high-risk patients, or allowing the patient to initiate the discussion. One similarity between the 2009 and 2019 study was assessing the patient for ED when there were accompanying high-risk factors such as HTN, CVD, obesity, or DM. In the 2019 survey, 29.2% of NPs always bring up the topic of ED with

patients who have underlying comorbidities. Only 43.2% sometimes open dialogue related to ED, and 27.4% of NPs surveyed do not discuss ED with patients presenting with cardiovascular or metabolic diseases. The 2009 study asked the same question about volunteering ED information in high-risk patients but did not report the statistic.

Limitations

Internal Validity Effects

Nurse practitioners interested in a survey topic can affect response rates. Higher response rates will result from interest, with those uninterested failing to participate (Brtnikova et al., 2018). Numerous email reminders may also facilitate higher response rates. The TNP policy is to send one reminder email, two weeks after sending the initial recruitment email. The survey was available for six weeks. Achieving a higher response rate may occur if email reminders are sent weekly for the entire time the survey is available. Some survey questions were subjective versus objective, which may also affect validity.

External Validity Effects

The small sample size expressed the desire for educational enhancement and continuing education related to ED challenging. Distribution of the survey to NPs in a single state, belonging to one professional organization, may also affect validity. Texas, a state known for conservative values and beliefs, may regard the topic of sexual health as taboo to many of the NPs solicited to participate in the survey research (Diefendorf, 2018). The investigator did not achieve the desired response rate, which was anticipated to be between 10-20%. Online surveys have historically low response rates, but the small sample size, consisting of 3% of NPs in the TNP, affected the validity of the study.

Sustainability of Effects and Plans to Maintain Effects

The majority of survey respondents reported little to no formal education about ED and expressed a desire for continuing education. Plans to continue the project include seeking employment in a university setting after graduation in addition to presenting evidence based practice interventions for the assessment and treatment of ED at professional nursing conferences. Developing educational programs in both undergraduate and graduate levels of nursing will sustain the efforts started with the student investigator's project.

Efforts to Minimize the Study Limitations

To avoid bias, all nurse practitioners belonging to the TNP organization, regardless of the type of clinical practice, were sent a link to the needs assessment survey. Some respondents may practice in areas other than family, adult, or psychiatric settings, which may affect survey answers. Overall validity may improve with a larger sample as well as a study conducted for an extended period. Surveying providers residing in other states as well as other medical providers, such as physicians and physician assistants, will also minimize study limitations. Utilization of the survey research study initiated by Green and Kodish (2009) assisted with the development of the DNP project survey. Permission was granted by the original researchers to modify some open-ended questions to acquire more measurable data. Survey participants were able to remain anonymous through the use of REDCap©, increasing validity.

Interpretation

Expected & Actual Outcomes

The anticipated number of participants was between 500-1,000 (10-20%) of the 5,100 TNP members. The actual number of responses to the online survey was slightly more than 3%, for a total of 166 respondents. The needs assessment survey was available for six weeks, but the

TNP professional organization only permits a single reminder email after the initial recruitment email. Multiple email reminders may capture higher response rates in future studies.

Of the 166 survey participants, 10 participants failed to answer one question, and two participants failed to answer seven of the survey questions. The possible reason for 10 participants not responding to question number 14, "If the answer to the previous question is yes, please indicate what you prescribe," may be attributed to the providers only prescribing PDE-5 inhibitors to their patients with erectile dysfunction. The seven unanswered questions may be due to patient base of the nurse practitioner's care because each of the seven questions related to the subject of actual erectile dysfunction treatment.

Intervention Effectiveness

Literature highlights the discomfort providers perceive when initiating dialogue related to erectile dysfunction with male patients, citing the lack of education as a significant factor. One hundred and one, out of 166 respondents, expressed the desire for the incorporation of sexual health during formal education. Over 60% of survey participants expressed a willingness to attend continuing education courses related to erectile dysfunction assessment and disease management. The needs assessment survey allowed the student investigator to gain insight as to what type of educational intervention was most desired by participants as well as current treatment practice trends.

Hormone replacement therapy as monotherapy is not an AUA Clinical Guideline, yet 37.2% of providers are prescribing testosterone supplementation for ED (AUA, 2018). This statistic shows a need for further education on ED management. Another discovery from the study is 27.5% of providers are not making the connection between ED and other diseases that affect cardiovascular and metabolic functions, by stating they rarely or never bring up the topic

of ED in patients with comorbidities such as HTN, CVD, obesity, or DM. Erectile dysfunction is often a precursor to other metabolic and cardiovascular diseases. Earlier diagnosis of ED will allow for earlier monitoring and treatment of underlying comorbidities.

Intervention Revision

The student investigator identified three suggested revisions for the project. To mitigate missing data, the student investigator suggests rewording several questions. Another suggestion for future study focuses on the ability to send out email reminders at one-week intervals for the entire duration of the study. More frequent reminders may capture additional participants. The final revision to the project is disseminating the survey to more than one professional organization and offering the survey at professional conferences. Conducting the study with a more diverse group of providers, in several settings, allows for a larger sample size to include physicians and physician assistants.

Expected and Actual Impact to Health System, Costs, and Policy

The project is an easily sustainable, cost-effective program that can gather information from a larger sample of medical providers from various medical disciplines. The nurse practitioners surveyed express a desire for additional education, allowing for earlier identification of ED and underlying comorbidities. Improving provider comfort with the assessment and treatment of ED not only improves patient care but will also reduce the burden of cost and suffering for the patient (Pastuszak et al., 2015). Earlier identification of erectile dysfunction will facilitate optimal health and happiness for patients as well as preserving love relationships (Fisher et al., 2015; Kirkman et al., 2016).

Erectile dysfunction may be the first sign of impending cardiovascular disease, bringing male patients to their medical providers sooner (Hornbrook & Holup, 2011; Rew &

Heidelbaugh, 2016; Yao et al., 2013). Screening men who present with ED for CVD and treating the risk factors would allow for a $1.1 million reduction in cases of ED over 20 years (Pastuszak et al., 2015). Earlier identification of ED would translate to a savings of $9.7 billion and an additional savings of $21.3 billion, otherwise spent on acute cardiovascular care (Pastuszak et al., 2015). The report estimates a total saving to the US healthcare system of $28.5 billion, which is a ten-fold saving over costs for screening men for erectile dysfunction (Pastuszak et al., 2015). The financial burden of cardiovascular disease in 2010 was $127 billion, with a prediction of $276 billion by 2030 (Heidenreich et al., 2011).

Conclusions

Practical Usefulness of Intervention

With the collection of current data from NPs and comparison to data collected over ten years ago, examining the barriers that providers perceive concerning the topic of ED with patients suggests the need for curriculum enhancement. Uncovering reasons for perceived discomfort can help shape the future of preventive medicine, whether it be a lack of knowledge surrounding the importance of sexual wellbeing in mid-life and beyond, the connection between ED and underlying comorbidities, or needed change in educational curriculum.

Erectile dysfunction is a legitimate health concern. Optimal sexual wellbeing shows known health benefits to include a decrease in depressive symptoms, decrease waist to hip ratio (Cameron, Magliano, & Soderberg, 2013; Philipsen et al., 2015), decrease in blood pressure and reactivity to stress (Fisher et al., 2015), lower incidences of prostate cancer (Rider et al., 2016), and an overall increase in relationship happiness (Brody, 2010; Capogrosso et al., 2016).

Equipping healthcare providers with knowledge to increase comfort will allow for the incorporation of a sexual health component in wellness to facilitate improved quality of life for

both the male patient and his partner. The IIEF-5 is a quick and straightforward assessment of male erectile function, and the questionnaire is appropriate for all male patients 40 years and older (AUA, 2018).

Further Study

Data analysis shows that providers have a willingness and desire to approach the aspect of sexual wellness and the assessment of ED and are interested in learning more. Future plans include a call for curriculum enhancement to incorporate education related to sexual health, either at the graduate level or at professional conferences.

Dissemination

The investigator disseminated the DNP project proposal as a poster presentation at the Society of Urologic Nurses and Associates (SUNA) national conference in Orlando, Florida, in September 2019. Presentation of the final study results will occur at the Texas Nurse Practitioners Fall conference. The presentation will highlight the need for further education to improve providers' comfort when initiating dialogue pertaining to ED, as well as the American Urological Association EBP guidelines for treatment. The physiological and psychological impact ED has on male patients, including the discovery of underlying comorbidities, is of paramount importance. Nurse practitioners and other healthcare providers are uniquely positioned to assess and incorporate the element of sexual health and wellness in the preventive health model.

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Appendix A
Simplified International Index of Erectile Function Questionnaire (IIEF-5): Sexual Health Inventory for Men (SHIM)

The IIEF-5 Questionnaire (SHIM)

Please encircle the response that best describes you for the following five questions:

Over the past 6 months:					
1. How do you rate your confidence that you could get and keep an erection?	Very low 1	Low 2	Moderate 3	High 4	Very high 5
2. When you had erections with sexual stimulation, how often were your erections hard enough for penetration?	Almost never or never 1	A few times (much less than half the time) 2	Sometimes (about half the time) 3	Most times (much more than half the time) 4	Almost always or always 5
3. During sexual intercourse, how often were you able to maintain your erection after you had penetrated your partner?	Almost never of never 1	A few times (much less than half the time) 2	Sometimes (about half the time) 3	Most times (much more than half the time) 4	Almost always or always 5
4. During sexual intercourse, how difficult was it to maintain your erection to completion of intercourse?	Extremely difficult 1	Very difficult 2	Difficult 3	Slightly difficult 4	Not difficult 5
5. When you attempted sexual intercourse, how often was it satisfactory for you?	Almost never or never 1	A few times (much less than half the time) 2	Sometimes (about half the time) 3	Most times (much more than half the time) 4	Almost always or always 5

Total Score: _____

1-7: Severe ED 8-11: Moderate ED 12-16: Mild-moderate ED 17-21: Mild ED 22-25: No ED

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Appendix B
Definition of Terms

Comfort: Giving strength or hope, to ease grief or trouble, to offer assistance, support, a feeling of relief or encouragement (Kolcaba, 1991). Literature highlights discomfort with the discussion of sexual health and ED, with lack of education cited as the common factor among healthcare providers (Criniti et al., 2016).

Erectile Dysfunction: The inability to attain and/or maintain an erection sufficient for satisfactory sexual performance (AUA, 2018; National Institutes of Health [NIH], 1992).

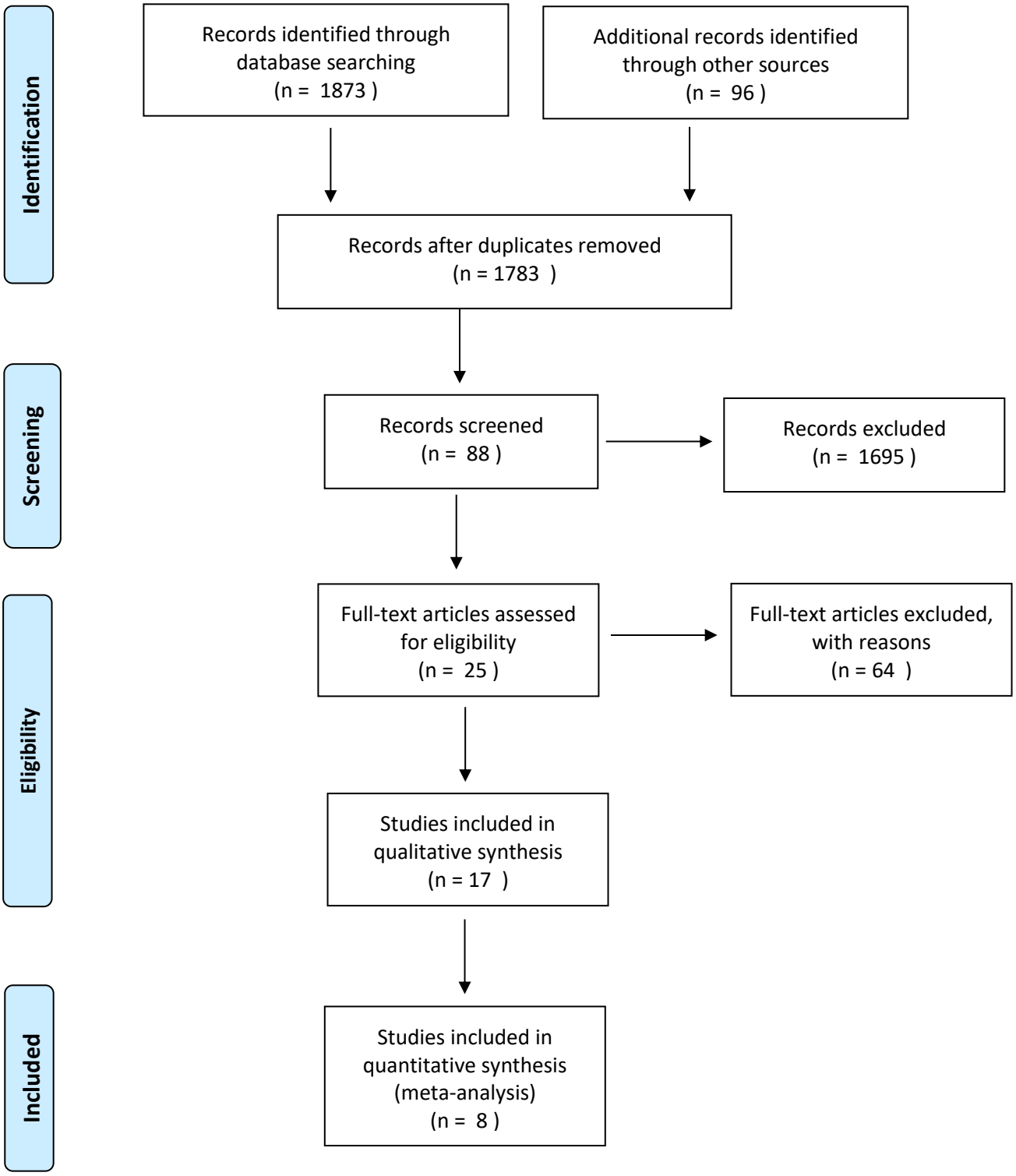
Nurse Practitioner (NP): A NP is a registered nurse with a Master's or Doctoral degree able to diagnose, treat a variety of illnesses, and prescribe medications (AANP, 2019).

Middle-aged men: The period of life that begins around the age of 40 and ends at about 64 years old. This is a time period in a man's life when medical problems begin to increase in frequency (Medical Dictionary, 2009).

Sexual Medicine: The medical discipline dedicated to the study, diagnosis and treatment of sexual health concerns (International Society for Sexual Medicine, 2005).

Sexual Health: a state of physical, emotional, mental and social well-being in relation to sexuality. Sexual health requires a positive and respectful approach to sexuality and sexual relationships (World Health Organization, 2019).

Appendix C
PRISMA Flow Diagram



From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). *P*referred *R*eporting *I*tems for *S*ystematic Reviews and *M*eta-*A*nalyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

Appendix D
Synthesis of Evidence Table

Purpose: ED and Underlying Comorbidities	First author, Year, Title, Journal	Research Design[1], Evidence Level[2] & Variables	Sample & Sampling Setting	Measures & Reliability (if reported)	Results & Analysis Used	Limitations & Usefulness
Guidelines for the identification of ED and significance in identifying underlying comorbidities.	Colson (2018). Current epidemiology of erectile dysfunction an update. *Sexologies*	Systematic review of the epidemiologic profile of ED. Level III. Variables: N/A	Cohort studies review from studies across the globe- 1993 to 2016.	None listed	Analysis of epidemiological studies to establish causal links between disease and risk factors.	Data collection is subjective. Limitations with epidemiological studies concerning sexuality; not all people seeking help for this dysfunction. ED viewed as a dysfunction and not a disease although symptom can point to underlying comorbidities
Evaluation of the relationship of ED & comorbidities CVD, DM, and depression.	Goldstein (2018). Real-world observational results from a database of 48 million men in the United States: Relationship of cardiovascular disease, diabetes mellitus and depression with age and erectile dysfunction. *The International Journal of Clinical Practice*	Cross-sectional, non-interventional cohort study. Level III. Comorbidities between ED and non-ED groups	48,004,379 men in Truven Health MarketScan and Medicare Supplemental Research databases	Database search from 01/2010 to 12/2015 with 01/2011 to 12/2014 observational period to allow 12-month pre- and post-index. Relationships assessed using regression analysis & categorical variables as control	ED associated with CVD, DM and depression across all groups	Associations of ED with comorbidities will allow for preventive measures against potentially more serious future medical events.
A study discussing the use of the visceral adipose index in men with and without ED to connect obesity as risk factor for ED.	Dursun (2018). Increased visceral adiposity index associated with sexual dysfunction	Single quantitative control study. Level II. Men with and without ED as assessed using the IIEF-5	N=177; 95 men with ED and 82 men without in a single hospital setting located	Evaluation utilizing the IIEF-5, lipid profiles and the VAI. Controls and subjects	BMI higher in study vs. control group. Men with ED had higher triglyceride levels, waist	VAI can be applied in the evaluation of ED, with ED a potential warning sign for CVD.

	in men. *The Aging Male*		in Istanbul, Turkey.	compared using t-test, Mann-Whitney U-test and regression models. Significance p<0.05. Analysis performed with SPSS	circumference, and lower HDL. VAI higher in men with ED. Among Only VAI was independently correlated with ED. Study showed significant association between VAI and ED.	
Analyzing the association between sexual functioning and overall men's health.	Capogrosso (2016). Sexual functioning mirrors overall men's health status, even irrespective of cardiovascular risk factors. *Andrology*	Single quantitative cohort study. Level II. No variables	757 men seeking initial tx for new onset sexual dysfunction in a tertiary outpatient clinic in Milan, Italy	Utilization of the IIEF and the Charlson Comorbidity Index (CCI)	ED was most common sexual dysfunction followed by premature ejaculation, Peyronie's disease, and low sexual interest. Severity was correlated with comorbidities irrespective of CVD using the IIEF and CCI.	Study done on a homogenous cohort of sexually active, Caucasian men. Utilized questionnaire based analysis which can lead to bias compared to other types of studies.. Study was cross-sectional design; no follow up. The study shows ED is a marker for undetected diseases other than CVD.
Determine the cost effectiveness of screening men ED for CVD and cost savings associated with treating men in the earlier stages of disease	Pastuszak (2015). Erectile dysfunction as a marker for cardiovascular disease diagnosis and intervention: A cost analysis.	Literature review of evidence from cohort studies. Level V. No variables.	Only 3 of 22 articles met criteria with data sufficient to estimate cost between ED and CVD.	N/A	The cost for screening estimated at $138/ patient, annual cost for DX & ED TX, $6220/ patient. Average cost per CV event	3 articles met criteria for this study. More research needed to connect association. Screening men with ED for CVD may be cost-effective intervention for prevention of both CVD and ED.

	The Journal of Sexual Medicine				$11,602/patient. Average 5.8 million men presenting with ED in next 20 years may have undiagnosed CVD.	
Purpose: EBP Guidelines	**First author, Year, Title, Journal**	**Research Design[1], Evidence Level[2] & Variables**	**Sample & Sampling Setting**	**Measures & Reliability (if reported)**	**Results & Analysis Used**	**Limitations & Usefulness**
Discovery of sildenafil and its role in changing the field of sexual medicine and male health.	Goldstein (2019). The serendipitous story of sildenafil: An unexpected oral therapy for erectile dysfunction. *Sexual Medicine Reviews*	Literature review of RCTs with historical supplement on discovery of PDE-5 inhibitors. Level I. Variables N/A	RCT studies from 1991 to 1996 in Pfizer clinical trials during development of sildenafil	Literature review; N/A	Approval of sildenafil led to widespread shift about ED and sexuality with taboos beginning to lessen. More men seeking treatment and underlying comorbidities identified sooner	Limitations: none Usefulness: Diagnosis and treatment advancement, improved accuracy in the treatment of underlying comorbidities, and field of sexual medicine evolving from a little-known arena to the center of male healthcare.
Provide clinical strategy for DX & TX of erectile dysfunction (ED).	American Urological Association (2018). Erectile dysfunction: AUA guideline 2018. *American Urological Association*	Systematic review of RCTs. Level I. Articles used to create clinical guideline statements.	999 articles dated between 1965 to 2017.	3 measures used: Measurement Tool to Assess Systematic Reviews (AMSTAR), the Cochrane Risk of Bias Tool, and the Newcastle-Ottawa Quality	Recommendations based on Grade A, B, or C recommendations as strongly recommend, moderately recommend, or conditionally recommend, respectively.	Limitations: None noted. Usefulness: Extensive review of research evidence on all therapies for ED that appear generally safe to treatments only recommended as part of IRB research trial; Useful in the clinical setting as a guideline for practitioners.

				Assessment Scale.		
Third updated version of guidelines for general practitioners for first-line treatment for patients suffering with ED.	Colson (2018), Erectile dysfunction, twenty years after. *Sexologies*	Systematic review of the literature. Level III. Variables: Diagnosis and treatment	3493 articles published between 1995 to 2016 in French and English proposing first-line treatment for ED	N/A	Recommendations graded from Grade A to C and expert opinion	Limitations: None identified Usefulness: Two breakthroughs since initial definitions of ED. ED broken down into three subtypes and partner's role in guiding treatment and impacting results.
Guideline recommending the use of the IIEF-5 for rapid clinical assessment of ED	Rew (2016). Erectile dysfunction. *American Family Physician*	Systematic review. Level II. No variables	Meta-analyses, RCTs, clinical trials, and review articles published March-June 2016	N/A	Recommendations for first and second line treatments for ED. Practice guidelines per AUA	No limitations noted. Treatment guidelines and options for patients
Purpose: Utilization of the IIEF-5 in Practice	**First author, Year, Title, Journal**	**Research Design[1], Evidence Level[2] & Variables**	**Sample & Sampling Setting**	**Measures & Reliability (if reported)**	**Results & Analysis Used**	**Limitations & Usefulness**
Validation of new psychometric tool, the Masturbation Erection Index (MEI), for use in male patients not involved in a sexual relationship.	Limoncin (2018). The masturbation erection index (MEI): Validation of a new psychometric tool, derived from the six-item version of the International Index of Erectile Function (IIEF-6) and from the Erection Hardness Score (EHS), for measuring erectile function during masturbation.	Well-designed control trial without randomization. Level II. Men with ED and sexually healthy men completing the IIEF-6 and the MEI.	560 men with ED and 102 sexually healthy men from outpatient urology clinic in Rome & Florence, Italy	Men diagnosed with ED & healthy men with partner in 2nd or 3rd trimester of pregnancy. Reliability assessed using the intraclass correlation coefficient, Bland-Altman analysis & concordance correlation coefficient.	Results: ICC of MEI 0.982, Cronbach's alpha >0.70, Excellent internal consistency of the MEI. The CCC proved reproducibility of the MEI. Analysis: Performance of the MEI assessed at 0 and 28 days using the ICC.	Use of a clinical setting for validation of the MEI. Study shows usefulness of the MEI as a valid tool for the diagnosis of ED. The MEI a valuable clinical tool to help differentiate between organic vs. non-organic causes of ED, with uses in clinical practice as well as experimental settings.

	British Journal of Urology International				Bland-Altman requirements of at least 50 subjects.	
Translate the IIEF-5 into Dutch to investigate its reliability and validity as a useful evaluation tool.	Utomo (2015). The measurement properties of the five-item International Index of Erectile Function (IIEF-5): A Dutch validation study. *Andrology*	Case control-cohort study. Level III. Men with ED were given the IIEF-5 at 0, 1, and 6 months. Control group completed the IIEF-5 once	82 patients ages 18 and > with ED & 253 participants in control group residing in the Netherlands.	Internal consistency, reliability, measurement error, and content validity addressed. Internal consistency deemed adequate (Cronbach's alpha 0.94) in patient and control group	The IIEF-5 demonstrated adequate internal consistency in both patient & control groups. The Dutch translated version of the IIEF-5 is a useful measure of erectile function..	The IIEF-5 does not take the context of the patient's sexual life into consideration. Study determined the IIEF=5 could successfully be translated into Dutch showing promise that the IIEF-5 can be translated into other languages.
Construct a new valid, reliable tool for the assessment of sexual dysfunction among men with DM from different ethnicities, languages, and socioeconomic backgrounds.	Chung (2016). The SAD-MEN questionnaire: a new and reliable questionnaire for assessing sexual dysfunction in Asians with diabetes. *Diabetes Medicine*	Case Control Study. Level II. Validation of the Sexual Dysfunction in Asian Men with Diabetes (SAD-MEN) in English and Malay with the IIEF-5 used for comparison.	N=222 Southeast Asian of Malay, Chinese, and Indian ethnicities, ages 40 and older, with DM2. Hospitals and clinics in SE Asia for pt. variance in language, ethnicity, and socioeconomic status.	Data assessed using frequency-based descriptive analysis. Validity assessed by face, content and construct for both languages. Construct validity evaluated by factor analysis. Reliability evaluated using Cronbach's a coefficient, value of > 0.7 indicating high internal consistency.	The SAD–MEN questionnaire in English and Malay is a valid & reliable for assessment of sexual dysfunction in men with DM. Data analyzed with SPSS.	Small study of 222 men with DM2, no other comorbidities. Study only conducted in SE Asia. Questionnaire differs from the IIEF-5 in respect to being able to demonstrate if sexual dysfunction related to sexual desire or sexual performance. The SAD–MEN is first questionnaire to assess sexual dysfunction and not just on a particular component such as erectile dysfunction.
Compare scores of the IIEF-5 among ED patients	Tang (2014). Comparison of the	Single qualitative study. Level III.	N=3327 patients with	Severity of ED evaluated using	Median age of the subjects 39	Study done in China; not representative of global population. All information

with specific pathophysiologies.	simplified International Index of Erectile Function (IIEF-5) in patients of erectile dysfunction with different pathophysiologies. *BMC Urology*	Male patients with psychogenic versus organic causes of ED	established ED in the urology or andrology clinics from three university hospitals in China.	IIEF-5. Spearman correlations used to assess association between individual variables. Quantitative data evaluated by Wilcoxon rank sum test & Kruskal-Wallis H test with comparison performed with chi-square test.	y.o. Primary cause of ED psychogenic (59.2%) and organic (40.8%). Majority of causes of organic ED, vascovulvogenic (52.1%). Qualitative variables 95% confidence & SPSS 17.0 used for analysis.	gathered by physicians, so self-reported (except for IIEF-5) data is lacking. Contributing factors causing ED in patients were less evaluated and objective, quantitative criteria for judging primary pathophysiology lacking. Identification of primary causes of ED require further research.
Exploring limitations of the IIEF-5 as reliable tool for ED in men who are not sexually active.	Yule (2011). The International Index of Erectile Function: A methodological critique and suggestions for improvement. *Journal of Sex & Marital Therapy.*	Two Quantitative studies reviewed. Level II. Men with prostate CA and men asexual by choice	N=206; 155 men with prostate cancer from clinic in Canada and 51 sexually inactive men recruited from the Asexuality Visibility and Education Network	Not reported	Due to the questions contained in the IIEF-5, accurate validation degree of ED in men not sexually active may be inaccurate.	Limitation: Only 2 groups of men studied; small sample size. Usefulness: Restructuring of questions and scoring on the IIEF=5 to better assess degree of ED in men not sexually active.
Summarization of psychometric validation of the IIEF and use in classifying ED severity and prevalence	Rosen (2002). The International Index of Erectile Function (IIEF): A state-of-the-science review. *International Journal of*	Review of randomized control trials. Level I. RCTs completed in the United States, Europe, and Asia.	12 RCTs, US, Europe and Asia RCTs of sildenafil	Standard psychometric tests utilizing Cronbach's alpha, before and after treatment, and comparison IIEF	IIEF shown to be reliable tool for use in eval. ED with organic & non-organic causes.	IIEF can differentiate between organic and inorganic causes but unable to differentiate between organic causes. Not as useful due to wording of questions, for asexual patients. The IIEF is useful tool in various clinic settings.

	Impotence Research			with other tests.		
Purpose: Curriculum Change to Enhance Provider Comfort Levels with Topic of ED	**First author, Year, Title, Journal**	**Research Design[1], Evidence Level[2] & Variables**	**Sample & Sampling Setting**	**Measures & Reliability (if reported)**	**Results & Analysis Used**	**Limitations & Usefulness**
Study exploring prevalence of Saudi men with DM2 being asked about ED by their providers.	Almigbal (2018). The willingness of Saudi men with type 2 diabetes to discuss erectile dysfunction with their physicians and the factors that influence this. *PLOS ONE*	Single cohort study. Level III. No variables	Cross sectional survey N= 309 men attending a primary care clinic in Riyadh, Saudi Arabia from July to September 2015.	306 patients determined to be required to obtain a 95% confidence interval of +/- 4% based on a previous pilot study of 30 participants.	< 10% of patients asked if they had ED, with 90% suffering from ED, 30% with severe ED. 85% of patients expressed desire to discuss ED with provider. Chi square testing used for categorical variables. Data checked with the Kolmogorov-Smirnov test. Independent t test used to compare means with the Mann-Whitney U utilized to compare medians	Single study done in Saudi Arabia, a country known for extreme religious beliefs and lack of sexual openness. Single study shows patients are willing to discuss ED with their providers and large majority of patients with DM 2 suffer from ED but very few providers are discussing. Policy change needed.
Sexuality and importance to older adults recognized; Topic appears poorly understood or addressed by providers.	Haesler (2016). Sexuality, sexual health and older people: A systematic review of research on the	Review of 23 studies, varied methodology, published between 2004-2015. Systematic	23 research papers, 15 quantitative and 8 qualitative studies met	Quantitative studies used Aging Sexual Knowledge and Attitudes Survey (ASKAS)	Addressing educational needs of healthcare staff shown in majority of	Limitations: No eligible RCTs identified. Usefulness: Realistic use to support the argument for future advancement of sexual health education during provider training.

Healthcare professionals view older patients' sexuality as outside of scope of practice with lack of education cited as primary cause.	knowledge and attitudes of health professionals. *Nurse Education Today*.	review of quantitative and qualitative studies. Level II	inclusion criteria after 999 studies were reviewed	Validity alpha coefficient 0.90- 0.93. Reliability 0.90-0.97 Qualitative studies used grounded theory and ethnography. 2 studies had high dependability, 2 moderate, and 4 low or very low due to failure to report methodology in detail	articles; lack of knowledge stated as primary cause for not addressing sexuality in older patients. Overwhelming majority of research reviewed acknowledged providers' perception of importance of education, sexuality, and the older patient.	
Assess medical residents' perceptions of quantity and effectiveness of sexuality education in residency programs and explore relationship between sexuality instruction received, knowledge, comfort, and frequency of communication about patient sexuality issues.	Criniti (2016). Perceptions of U.S. medical residents regarding amount and usefulness of sexual health instruction in preparation for clinical practice. *American Journal of Sexuality Education*.	Quantitative single study. Level III. Variable: Assessing sexual education, knowledge and comfort among medical residents concerning the discussion of sexual health with patients	N=130 12 Clinical residency programs of a large urban private medical school in the northeastern United States	29 questions reviewed by expert panel of physicians, biostatistician, and sexologists for validity of content. Based on previous surveys from 2 pilot studies in 2010 and 2011 by Davis and Crane, respectively	Descriptive data analysis converted responses numbered scales for ranking. Data presented in aggregate because individual participant numbers were too small in each of the 12 programs.	Limitations: Only medical school residents surveyed, no practicing providers, small sample size . Survey included questions about topics relating to sexual health, such as HIV and STDs, not focused on ED More than 50% surveyed indicated that more education would be clinically useful.

					68% report no sexual education in school.	
Assess primary care provider knowledge of aging sexuality formal sexual health education.	Hughes (2015). Aging sexuality: Knowledge and perceptions of preparation among U.S. primary care providers. *Journal of Sex & Marital Therapy*	Single qualitative study. Level III. Stratification of physicians by specialty as well as gender with NPs only stratified by specialty.	N=278 with MDs=164 and NPs=114 Setting: Providers in primary care settings in the US	Aging Sexuality Knowledge and Attitudes Scale (ASKAS) used with community established reliability and validity reported as 0.90-0.97 with established content and criterion validity.	Mean scores showed moderate knowledge. Majority of the sample (84.2%) with score in good- moderate range. Over 40% perceive formal training as inadequate with 32.4% pursuing additional training. Analysis conducted with SPSS. Reported in quartiles ranging from good, moderate, fair to poor knowledge of aging and sexuality.	Study done on small sample of MDs and NPs. Objective measures contradicted some subjective measures. Indications of study show providers received some formal education on content knowledge, but majority of providers felt unprepared in practice setting. Supports incorporation of education pertaining to sexual health and the aging population.
Summarization of barriers to sexual health care for older adults and current literature understanding effects of aging on sexual function and dysfunction.	Foley (2015). Older adults and sexual health: A review of current literature. *Current Sexual Health Reports*	Systematic review of descriptive and qualitative studies. Level II. Variables: Key research studies addressing sexuality and aging that	Articles published about importance of sexual health in older adult population from 2012-2015.	N/A	Sexual activity declines between 50-80 y.o. but does not disappear. Sexual activity remains important aspect of health,	Most studies homogeneous for race, ethnicity, and socioeconomic status. Effects of relationships not adequately studied. Medical professionals know sexual dysfunction increases with age, few are discussing this aspect of wellness or interventions for problems. Researchers more adept at gathering

		highlight discrepancy between growing number of older adult attitudes about sex and very little literature on documented provider education	Setting: North American and International publications		wellness, overall quality of life for older adults.	numbers than providing treatment outcome studies for sexual dysfunction.
Study to describe nurses' attitudes and beliefs discussing sexual health issues with their patients	Arikan (2014). Attitudes and beliefs of nurses regarding discussion of sexual concerns of patients during hospitalization.	Single qualitative study utilizing the Sexual Attitudes and Beliefs Survey (SABS). Level III. Variables: N/A	162 nurses; 4 clinical areas in Turkish hospital.	Cronbach's alpha reliability used and reported as 0.73- 0.90. SABS validity was confirmed with correlation between the SABS and the Sexual Knowledge and Attitudes Scale.	72.2% of nurses state discussing sexual concerns with patients is too personal. 32.7% of nurses feel patients expect them to discuss sexual concerns, but feel it's physicians job. Nearly 70% of nurses believe discussing sexual health concerns is part of their role and important for optimal patient outcomes. Turkish nurses have more obstacles discussing sexual health	Study done in Turkey and may not be representative of the world as a whole. Considering sexuality to be a private issue is an impediment to holistic care. Awareness of cultural values to overcome this obstacle should be examined. Sexuality in healthcare curriculum should be considered with training to enhance care.

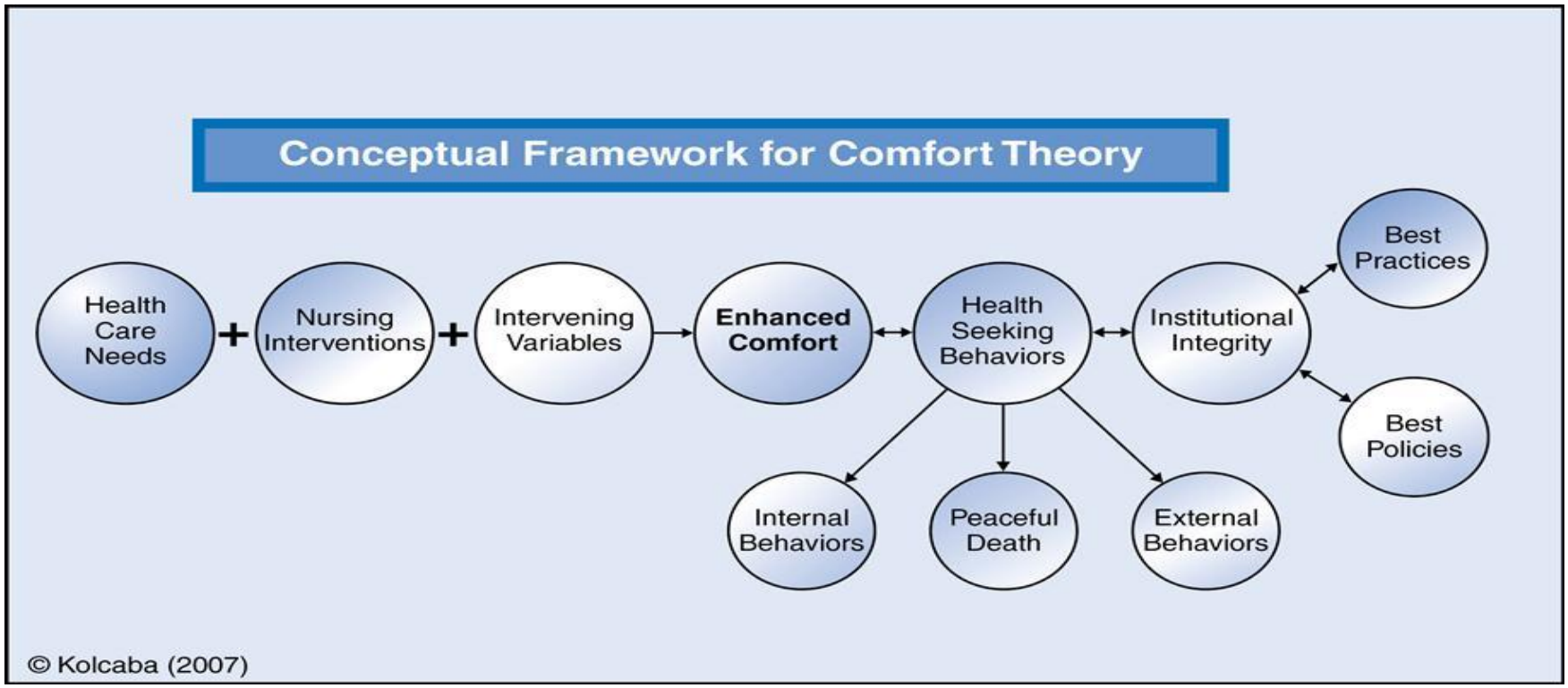
					than Western nurses but fewer barriers than nurses in China. Data analysed with SPSS	
Examined the experiences of health care professionals discussing sexual wellbeing with post stroke patients.	Mellor (2013). Health care professionals' views on discussing sexual wellbeing with patients who have had a stroke: A qualitative study. *PLOS One*	Qualitative study. Level III. Variables to raising discussion about sexual health Barriers found: four levels; structural, health care professional, patient, and professional-patient interface	30 healthcare professionals. Two hospitals and three clinics in the United Kingdom.	The consolidated criteria for reporting qualitative studies (COREQ) No reliability reported	Majority of healthcare providers (HCPs) perceived significant barriers to initiating discussion about sexual wellbeing, leaving it up to the pt. to bring up. Issues concerning competence listed as minimal training, perceived harm to the pt., feeling sexual health is irrelevant to overall wellness, HCPs not recognizing this as a topic relevant to older adults, and feeling it was not the HCPs responsibility	Limitations: Small sample size, questionnaire used not included with the research article. Usefulness: Of the small number in the study, a need for education was shown

Determine factors associated with students' comfort in addressing patients' sexuality in the clinic setting.	Shindel (2010). Medical student sexuality: How sexual experience and sexuality training impact U.S. and Canadian medical students' comfort in dealing with patients' sexuality in clinical practice. *Academic Medical JournalD*	Qualitative Study. Level III. Dependent Variable: Medical Students Difficulties in addressing patients' sexuality in the practice setting Independent variable: education, increasing comfort levels with discussion	N= 2,261 MD and DO students in the U.S. and Canada. Internet-based survey given to American Medical Student Association, the Student-Doctor Network, and a posting on Medscape.com from February to July of 2008	Surveys: Depression Scale, IIEF-5, Premature Ejaculation Diagnostic Tool, Female Sexual Function Index, and the Index of Sex Life P<0.05	64.4% of students felt inadequately *trained* to deal with sexuality in the clinic setting but 81.1% stated feeling comfortable *discussing* issues with patients. Adequate training in school directly related with comfort discussing sexual health with patients ($p<0.01$) Multiple surveys analyzed with descriptive statistics, ANOVA and multivariable logistic regression Bivariate and multivariate analyses	Limitations: Medical students researched. No practicing medical providers. 5 months study. Majority surveyed stated they did not feel they received adequate training yet majority state they DO feel comfortable with topic of sexual health; confounding results Usefulness: This study also administered sexual function questionnaires as well as assessed depression in the participants with a correlation between students with depression feeling less comfortable discussing sexual health with patients
A synthesis of qualitative studies examining healthcare professionals' experiences about talking about sex with their patients in hopes of policy	Dyer (2013). Why don't healthcare professionals talk about sex? A systematic review of recent qualitative	Systematic review of qualitative studies. Level III. No variables	8 qualitative studies from 2002 to 2007 were reviewed and assessed. All studies were	N/A	Nineteen themes were uncovered in the studies showing that healthcare professionals do	Limitations consist of all studies originating from the United Kingdom and may not be a representative sample of healthcare providers around the world. This review is useful in the respect that it shows the topic of sexual

change to enable providers to become better able to address the sexual concerns of their patients	studies conducted in the United Kingdom. *International Society for Sexual Medicine*		done in the United Kingdom.		not routinely discuss sexual health with their patients.	health may be overlooked in the healthcare setting.

(Dang, D., Sigma Theta Tau International, Dearholt, S., & Johns Hopkins University. 2018. *Johns Hopkins Nursing Evidence-Based Practice Third Edition: Model and Guidelines: Vol. Third edition*. Sigma Theta Tau International)

Appendix E
Theory to Application Diagram



Appendix F
IRB Exemption Letter

UMKC Institutional Review Board
University of Missouri-Kansas City

5319 Rockhill Road
Kansas City, MO 64110
816-235-5927
umkcirb@umkc.edu

July 10, 2019

Principal Investigator: Lyla Jo Lindholm
Department: Nursing - General

Your IRB Application to project entitled "Improving Provider Comfort with the Assessment of Erectile Dysfunction in the Clinic Setting" was reviewed and determined to qualify for IRB exemption according to the terms and conditions described below:

IRB Project Number	2015867
IRB Review Number	250188
Initial Application Approval Date	July 10, 2019
IRB Expiration Date	July 09, 2020
Level of Review	Exempt
Exempt Categories	45 CFR 46.101b(2)

The principal investigator (PI) is responsible for all aspects and conduct of this study. The PI must comply with the following conditions of the determination:

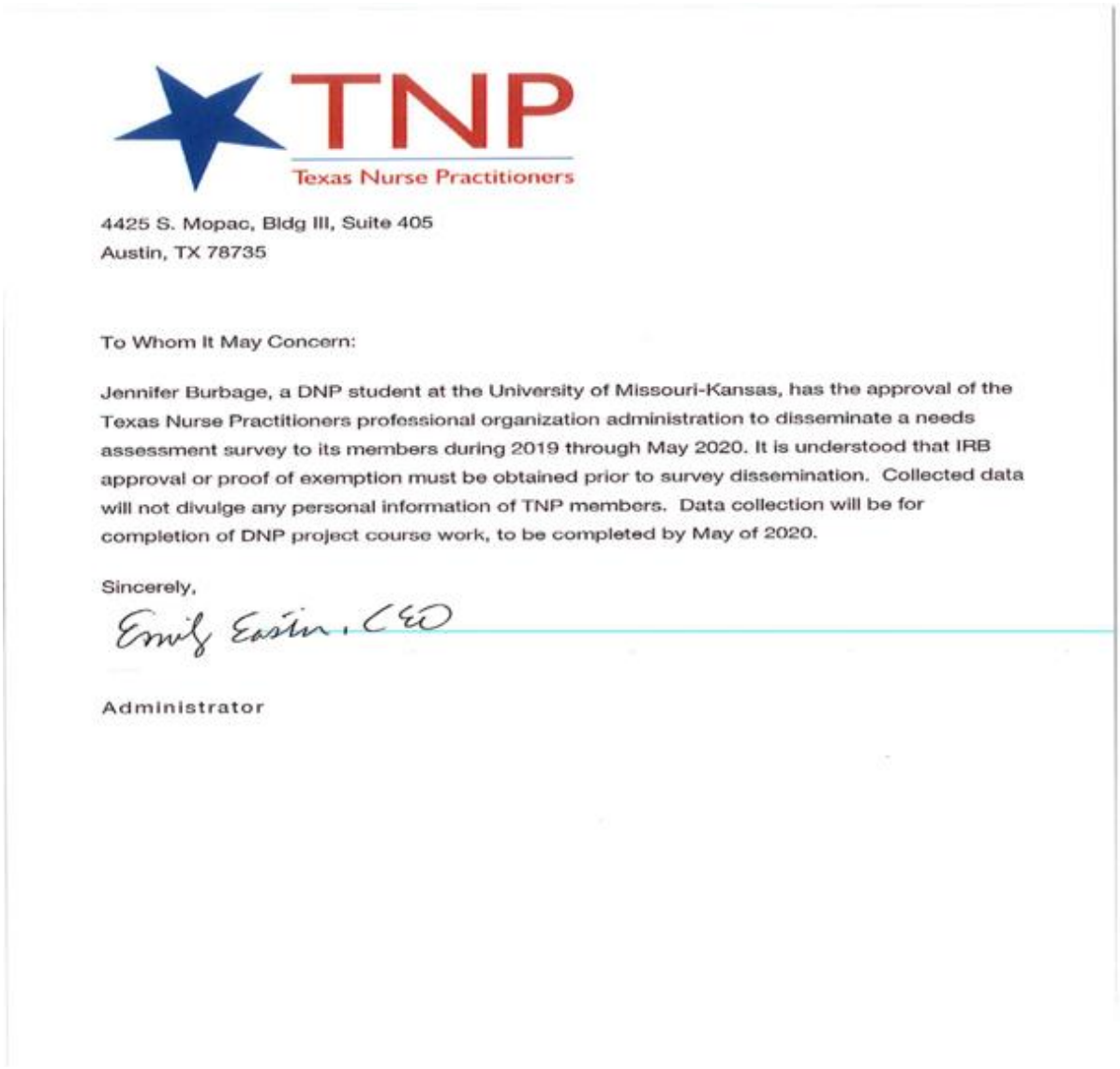
1. No subjects may be involved in any study procedure prior to the determination date.
2. Changes that may affect the exempt determination must be submitted for confirmation prior to implementation utilizing the Exempt Amendment Form.
3. The Annual Exempt Form must be submitted 30 days prior to the determination anniversary date to keep the study active or to close it.
4. Maintain all research records for a period of seven years from the project completion date.

If you are offering subject payments and would like more information about research participant payments, please click here to view the UM system Policy on Research Subject Payments: https://www.umsystem.edu/oei/sharedservices/apss/nonpo_vouchers/research_subject_payments

If you have any questions, please contact the IRB at 816-235-5927 or umkcirb@umkc.edu.

Thank you,
UMKC Institutional Review Board

Appendix G
Texas Nurse Practitioners Approval Letter to Conduct DNP Project



TNP
Texas Nurse Practitioners

4425 S. Mopac, Bldg III, Suite 405
Austin, TX 78735

To Whom It May Concern:

Jennifer Burbage, a DNP student at the University of Missouri-Kansas, has the approval of the Texas Nurse Practitioners professional organization administration to disseminate a needs assessment survey to its members during 2019 through May 2020. It is understood that IRB approval or proof of exemption must be obtained prior to survey dissemination. Collected data will not divulge any personal information of TNP members. Data collection will be for completion of DNP project course work, to be completed by May of 2020.

Sincerely,

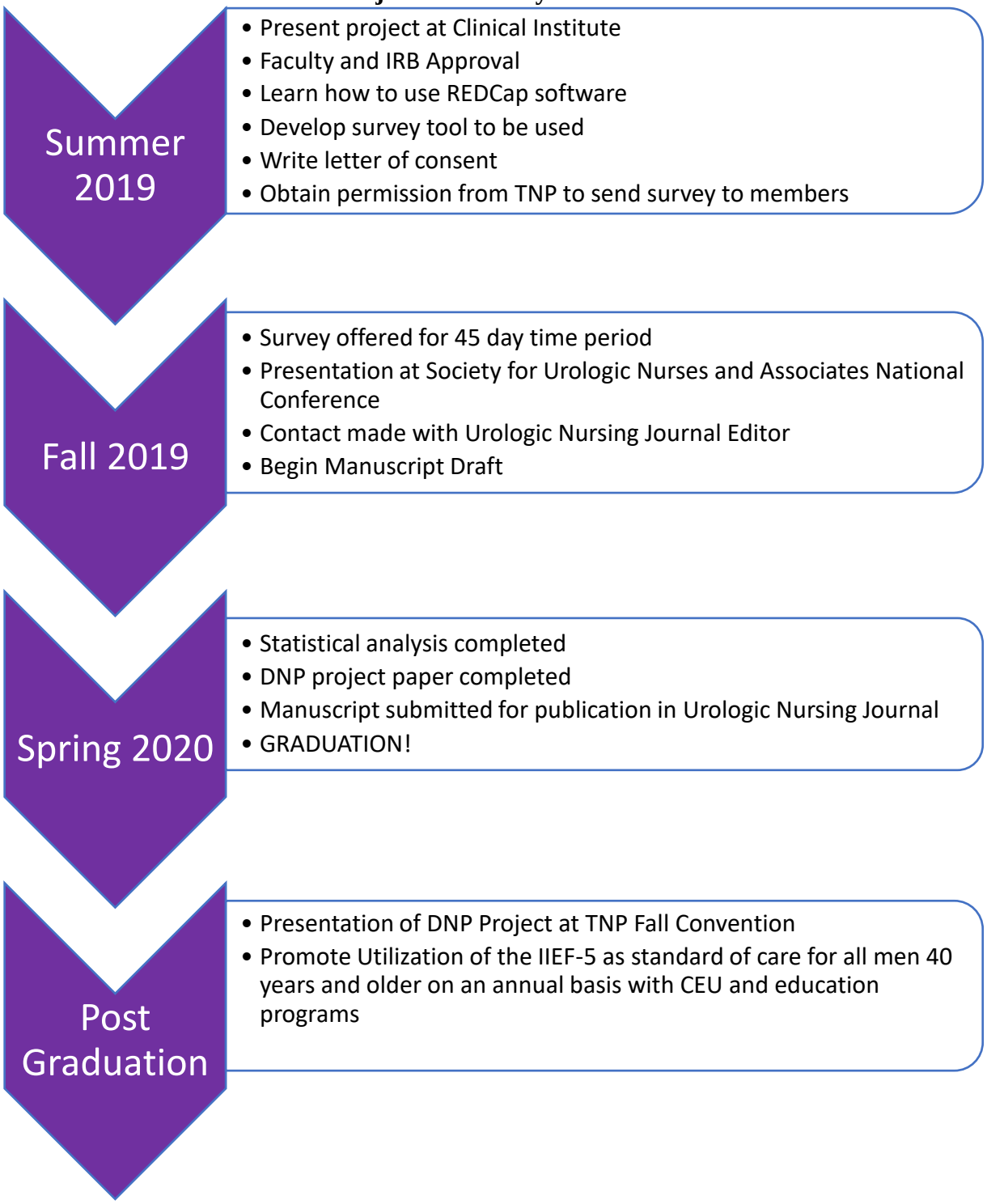
Emily Eastin, CEO

Administrator

Appendix H
Cost Table

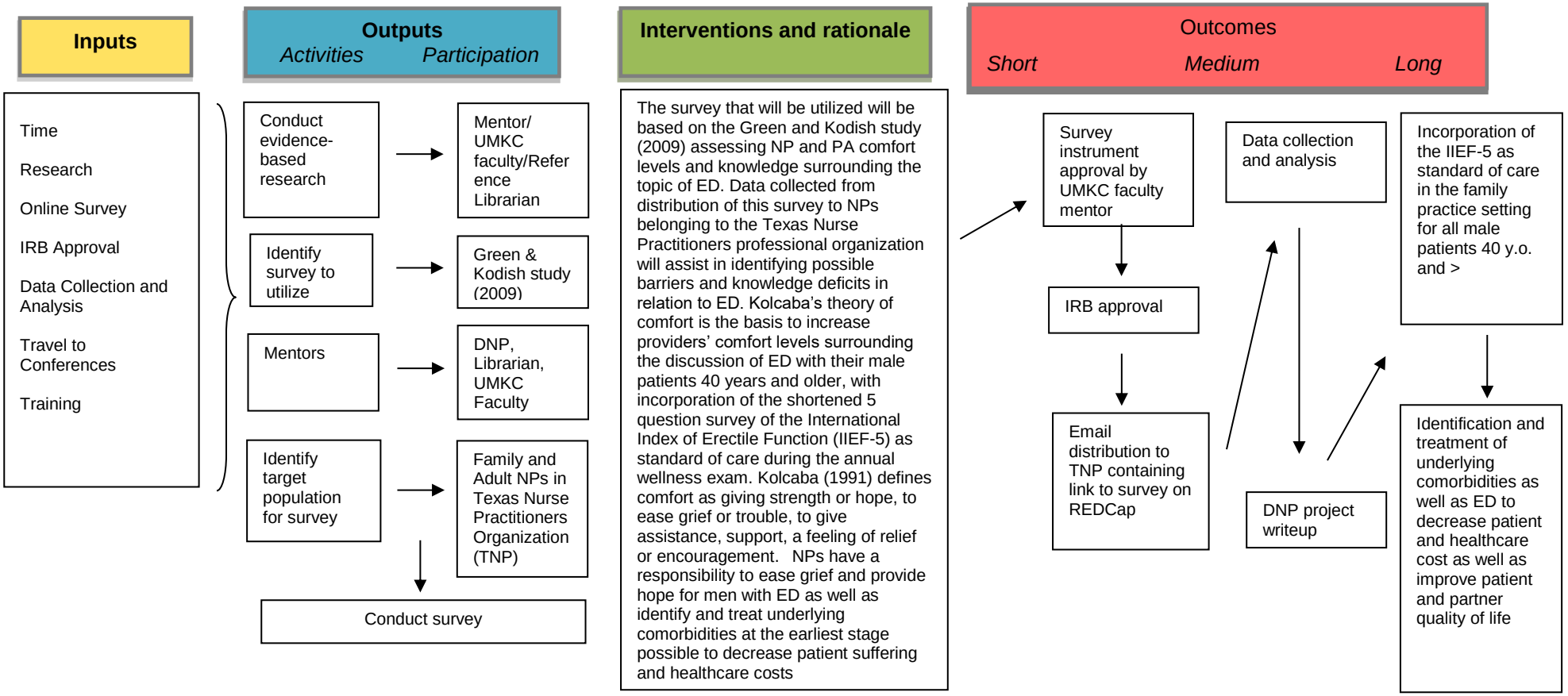
Item	Item Description	Quantity	Unit Cost	Actual Cost
Print materials	Poster for presentation	1	$80	$80
Conference Presentation	Society of Urologic Nurses and Associates National Conference Costs (Airfare, Rental Car, Hotel, Conference Registration)	1	$1600	$1600
Gas for travel	Mentor located in Dallas clinic 100 miles away	2 x a month for 8 weeks	$45/per trip	$720
Survey	Texas Nurse Practitioners Association fee for survey dissemination	1	$100	$100
REDCap Program	Survey tool utilized for gathering data	1	$0	$0
Total				$2500
UMKC Travel Grant				-$400
GAF Women's Council Scholarship				-$800
Total Out of Pocket Project Cost				$1300

Appendix I
Project and Survey Timeline



Appendix J
Logic Model

Student: Jennifer Burbage-Vieth
PICOT: In nurse practitioners working with male patients aged 40 and older, will an online survey offered during a 45 day time period to nurse practitioners belonging to the Texas Nurse Practitioners professional organization assess knowledge, confidence, comfort levels, and perceived barriers surrounding the discussion of ED to support the need for educational enhancement surrounding the topics of erectile dysfunction and sexual health and promote the incorporation of the International Index of Erectile Function (IIEF-5) questionnaire during the annual wellness exam in future practice?
Situation: NPs get little to no education on the topic of sexual health, namely erectile dysfunction (ED). Discomfort discussing ED with patients is a common theme even though a large majority of men 40 years and older suffer from ED to some degree. ED can point to underlying comorbidities, with identification in the secondary stage and treated, decrease healthcare costs as well as patient and partner suffering. Education during formal academic training as well as in the conference setting about ED and its implications with introduction of the IIEF-5 during the annual wellness exam is an easy way to identify risk and treat comorbidities in the adult healthcare setting.



Appendix K
Outcome to Analysis Flow Diagram

	State	Measurement Instrument Name	Tool validity and reliability	Permission Need	Statistical Analysis
Primary Outcome	Assess NP communication strategies pertaining to discussing ED and determine perceived barriers	Green & Kodish survey	21 item survey designed with open ended questions to advance knowledge pertaining to ED and treatment Only one study done without report of validity and reliability	Permission granted from authors Dr. Roger Green, DNP and Dr. Slavica Kodish, PhD	Descriptive
Secondary Outcome	Curriculum enhancement to increase comfort with future incorporation of the IIEF-5 in the family practice setting.	The International Index of Erectile Function 5 (IIEF-5) question test	Criterion validity: high Structural validity, internal consistency, construct validity, & test-retest: moderate Internal consistency & error: indeterminate (Neijenhuijs et al., 2019)		
Demographics	NPs belonging to the TNP	N/A	N/A	N/A	Descriptive
Participant Completion of the Measurement Tool (Procedure): NPs belonging to the Texas Nurse Practitioners professional organization sent a link to the survey that was offered for a 45-day period on REDCap. Analysis of data obtained identified barriers hindering the discussion of ED with male patients with suggestions future curriculum enhancement as well as type of education desired.					

Appendix L
Permission to Use and Edit Survey Tool

From: "Kodish, S.
Subject: Re: Written permission to use research survey
Date: April 20, 2019 at 11:23:30 AM CDT
To: Jennifer Burbage

Dear Jennifer,

You have my permission to use the survey from the 2009 study that Dr. Green and I conducted.

Sincerely,
Dr. Slavica Kodish, PhD

From: ROGER GREEN
Subject: Re: 2009 Research
Date: April 17, 2019 at 7:32:09 PM CDT
To: Jennifer Burbage

Hi Jennifer-

Good to talk to you today. Please use my drrogergreen@aol.com email. You have my permission to use the survey that was published in JAANP.

Sincerely,
Dr. Roger Green, DNP

On Jun 13, 2019, at 7:13 AM, Jennifer Burbage wrote:

Dear Dr. Green,

Would it be ok to reword/reformat a few of your survey questions to facilitate data gathering? I am attaching the minor modifications I made, as well as correcting the survey's numbering (the original survey listed 22 questions, but I noticed there were actually only 21 questions as the question numbering on the original survey skipped a number).

If you are ok with the revisions and new wording on a few questions, can you just email me your permission to utilize the revised survey? Thank you so much. I will keep you posted on the progress of my project!

Sincerely,

Jennifer Burbage

From: Roger Green
Subject: Re: Revision of a few survey questions
Date: June 13, 2019 at 9:51:48 AM CDT
To: Jennifer Burbage

Yes absolutely. You may modify and make these minor changes. Keep me posted on your progress. How exciting. Roger Green

Appendix M
Data Collection Template
(*Adapted with permission from Green & Kodish Survey, 2009)

Please mark the appropriate answer:

1. Age
   a. 20-29
   b. 30-39
   c. 40-49
   d. 50 or older

2. Gender
   a. Male
   b. Female

3. What is your area of practice?
   a. Adult health
   b. Family health
   c. Psychiatric/Mental Health

4. Length of Time in Advanced Practice
   a. Less than 1-year
   b. 1-5 years
   c. 6-10 years
   d. More than 10 years

5. What is your highest level of educational preparation?
   a. Bachelor's degree
   b. Master's degree
   c. Doctorate degree

6. Was the topic of erectile dysfunction covered during your formal education in becoming a nurse practitioner?
   a. Yes
   b. Very little
   c. No

7. If you answered yes to the previous question, how many hours of training did you receive in assessment, management, and evaluation of male erectile dysfunction?
   a. 1-5 hours
   b. 6-10 hours
   c. > 10 hours
   d. Not applicable

8. What type of education on erectile dysfunction would best benefit your practice?
   a. assessment skills

b. management skills
c. communication skills

9. How interested would you be in attending a CE program for primary care providers on erectile dysfunction education?
a. Very interested
b. Interested
c. Somewhat interested
d. Not interested

10. Do you feel incorporating sexual health, namely the assessment of erectile dysfunction, should be incorporated into the educational process during graduate school?
a. Yes
b. No

11. How many patients are you currently treating for erectile dysfunction?
a. 1-10
b. 11-20
c. > 20

12. How many prescriptions for PED5-i do you prescribe per month for erectile dysfunction?
a. 0
b. 1-5
c. 6-10
d. > 10

13. Do you prescribe medications other than the PDE5 Inhibitors for erectile dysfunction?
a. Yes
b. No

14. If the answer to the previous question is yes, please indicate what you prescribe
a. Intracavernous injections
b. Intraurethral suppositories
c. Vacuum erection device
d. Surgical referral for penile prosthesis
e. Psychosexual therapy
f. Not applicable

15. In reference to questions #12 and #14, rank order the options you choose most often?
a. Medications
b. Vacuum devices
c. Surgical consult
d. Counseling/therapy

16. If you collaborate with a physician, does he or she influence your prescribing pattern?

a. Very much
b. Somewhat
c. Very little
d. Not at all

17. Do you feel comfortable discussing the topic of erectile dysfunction with your male patients?
a. Extremely comfortable
b. Somewhat comfortable
c. Somewhat uncomfortable
d. Extremely uncomfortable

18. If you have a patient at high-risk for ED, a patient with diabetes symptoms, for example, do you volunteer information about ED?
a. Yes
b. Sometimes
c. Rarely
d. Never

19. How do you approach the topic of erectile dysfunction with your patients?
a. I bring up the topic first
b. I let the patient bring up the topic first

20. How would you rate the level of trust between you and your male patients?
a. high level of trust
b. moderate level of trust
c. low level of trust

21. How would you rate the level of improvement needed in the relationship between you and your patients?
a. No improvement needed
b. Some improvement needed
c. Considerable improvement needed

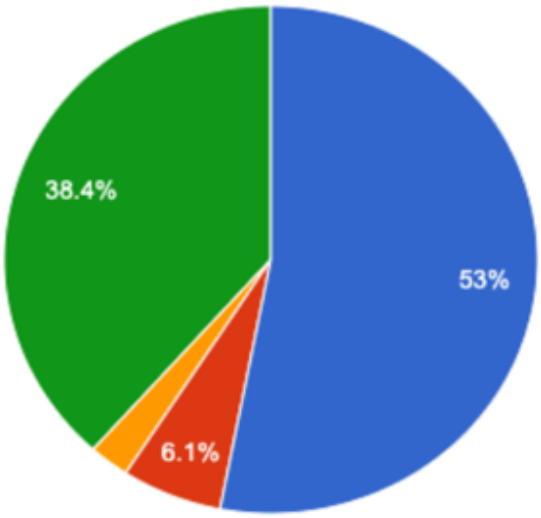
Appendix N
Results Table

Improving Provider Comfort with the Assessment of Erectile Dysfunction in the Clinic Setting: A Needs Assessment Survey

N=166 (*13 Incomplete Surveys)						
Age in Years (N=166)	20-29 N=4	30-39 N=29	40-49 N=40	50 and older N=93		
Gender (N=166)	Male N=35	Female N=131	Other N=0			
Area of Medical Practice (N=166)	Adult Health N=38	Family Health N=97	Psychiatric/Mental Health N=5	Other N=26		
Length of Time in Practice (N=166)	< 1 yr N=20	1-5 yrs N=42	6-10 yrs N=37	> 10 yrs N=67		
Highest Level of Education (N=166)	BSN N=1	MSN N=132	DNP N=33			
ED Discussed During NP Education (N=166)	Yes N=101	No N=65				
Formal Education Hours on ED (N=164)	1-5 Hours N=87	6-10 Hours N=10	> 10 Hours N=4	N/A N=63		
Education to Best Enhance Practice (N=166)	Assessment Skills N=29	Disease Management N=100	Communication Skills N=22	N/A N=15		
Interest in ED CEU lecture/course (N=166)	Very Interested N=39	Interested N=59	Somewhat Interested N=43	Not Interested N=25		
ED and Sexual Health Incorporated in Grad School (N=166)	Yes N=158	No N=0	Unsure N=8			
Number of Patients You Treat for ED (N=166)	1-10 patients N=51	11-20 patients N=17	> 20 patients N=46	N/A N=52		
Prescriptions for PDE-5i Written per Month (N=166)	1-5 RXs N=64	6-10 RXs N=24	> 10 RXs N=19	N/A N=59		
Do You RX other Treatments (N=166)	Yes N=68	No N=98				
Other Treatments (N=156)	Intracavernous Injections N=15	Intraurethral Suppositories N=3	Vacuum Assist Devices N=18	Surgical Referral N=14	Talk Therapy N=16	HRT N=58
Collaborative Physician Influence on Treatment for ED (N=164)	Influenced Very Much N=33	Some Influence N=44	Very Little Influence N=43	No Influence N=44		
Comfort Level with Discussing ED with Patients (N=164)	Extremely Comfortable N=80	Somewhat Comfortable N=69	Somewhat UNcomfortable N=11	Extremely UNcomfortable N=4		
Is ED Assessed in Patients with HTN, CVD, or DM? (N=164)	Always N=48	Sometimes N=71	Rarely N=29	Never N=16		
Do You or The Patient Bring up ED Topic (N=164)	Provider N=81	Patient N=83				
Rated Level of Trust Felt with Patient (N=164)	High N=107	Moderate N=57	Low N=0	No Trust N=0		
Perceived Improvement with Communication When Discussing ED (N=164)	No Improvement Needed N=26	Some Improvement Needed N=123	Considerable Improvement Needed N=15			

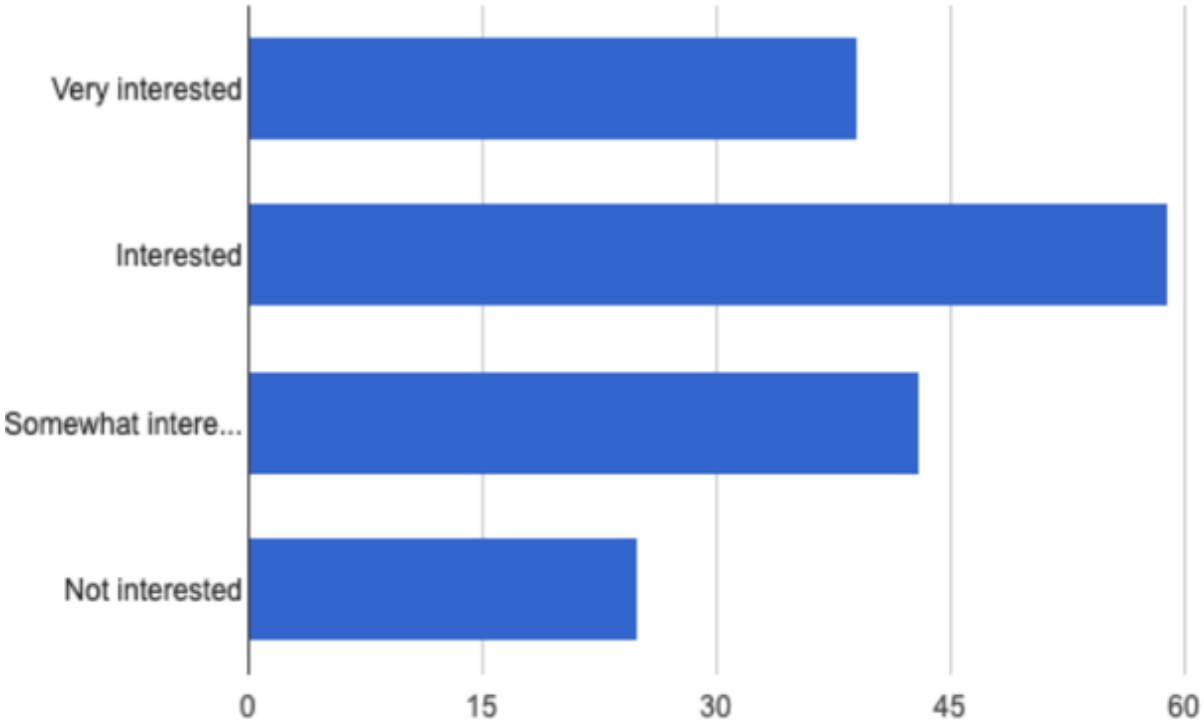
Appendix O
Hours of Training on Erectile Dysfunction During NP Program

N=164
1-5 hours (53.0%)
6-10 hours (6.1%)
> 10 hours (2.4%)
No Training (38.4%)



Appendix P
Interest Attending ED CEU Program For Primary Care Providers?

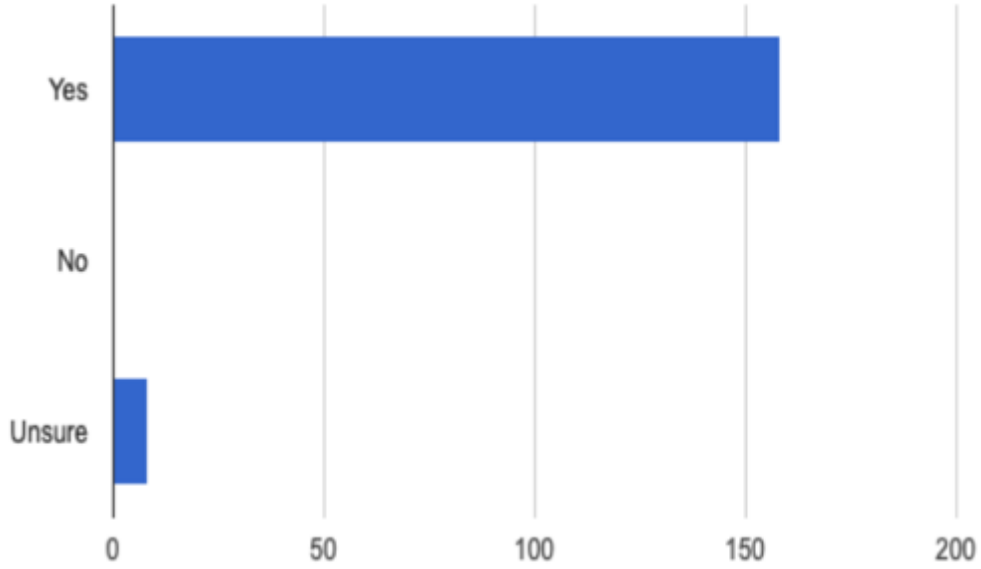
N=166
Very interested (23.5%), Interested (35.5%), Somewhat interested (25.9%), Not interested (15.1%)



Appendix Q
Should Sexual Health Be Taught During NP School?

N=166

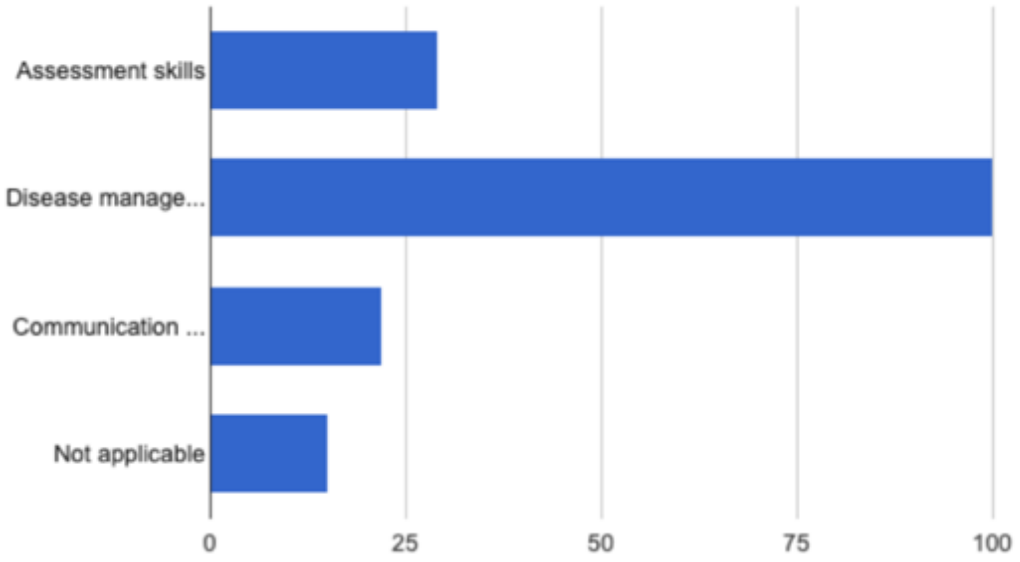
- **Yes (95.2%)**
- No (0%)
- Unsure (4.8%)



Appendix R
Type of Education to Best Enhance Current Clinical Practice?

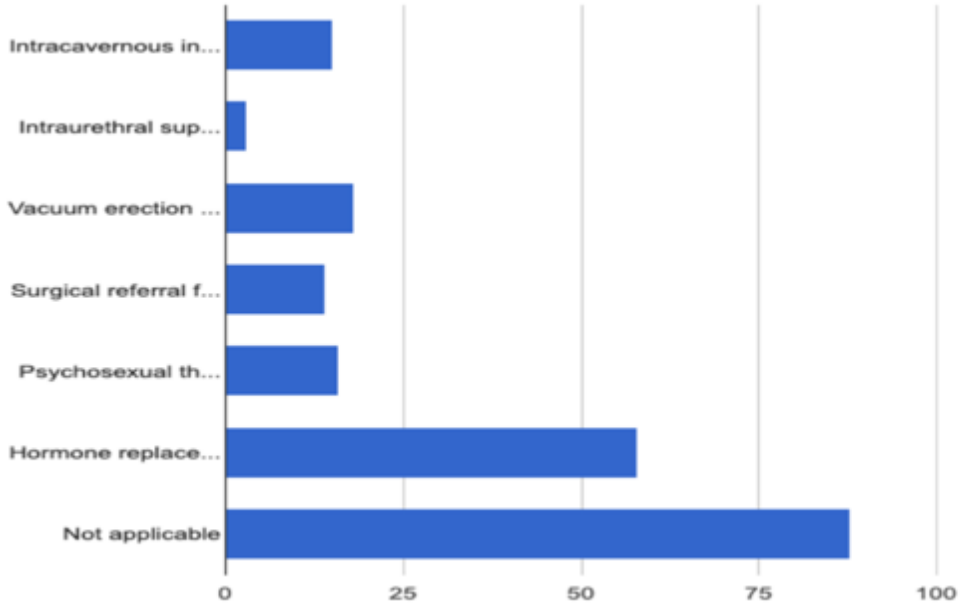
N=166

- Assessment skills (17.5%)
- **Disease management skills (60.2%)**
- Communication skills (13.3%)
- Not applicable (9.0%)



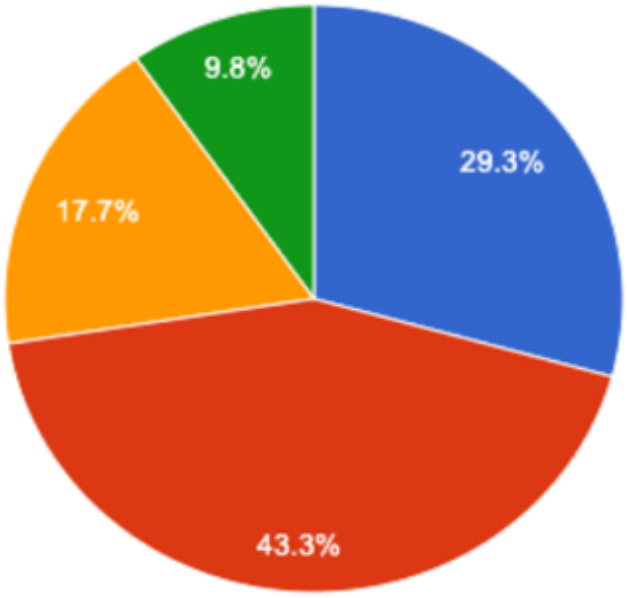
Appendix S
Other Medications/Treatments Prescribed

N=156
Intracavernous injections (9.6%)
Intraurethral suppositories (1.9%)
Vacuum erection device (11.5%)
Surgical referral for penile prosthesis (9.0%)
Psychosexual therapy (10.3%)
Hormone replacement therapy (37.2%)
PDE-5 inhibitors Only (No other TX offered) (56.4%)



Appendix T
ED Assessment in High Risk Patients

- Always (29.3%)
- Sometimes (43.3%)
- **Rarely (17.7%)**
- **Never (9.8%)**



Appendix U
Comfort Discussing Erectile Dysfunction with Patients: Comparison of Two Studies

Level of Comfort	2009 Study	2019 Current Study
Very Comfortable	45%	48.7% *(3.7% increase from 2009)*
Somewhat Comfortable	36%	42% *(6% increase from 2009)*
Somewhat Uncomfortable	15.6%	6.7% *(8.9% f**ewer** than 2009)*
Very Uncomfortable	3.4%	2.4% *(1% **fewer** than 2009)*

*The current study shows an increase in provider comfort discussing erectile dysfunction with patients and fewer providers feeling discomfort with patients when discussing erectile dysfunction.

July 17, 2019

DNP Project Proposal Approval
UMKC DNP Student

This letter serves to provide documentation regarding Jennifer Burbage's Doctor of Nursing Practice (DNP) project proposal. Ms. Burbage obtained approval for her proposal, *Improving Provider Comfort with the Assessment of Erectile Dysfunction in the Clinic Setting,* from the School of Nursing and Health Studies DNP faculty on July 17, 2019.

If we can provide further information, please feel free to contact us.

Sincerely,

Cheri Barber, DNP, RN, PPCNP-BC, FAANP
Clinical Assistant Professor
DNP Program Director
UMKC School of Nursing and Health Studies
barberch@umkc.edu

Lyla Lindholm, DNP, ACNS-BC
UMKC MSN-DNP Program Coordinator
Clinical Assistant Professor
DNP Faculty